BEFORE THE NATIONAL GREEN TRIBUNAL,
EASTERN ZONE BENCH,
AT KOLKATA

O.A. No. 148/2024/EZ

IN THE MATTER OF :

SHRI MANOJ YADAV ... APPELLANT(S)

VERSUS

BIHAR FOUNDRY AND CASTING LTD.& ORS. ...RESPONDENTS(S)

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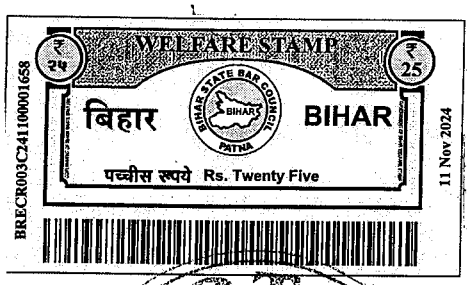
Through :

(Ashok Prasad)
Advocate,
Counsel for U.O.I.

Place : KOLKATA
Dated : 28/11/24

2

BEFORE THE NATIONAL GREEN TRIBUNAL,
EASTERN ZONE BENCH,
AT KOLKATA



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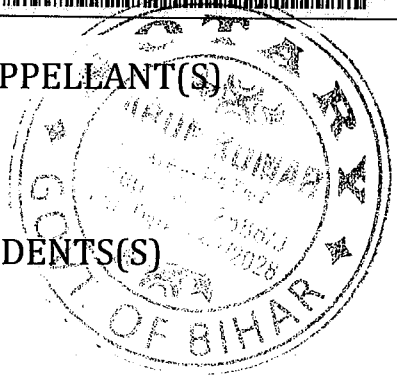


No. 569, dtd. 11.11.2024

COUNTER AFFIDAVIT / REPLY FOR AND ON BEHALF OF THE RESPONDENT NO. 7 & 8

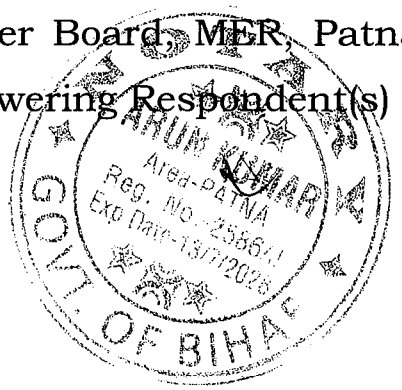
MOST RESPECTFULLY SHOWETH:

I, RAJEEV RANJAN SHUKLA Son of Late R. N. Shukla aged about 51 Years, employed / appointed as the Regional Director, in Central Ground Water Board, MER, Patna, functioning / officiating as Regional Director at Patna, do hereby solemnly affirm and declare as under:-

1. That I am well conversant with the facts and circumstances of the case, and as such, I am duly authorized and competent to swear this affidavit on behalf of Central Ground Water Authority, New Delhi (R-7) & Central Ground Water Board, MER, Patna (R-8), hereinafter referred to as Answering Respondent(s) in the above matter.

Deponent's Signature/L.T.I.
Identified by.....
Advocate, Solemnly affirmed and declared before me
11/11/2024

ARUN KUMAR
NOTARY PATNA



2. That I have read and understood the original application and have been advised to traverse by way of this Counter Affidavit as reply thereto.

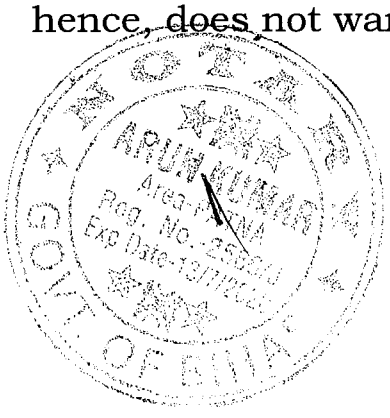
3. That have and except those which are matter of record and those which are specifically admitted hereto the contents of the OA that have not been specifically admitted hereunder or are a matter of record be deemed denied.

4. That the deponent craves liberty to raise additional submission or file supplementary affidavits in case need arises during the course of arguments.

PARA-WISE REPLY

1. That the averments made under Paras 1 to 8 are relating to matter of record and hence, do not warrant any reply from this answering respondent(s)in the present Original Application. Hence, need no comments from answering Respondent(s).

2. That with regards to the paras 9 to 48 of the original application, it does not pertain to answering respondent(s) hence, does not warrant any reply.



3. That the averments made under Para 49 and 50 of the Original Application it is denied as wrong, false and devoid of any merit save for what are matters of record. As per MoJS Guidelines dated 24.09.2020 published in the Gazette of India vide Notification number S.O. 3289 (E) there was provision of collecting Ground Water abstraction charges from the date of Gazette notification. **(Annexure R-1 (Colly)**. It is humbly submitted that M/S Bihar Foundry And Casting Limited had applied application for NOC to Abstract Ground Water through online in an appropriate manner vide Application No. 21-4/590/JH/IND/2019 dated 01.10.2019 with all required mandatory documents.

A copy of the Online Application bearing application no. 21-4/590/JH/IND/2019 with all requisite documents are annexed herewith and marked as Annexure R-2 (Colly).

4. That after scrutiny of the application with all annexure applied by Project Proponent and after satisfaction of the same by the competent authority a NOC for Ground Water abstraction issued on behalf of M/S Bihar Foundry And

NOTARY ARUN KUMAR Regd. No.-25986/J Date-13/7/2026 PATNA BIHAR

Casting Limited Vide NOC No. CGWA/NOC/IND/ORIG/2021/10628 dated 02.02.2021 for 35 m^3/day (12775.00 m^3/year) having validity from 02.01.2021 to 01/01/2024.

A copy of the No Objection Certificate (NOC) no.CGWA/NOC/IND/ORIG/2021/10628 dated 02/02/2021 is annexed herewith and marked as Annexure, R-3.

5. Subsequently the firm submitted the first Renewal Application vide Application No. 21-4/590/JH/IND/2023 dated 02.09.2023 with all required mandatory documents.

A copy of the renewal Online Application bearing application no.21-4/590/JH/IND/2023 **with all requisite documents are annexed herewith and marked as Annexure R-4 (Colly).**

NOTARY ARUN KUMAR Area-PATNA Reg. No.-2586/J Exp Date-13/7/2028 OF BIHAR

6. That after scrutiny of the renewal application with all annexures applied by Project proponent, by the competent authority and after satisfaction of the same a Renewal NOC

 11/11/24

for Ground Water Abstraction issued on behalf of M/S Bihar Foundry and Casting Limited Vide NOC. No. CGWA/NOC/IND/REN/1/2023/8413 dated 18.10.2023 for 35 m3/day (12775.00 m3/year) having validity from 02.01.2024 to 01/01/2027.

A copy of the No Objection Certificate (NOC) no.CGWA/NOC/IND/REN/1/2023/8413 dated 18/10/2023is annexed herewith and marked as Annexure, R-5.

7. That the averments made under Paras 51 to 67 of the original application, it does not pertain to answering respondent. Hence, need no comments from this answering Respondent(s).

PRAYER

In the light of aforesaid facts and circumstances, it is thus respectfully prayed that:

1. That the answering respondent No. 7 & 8 does not have much role in the present matter, and hence, name of answering respondent(s) may please be deleted from the array of respondents.
2. Pass such other order as may be deemed fit and proper in the interest of justice.

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VERIFICATION:

Verified at Patna, on this the 11th day of November, 2024 that the contents of the above Affidavit are true and correct to my knowledge. No part of it is false and nothing material has been concealed there from.

Rajeev Ranjan Shukla

DEPONENT

Identified by me

I identified the Signature/ LTI/RTI of Deponent, who has signed in my presence

Advocate

ADVOCATE

11/11/2024

NOTARY
ARUN KUMAR
Adv.-PATNA
REG. NO.-2586/J
EX. DATE-13/7/2028
GOVT. OF BIHAR

INDIA JUDICIAL

Government of Bihar

e-Court Fee

e-Court Fee Receipt No.	:	BRECR003C241100001580
Date & Time	:	11-Nov-2024 01:44 PM
Name of the ACC/ Registered User	:	Bihar State Co-operative Bank, SCB
Location	:	Civil Court Patna
Name of Applicant	:	CIVIL COURT PATNA
e-Court Fee Amount	:	100 (One Hundred Rupees Only)

NOTARY ARUN KUMAR Area-PATNA Reg. No. 2586 Exp. Date 18/7/2028 GOVT. OF BIHAR

IN 2402244335

Statutory Alert:

1. The authenticity of this Stamp certificate should be verified at https://enibandhan.bihar.gov.in or using enibandhan Mobile App. Any discrepancy in the details on this Certificate and as available on the website/Mobile App renders it invalid.
2. The onus of checking the legitimacy is on the users of the certificate.
3. In case of any discrepancy please inform the Competent Authority.

Annexure - R-1

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CONSOLIDATED MoJS GUIDELINES TO REGULATE AND CONTROL GROUND WATER EXTRACTION IN INDIA

[MoJS Notification dated 24.09.2020 with Amendment Notification dated 29.03.2023]

Central Ground Water Authority
18/11, Jamnagar House, New Delhi

Disclaimer: Consolidated Guidelines are compilation of MoJS Guidelines dated 24.09.2020 published in the Gazette of India vide Notification number S.O. 3289 (E) or its Amendment Notification dated 29.03.2023 published in the Gazette of India vide Notification number S.O. 1509 (E), and are for ready reference only. Guidelines dated 24.09.2020 are in **Black** colour font and amendments (insertions/substitutions) dated 29.03.2023 typed in **Blue** colour font. Discrepancy observed in this document if any, may be inadvertent and such case the provisions in original documents i.e. Notified Guidelines dated 24.09.2020 (including annexure therein) and Notified Amendment dated 29.03.2023 including (annexures therein) shall prevail.

Government of India

MINISTRY OF JAL SHAKTI

(Department Of Water Resources, River Development And Ganga Rejuvenation)

(CENTRAL GROUND WATER AUTHORITY)

NOTIFICATION

S.O. 3289(E).—WHEREAS, on the directions of Hon'ble Supreme Court vide its order dated the10th December, 1996 passed in Civil writ Petition No 4677 of 1985, MC Mehta Vs Union of India, the Central Government constituted the Central Ground Water Authority (hereafter referred to as the 'Authority') vide notification number S.O. 38 (E), dated the 14th January, 1997 to exercise powers under Section 5 of the Environment (Protection) act, 1986 (29 of 1986) for the purposes of regulation and control of Ground Water management and development and to exercise certain powers and perform certain functions relating thereto;

AND WHEREAS, the Authority has been regulating ground water development and management by way of issuing 'No Objection Certificates' for ground water extraction to industries or infrastructure projects or Mining Projects etc., and framed guidelines in this connection from time to time in twenty two States and two Union territories, where ground water development is not being regulated by the State Government Union Territory administration concerned;

AND WHEREAS, some of the State Governments or, Union territories enacted legislations and issued regulatory directions or orders for regulating ground water development and management;

AND WHEREAS, the Hon'ble National Green Tribunal, New Delhi vide order dated the 15th April 2015 in OA Nos. 204/205/206 of 2014 has issued directions to the Authority to ensure that any person operating tube-well, or any means to extract ground water shall obtain permission from the Authority and shall operate the same subject to the law in force, even if such unit is existing unit or the unit is yet to be established;

AND WHEREAS, the said Hon'ble Tribunal vide its order dated the 09th July, 2015 in OA Nos. 34 and 37 of 2014 directed all industrial units which are members of the Common Effluent Treatment Plants (CETPs) to approach the Authority through State Pollution Control Board for obtaining 'No Objection Certificate' in accordance with the law;

AND WHEREAS, the aforesaid Hon'ble Tribunal vide order dated the 13th July, 2017 in OA No 200- of 2014 directed that every industry should be directed to pay for extraction of such water, that too, subject to the conditions stated in the order permitting such extraction;

AND WHEREAS, the said Hon'ble Tribunal vide its order dated the 28th August, 2018 in O.A. Nos. 176 of 2015 and 59 of 2012 respectively directed the Ministry of Water Resources, River Development and Ganga Rejuvenation to forthwith review the existing mechanism so as to ensure effective steps for conserving the groundwater resources;

AND WHEREAS, in pursuance of the directions of the Hon'ble National Green Tribunal and powers conferred by sub-section (3) of section 3 and section 5 of the Environment (Protection) Act, 1986 the Authority, with a view to protect the ground water resources had circulated the draft guidelines for grant of 'No Objection Certificate' on the 11th October, 2017 inviting comments and suggestions from all the stakeholders;

AND WHEREAS, all objections and suggestions received in response to the said draft guideline have been duly considered by the Central Government, the Authority notified the guidelines to regulate groundwater over-exploitation and to conserve the groundwater resources in the country vide notification number S.O. 6140 (E), dated the 12th December, 2018;

AND WHEREAS, the aforesaid Hon'ble Tribunal vide order dated the 03rd January 2019 in the OA No. 176 of 2015 directed that the above mentioned notification dated the 12th December, 2018 may not be given effect to as it is unsustainable if tested on 'Precautionary Principle, Sustainable development as well as Inter-generational Equity Principles' and if implemented, will result in fast depletion of groundwater and damage to water bodies and will be destructive of the fundamental right to life under Article 21 of the Constitution of India;

AND WHEREAS, the said Hon'ble Tribunal vide order dated the 11th September, 2019 constituted a committee to deliberate on steps for preventing depletion of groundwater, robust monitoring mechanism

against unauthorized extractions and fulfillment of 'No Objection Certificate' conditions, environment compensation etc and to submit a report;

AND WHEREAS, the aforesaid committee submitted the report along-with draft guidelines to regulate groundwater extraction and groundwater conservation in Hon'ble Tribunal on the 16th March, 2020;

AND WHEREAS, the above said Hon'ble Tribunal vide order dated the 20th July, 2020 directed to comply with certain points for sustainable groundwater management while issuing 'No Objection Certificates' to commercial establishments by the Authority;

Now therefore, in pursuance of the directions of Hon'ble National Green Tribunal and the powers conferred by sub-section (3) of Section 3 read with Section 5 of the Environment (Protection) Act, 1986 (29 of 1986), the Department of Water Resources, River Development & Ganga Rejuvenation, hereby notifies the guidelines to regulate and control groundwater extraction in the country in supersession to this Ministry notification vide S.O. 6140 (E), dated the 12th December, 2018 as per the Schedule below:

SCHEDULE

Guidelines to regulate and control ground water extraction in India

(with immediate effect)

INDEX

ANNEXURES

Guidelines to regulate and control groundwater extraction in India

Preamble and Background:

On the directions of Hon'ble Supreme Court vide its order dated 10th December, 1996 passed in Civil writ Petition No 4677 of 1985, MC Mehta Vs Union of India, the Central Government had constituted the Central Ground Water Board as Authority vide notification number S.O. 38 (E), dated the 14th January, 1997 to exercise powers under sub section (3) of section 3 of the Environment (Protection) act, 1986 (29 of 1986) for the purposes of regulation and control of Ground Water Management and Development and to exercise certain powers and perform certain functions as per the said Act.

The Authority has been regulating ground water development and management by way of issuing 'No Objection Certificates' for ground water extraction to industries or infrastructure projects or Mining Projects etc., and framed guidelines in this connection from time to time applicable in twenty two States and two Union territories, where ground water development is not being regulated by the State Government and Union territory administration concerned.

To have sustainable management of water resources in the country groundwater abstraction guidelines have been prepared to regulate groundwater extraction and conserve the scarce groundwater resources in the country.

These guidelines will come into force with immediate effect from the date of Gazette Notification and will supersede all earlier guidelines issued by the Central Ground Water Authority (CGWA).

These guidelines will have pan India applicability. Ground water abstraction in States/ Uts (which are not regulating ground water abstraction) shall continue to be regulated by Central Ground Water Authority.

Further, wherever States/ Uts have come out with their own groundwater abstraction guidelines, which are inconsistent with the CGWA guidelines, the provisions of CGWA guidelines will prevail. However, in case the guidelines followed by such States/ Uts contain some more stringent provisions than CGWA guidelines, such provisions may also be given effect to by the States/ Uts Authorities in addition to those contained in the CGWA guidelines. States may be at liberty to suggest additional conditions/ criteria based on the local hydro-geological situations which shall be reviewed by CGWA/Ministry of Jal Shakti, Government of India before acceptance.

All new/existing industries, industries seeking expansion, infrastructure projects and mining projects abstracting ground water, unless specifically exempted under Para 1.0 below, will be required to seek No Objection Certificate from Central Ground Water Authority or, the concerned State/ UT Ground Water

Authority as the case may be. The entire process of grant of No Objection Certificate shall be online through a web based application system.

Water management plans shall be prepared by all the State Ground Water Authorities/ Organizations for all Over-exploited, Critical and Semi-critical assessment units starting with Over-exploited units. Water management plans shall be reviewed and updated periodically. Water management plans, data on water availability and scarcity and policy framed in this regard shall be placed on the websites of Central Ground Water Authority/ State Ground Water Authority.

Exemptions from seeking No Objection Certificate:

Following categories of consumers shall be exempted from seeking No Objection Certificate for ground water extraction:

(i) Individual domestic consumers in both rural and urban areas for drinking water and domestic uses.

(ii) Rural drinking water supply schemes.

(iii) Armed Forces Establishments and Central Armed Police Forces establishments in both ruraland urban areas.

(iv) Agricultural activities.

(v) Micro and small Enterprises drawing ground water less than 10 cum/day.

(vi) All industries/ mining projects/ infrastructure projects drawing ground water only for drinking/ domestic purposes up to 5 Cum /day in all assessment units.

(vii) Residential Apartments and Group Housing Societies:

(a) For drinking water and domestic uses, drawing ground water upto 20 m^3/day subject to the conditions mentioned in Para 2.0 of the guidelines.

(b) Dwelling units for Economically Weaker Sections (EWS) under Government schemes.

1.1 Registration of Drilling Rigs

State / UT Governments shall be responsible for registering drilling rigs operating within their jurisdiction and for maintaining the database of wells drilled by them. Appropriate link shall be provided in CGWA portal for making the data available to CGWA.

2.0 Drinking & Domestic use for Residential apartments/ Group Housing Societies/ Government water supply agencies in urban areas

For grant of No Objection Certificate for ground water extraction, the project proponent has to furnish the details as per the guidelines issued by the CGWA in proper format as available in CGWA website. No Objection Certificate for new /existing wells shall be granted only in such cases where the local Government water supply agency is unable to supply requisite amount of water in the area.

Installation of digital water flow meter (conforming to BIS/ IS standards) in all abstraction structure(s) shall be mandatory for all Residential Apartments and Group Housing Societies. All Residential Apartments and Group Housing Societies having swimming pools drawing ground water shall be mandatorily required to seek No Objection Certificate.

No Objection Certificate shall be granted subject to the following specific conditions:

i) Installation of Sewage Treatment Plants shall be mandatory for all residential apartments/ Group Housing Societies where ground water requirement is more than 20 m^3/day. The water from Sewage Treatment Plants shall be utilized for toilet flushing, car washing, gardening etc.

ii) The No Objection Certificate shall be valid for a period of five years from the date of issue or till such time local Government water supply is provided to the project area, whichever is earlier. In case the project proponent receives water supply from the concerned local Government Water Supply Agency during the validity of the No Objection Certificate, intimation regarding availability of public water supply shall be sent by the project proponent to CGWA and No Objection Certificate will be cancelled by the Authority. In other cases, the project proponent will apply for renewal of No Objection Certificate, ninety days before the expiry of No Objection Certificate.

iii) Proponents shall be liable to pay ground water abstraction charges for the quantum of ground water proposed to be extracted, as per rates mentioned in Table 5.1.

Documents to be submitted with the application

a) Details of water requirement computed as per National Building Code, 2016 **(Annexure I)**, taking

into account recycling/ reuse of treated water for flushing etc.

b) Affidavit on non-judicial stamp paper of Rs. 10/- by the applicant, confirming non/ inadequate availability of public water supply in case of users requiring ground water up to 10 m^3/ day for drinking/ domestic use.

c) Certificate of non-availability of water from local government water supply agency in cases requiring ground water in excess of 10 m^3/ day for drinking/ domestic use. Government water supply agencies applying for No Objection Certificate shall submit copy of government approval of the scheme/ project proposed to be implemented.

d) In case of saline ground water extraction, ground water quality data of existing bore well/ tube well/ dug well from any National Accreditation Board for Testing and Calibration Laboratories (NABL) accredited laboratory or Govt. approved laboratory.

Note: In case of new projects, water quality data/report of nearby existing wells from above-mentioned laboratories may be submitted for saline ground water extraction.

e) Copy of Rain Water Harvesting Plan submitted to Government agency by the applicant or a proposal for rain water harvesting/ recharge in the project premises as per the prevailing Model Building Bye Laws issued by Ministry of Housing & Urban Affairs, Government of India.

f) For all New projects, a self declaration/ affidavit (duly notarized) indicating date of completion of project shall be required.

3.0 Agriculture Sector

Agriculture sector is the backbone of the Indian economy. As per Minor Irrigation Census 2013-14, 87.86% of wells are owned by marginal, small and semi-medium farmers having land holding up to 4 hectares (ha). Around 9.18 % of wells are owned by medium farmers having land holding 4 – 10 ha and 2.96% of the wells are owned by big farmers having land holding more than 10 ha.

Considering the number of ground water abstraction structures, regulation of ground water in agriculture sector through a 'command and control' strategy will prove to be an arduous task. Therefore, a participatory approach for sustainable ground water management would be more productive.

States/Uts are advised to review their free/subsidized electricity policy to farmers, bring suitable water pricing policy and may work further towards crop rotation/diversification/other initiatives to reduce over-dependence on groundwater.

Agriculture sector shall be exempted from obtaining No Objection Certificate for ground water extraction.

4.0 Commercial Use

No new major industries shall be granted No Objection Certificate in over-exploited assessment areas except as per the policy guidelines.

Availability of ground water resources shall be given due regard while considering applications for grant of No Objection Certificate for commercial use.

Commercial entities extracting ground water shall be required to submit online water audit report including an audit of water use as mentioned in the relevant sections. CGWA/ State Ground Water Authority (SGWA) shall publish all such audit reports online.

CGWA/ SGWAs shall engage independent agencies to verify the compliance of No Objection Certificate conditions periodically.

4.1 Industrial Use

In Over-exploited assessment units, No Objection Certificate shall not be granted for ground water abstraction to any new industry except those falling in the category of Micro, Small and Medium Enterprises (MSME). However, No Objection Certificate for drinking/ domestic use for work force, green belt use by these new industries shall be permitted. Expansion of existing industries involving increase in quantum of ground water abstraction in over-exploited assessment units shall not be permitted. No Objection Certificate shall not be granted to new packaged water industries in Overexploited areas, even if they belong to MSME category.

No Objection Certificate for ground water extraction by industries shall be granted subject to the following specific conditions:

i) No Objection Certificate shall be granted only in such cases where local government water supply

agencies are not able to supply the desired quantity of water.

ii) All industries shall be required to adopt latest water efficient technologies so as to reduce dependence on ground water resources.

iii) All industries abstracting ground water in excess of 100 m^3/day shall be required to undertake biennial (once in two years) water audit through certified auditors of agencies as approved by CGWA and submit audit reports within three months of completion of the same to CGWA. Compliance of the earlier given reports may be checked by certified water auditors after one year and the report in this regard may be shared with CGWA.

All such industries shall be required to reduce their ground water use by at least 20% over the next three years through appropriate means.

iv) In industrial areas (as designated or, notified by Central/State Government), Central Ground Water Board (CGWB) shall construct need-based piezometers as per local hydro-geological conditions and further monitor water levels.

In other than industrial areas as mentioned above, construction of observation well(s)/(piezometer)(s) within the premises and installation of appropriate water level monitoring mechanism as mentioned in Section 14 shall be mandatory for industries/Infrastructure drawing/ proposing to draw more than 100 m^3 /day of ground water for Hard rock aquifer type and more than 500 m^3 /day of ground water for Alluvium aquifer type. Monitoring of water levels in these areas shall be done by the project proponents. Minimum distance between the abstraction structure and piezometer will be 15 m if the aquifer tapped is hard rock and 50 m if the aquifer is alluvium. Depth and aquifer zone tapped in the piezometer shall be the same as that of the pumping well/wells. Detailed guidelines for design and construction of piezometers are given in **Annexure II**. Monthly water level data shall be submitted to the CGWA through the web portal.

v) The proponent shall be required to adopt roof top rain water harvesting/ recharge in the project premises. Industries which are likely to pollute ground water (chemical, pharmaceutical, dyes, pigments, paints, textiles, tannery, pesticides/ insecticides, fertilizers, slaughter house, explosives etc.) shall store the harvested rain water in surface storage tanks for use in the industry.

vi) Injection of treated/ untreated waste water into aquifer system is strictly prohibited.

vii) Industries which are likely to cause ground water pollution e.g. Tanning, Slaughter Houses, Dye, Chemical/ Petrochemical, Coal washeries, other hazardous units etc. (as per CPCB list) need to undertake necessary well head protection measures to ensure prevention of ground water pollution **(Annexure III).**

viii) All industries drawing ground water in safe, semi-critical and critical assessment units shall be required to pay ground water abstraction charges as applicable as per Tables 5.2 A and 5.3 A.

ix) All existing industries drawing ground water in over-exploited assessment units shall be liable to pay ground water restoration charges as applicable as per Tables 5.2 B and 5.3 B.

Documents to be submitted with the application

(a) An affidavit on non judicial stamp paper of Rs. 10/- regarding non availability of water supply from local government agencies in cases where ground water requirement is up to 10 m^3/day.

(b) Certificate regarding non/ partial availability of fresh water/ treated waste water supply from the local government water supply agency in cases where requirement of ground water is more than 10 m^3/day.

(c) In case of saline ground water extraction, ground water quality data of existing bore well/ tube well/ dug well from any NABL accredited laboratory or Government approved laboratory.

Note: In case of new projects, water quality data / report of nearby existing wells from above-mentioned laboratories may be submitted for saline ground water extraction.

(d) For all new projects, document as proof of new establishment / commencement of operation i.e. Consent to Establish/ Environmental Clearance/ any other document from a statutory agency.

(e) Copy of Rain Water Harvesting Plan submitted to Government agency by the applicant or a proposal for rain water harvesting/ recharge in the project premises as per the prevailing Model Building Bye Laws issued by Ministry of Housing & Urban Affairs, Government of India.

(f) **Impact Assessment report:** All projects extracting/proposing to extract ground water in excess of

100 m^3 /day in Over-exploited, Critical and Semi-critical areas and in excess of 500 m^3/day in areas underlain by non-alluvium and 2000 m^3/day in areas underlain by alluvium in Safe assessment units shall have to mandatorily submit impact assessment report and ground water modeling study of existing/ proposed ground water withdrawal on the ground water regime covering 5 KM radius area around the project site prepared by accredited consultants. Pro-forma for the report is given in **Annexure IV**.

4.2 Mining Projects

All existing as well as new mining projects will be required to obtain No Objection Certificate for ground water abstraction. Since mining projects are location specific, there will be no ban on grant of No Objection Certificate for abstraction of ground water for such projects in over-exploited assessment units.

No Objection Certificate for mining projects shall be granted subject to the following specific conditions:

i) It shall be mandatory for all the mining industries to ensure that water available from de-watering operations is properly treated and should be gainfully utilized for supply for irrigation, dust suppression, mining process, recharge in downstream and for maintaining e-flows in the river system.

ii) Construction of observation well(s) (piezometers) along the periphery in the premises, for monthly ground water level monitoring, shall be mandatory for mines drawing/ proposing to draw more than 100 m^3 /day of ground water. Depth and aquifer zone tapped in the piezometer shall be commensurate with aquifer used for irrigation/drinking water in the buffer area. Detailed guidelines for design and construction of piezometers are given in **Annexure II.**

iii) In addition, the proponent shall monitor ground water levels by establishing observation wells (piezometers) in the core and buffer zones as specified in the No Objection Certificate.

iv) In case of coal and other base metal mining the project proponent shall use the advance dewatering technology (by construction of series of dewatering abstraction structures) to avoid contamination of surface water.

v) In addition to this, all mining units shall also monitor the water quality of mine seepage and mine discharge through NABL accredited/ Govt. approved laboratories and the same shall be submitted at the time of self compliance.

vi) All mining projects drawing ground water in safe, semi-critical and critical assessment units shall be required to pay ground water abstraction charges as applicable as per Tables 5.4 A.

vii) All mining projects drawing ground water in over-exploited assessment units shall be liable to pay ground water restoration charges as per Table 5.4 B.

Documents to be submitted with the application

(a) Mining plan approved by the concerned Govt. agency/ department.

(b) Copy of Rain Water Harvesting Plan submitted to Government agency by the applicant or a proposal for rain water harvesting/ recharge in the project premises as per the prevailing Model Building Bye Laws issued by Ministry of Housing & Urban Affairs, Government of India or as feasible in the mine premises and as approved by CGWA/State agencies.

(c) Comprehensive report prepared by accredited consultant on ground water conditions in both core and buffer zones of the mine, depth wise and year wise mine seepage calculations, impact assessment of mining and dewatering on ground water regime and its socio-economic impact, details of recycling, reuse and recharge, reduction of pumping with use of technology for mining and water management to minimize and mitigate the adverse impact on ground water, based on local conditions. Format for report is given in **Annexure V.**

(d) For all New projects, document as proof of new project / commencement of operation i.e. Consent to Establish/ Environmental Clearance / any other document from a statutory agency.

4.3 Infrastructure projects:

Since infrastructure projects are location specific, grant of No Objection Certificate to such projects located in over-exploited assessment units shall not be banned. New infrastructure projects/ residential buildings may require dewatering during construction activity and/ or use ground water for construction. In both cases, applicants shall seek No Objection Certificate from CGWA before commencement of work. However, in over-exploited assessment units, use of ground water for construction activity shall be

permitted only if no treated sewage water is available within 10 km radius of the site. New as well as existing Infrastructure projects shall also be required to seek No Objection Certificate for abstraction of ground water.

No 'No Objection Certificate' shall be granted for extraction of groundwater for Water Parks, Theme Parks and Amusement Parks in over-exploited assessment units.

Commercial infrastructure projects requiring ground water for drinking /domestic use shall also be covered under this category. Further, the Indicative list of location specific Infrastructure projects is given in **Annexure VI.**

The No Objection Certificate for ground water abstraction will be granted subject to the following specific conditions:

i) In case of infrastructure projects that require dewatering, proponent shall be required to carry out regular monitoring of dewatering discharge rate (using a digital water flow meter) and submit the data through the web portal to CGWA/SGWA as applicable. Monitoring records and results should be retained by the proponent for two years, for inspection or reporting as required by CGWA/ SGWA.

ii) Installation of Sewage Treatment Plants (STP) shall be mandatory for new projects, where ground water requirement is more than 20 m^3/day. The water from STP shall be utilized for toilet flushing, car washing, gardening etc.

iii) For infrastructure dewatering/ construction activity, No Objection Certificate shall be valid for specific period as per the detailed proposal submitted by the project proponent.

iv) All infrastructure projects drawing ground water in safe, semi-critical and critical assessment units shall be required to pay ground water abstraction charges as applicable as per Table 5.3 A.

v) All infrastructure projects (new/ existing) drawing ground water in over-exploited assessment units shall be liable to pay ground water restoration charges as per Table 5.3 B.

vi) All stadiums, cricket grounds, and other sports grounds/courts, golf courses etc shall construct/install appropriate mechanism for artificial recharge of ground water / rain water harvesting.

Documents to be submitted with the application

(a) In cases where dewatering is involved, submission of impact assessment report along with groundwater modelling in 5 km radius prepared by an accredited consultant on the ground water situation in the area giving detailed plan of pumping, proposed usage of pumped water and comprehensive impact assessment of the same on the ground water regime shall be mandatory. The report should highlight environmental risks and proposed management strategies to overcome any significant environmental issues such as ground water level decline, land subsidence etc.

(b) An affidavit on non judicial stamp paper of Rs. 10/- regarding non availability of water from any other source in case water is required for construction in safe and semi critical areas.

(c) Certificate from a government agency regarding non availability of treated sewage water for construction within 10 km radius of the site in critical and over-exploited areas.

(d) Certificate of non-availability of water from local government water supply agency in respect of all categories of assessments units for commercial use.

(e) Copy of Rain Water Harvesting Plan submitted to Government agency by the applicant or a proposal for rain water harvesting/ recharge in the project premises as per the prevailing Model Building Bye Laws issued by Ministry of Housing & Urban Affairs, Government of India.

(f) Details of water requirement computed as per National Building Code, 2016 **(Annexure I)**, taking into account recycling/ reuse of treated water for flushing etc. (in case of completed infrastructure projects for commercial use).

(g) Completion certificate from the concerned agency for infrastructure projects requiring water for commercial use.

(h) For all New projects, building plan approval or any other relevant document as proof of new project from a statutory agency.

5.0 Ground water abstraction/ restoration charges

All residential apartments/ group housing societies/ Government water supply agencies in urban areas shall

be required to pay ground water abstraction charges.

All industries/mining/ infrastructure projects drawing ground water in safe, semi-critical and critical assessment units will have to pay ground water abstraction charges based on quantum of ground water extraction and category of assessment unit as per details given in this guideline.

All existing mining/ infrastructure projects and existing industries including MSME drawing ground water in over-exploited assessment units will have to pay ground water restoration charges based on quantum of ground water extraction. Further, new MSME, new infrastructure and new Mining projects in over exploited areas shall also be required to pay ground water restoration charges.

Existing industries, infrastructure units and mining projects which have installed/constructed artificial recharge structures in compliance of the conditions prescribed in the groundwater guidelines prevailing at the time of grant of No Objection Certificate or its renewal shall be eligible for a rebate of 50% (fifty percent) in the ground water abstraction charges/ground water restoration charges, subject to their satisfactory performance and verification.

The revenue generated from the proposed water abstraction/ restoration charges shall be kept in a separate fund for implementation of site specific suitable demand/ supply side interventions.

5.1 Rates of Ground water abstraction /restoration charges

I. Drinking and domestic use for residential apartments/ group housing societies/ Government water supply agencies in Urban areas

All residential apartments/ Group Housing Societies requiring water only for drinking/domestic use requiring No Objection Certificate would pay ground water abstraction charges as per rates given below in **Table 5.1.**

Table 5.1 Ground Water Abstraction charges for Drinking & Domestic use.

Quantum of Groundwater withdrawal (m^3/day)	Rate of ground water abstraction charges (Rs. per m^3)
0-25	No charge
> 25- < 200	1.00
200 and above	2.00

Government water supply agencies and Government infrastructure projects shall pay Ground water abstraction Charges @ Rs. 0.50 per m^3.

II. Packaged Drinking Water units

Rates of ground water abstraction charges for packaged drinking water units in safe, semi-critical and critical assessment units are given in Table 5.2 A and those for ground water restoration charges in over-exploited assessment units are given in Table 5.2 B.

Table 5.2 A: Rates of ground water abstraction charges for packaged drinking water units (Rs per m^3)

S.No.	Category of area ↓ / Ground water use →	Quantum of ground water withdrawal				
		Up to 50m^3/day	51 to <200 m^3/day	200 to <1000 m^3/day	1000 to <5000 m^3/day	5000 m^3/day and above
1.	Safe	1.00	3.00	5.00	8.00	10.00
2.	Semi-critical	2.00	5.00	10.00	15.00	20.00
3.	Critical	4.00	10.00	20.00	40.00	60.00

Table 5.2 B: Rates of ground water restoration charges for packaged drinking water units (Rs per m^3)

S.No.	Category of area ↓ / Ground water use →	Quantum of ground water withdrawal				
		Up to 50 m^3/day	51 to <200 m^3/day	200 to <1000 m^3/day	1000 to <5000 m^3/day	5000 m^3/day and above
1.	Over-exploited (existing industries only)	8.00	20.00	40.00	80.00	120.00

III. Other Industries & infrastructure projects

Rates of ground water abstraction charges for other industries and infrastructure projects in safe, semi-critical and critical assessment units are given in Table 5.3 A and those for ground water restoration charges in over-exploited assessment units are given in Table 5.3 B.

Table 5.3 A: Rates of Ground Water abstraction charges for other industries & infrastructure projects (Rs per m^3)

S.No.	Category of area ↓ / Ground water use →	Quantum of ground water withdrawal			
		< 200 m^3/day	200 to <1000 m^3/day	1000 to <5000 m^3/day	5000 m^3/day and above
1.	Safe	1.00	2.00	3.00	5.00
2.	Semi-critical	2.00	3.00	5.00	8.00
3.	Critical	4.00	6.00	8.00	10.00

Table 5.3 B: Rates of ground water restoration charges for other industries & infrastructure projects (Rs per m^3)

S.No.	Category of area ↓ / Ground water use →	Quantum of ground water withdrawal			
		< 200 m^3/day	200 to <1000 m^3/day	1000 to <5000 m^3/day	5000 m^3/day and above
1.	Over-exploited (existing industries / new Industries as per the present Guidelines)	6.00	10.00	16.00	20.00

IV. Mining projects

Rates of ground water abstraction charges for mining, which are drawing ground water in safe, semi-critical and critical assessment units are given in Table 5.4 A and those for ground water restoration charges in case of projects drawing ground water in over-exploited assessment units are given in Table 5.4 B.

Table 5.4 A: Rates of ground water abstraction charges for mining (Rs. per m^3)

S.No.	Category ↓	Quantum of ground water withdrawal

	Category of area ↓ / Ground water use →	< 200 m^3/day	200 to <1000 m^3/day	1000 to <5000 m^3/day	5000 m^3/day and above
1.	Safe	1.00	2.00	2.50	3.00
2.	Semi-critical	2.00	2.50	3.00	4.00
3.	Critical	3.00	4.00	5.00	6.00

Table 5.4 B: Rates of ground water restoration charges for mining (Rs. per m^3)

S.No.	Category of area ↓ / Ground water use →	Quantum of ground water withdrawal			
		< 200 m^3/day	200 to <1000 m^3/day	1000 to <5000 m^3/day	5000 m^3/day and above
1.	Over-exploited	4.00	5.00	6.00	7.00

6.0 Bulk Water Supply

All private tankers abstracting ground water and use it for supply as bulk water suppliers will now mandatorily seek No Objection Certificate for ground water abstraction. The bulk water suppliers through tankers drawing ground water in safe, semi-critical and critical assessment units shall pay groundwater abstraction charges as per the **Table-6.1 A.** The bulk water suppliers drawing ground water in over-exploited assessment units shall pay the groundwater restoration charges as per the **Table-6.1 B.** All tankers will have to install GPS based system for their monitoring of movement/area of operation.

All those users abstracting ground water and using it for supply as bulk water supplies through private tankers shall mandatorily seek No Objection Certificate for ground water abstraction as per Guidelines for Bulk water suppliers as issued and updated by CGWA from time to time.

Table-6.1A: Groundwater abstraction charges for Bulk/Tanker water supplies	
Category	Rate per m3 (in Rs.)
Safe	**10**
Semi Critical	**20**
Critical	**25**

Table-6.1B: Groundwater abstraction charges for Bulk/Tanker water supplies	
Category	Rate per m3 (in Rs.)
Over Exploited	**35**

7.0 Abstraction of Saline ground water

Abstraction of saline ground water in areas having either saline ground water at all depths or pockets of saline ground water in an otherwise fresh water area for use by industries/ dewatering by infrastructure/ mining projects including those located in over-exploited areas would be encouraged. Such industries shall be exempted from paying ground water abstraction charges.

The list of such assessment units having saline ground water at all depths as per the latest assessment of dynamic ground water resources will be made available by the CGWA in their website. However, due care shall be taken in respect of disposal of effluents by the units so as to protect the water bodies and the aquifers from pollution.

Abstraction of saline ground water shall be according to the Guidelines for Saline Ground Water Abstraction as issued and updated by CGWA from time to time.

8.0 Protection of Wetland Areas

The wet land areas in the country are very crucial as they are direct reflection of the presence of ground water in such areas. The protection of the wetland areas is being separately handled by the Wetland Authorities. Since ground water is very crucial for the survival of the wetland area, any excessive ground water development within the zone of wetland area would affect the volume of water in that wetland.

Projects falling within 500 m from the periphery of demarcated wetland areas shall mandatorily submit a detailed proposal indicating that any ground water abstraction by the project proponent does not affect the protected wetland areas. Furthermore, before seeking permission from CGWA, the projects shall take consent/approval from the appropriate Wetland Authority/ State Authority or any other appropriate local government authority to establish their projects in the area.

9.0 General compliance conditions in No Objection Certificate

i. Installation of tamper proof digital water flow meter/ Pre Paid Meter (s) (conforming to BIS/ IS standards) having telemetry system in the abstraction structure(s) shall be mandatory for all users seeking No Objection Certificate and intimation regarding their installation shall be communicated to the CGWA within 30 days of grant of No Objection Certificate through the web-portal.

In case the ground water extraction is from multiple bore/tube wells within the same premises, tamper-proof digital water flow meter(s)/Pre Paid Meter (s) with telemetry can be installed at common outlet point(s).

ii. Proponents shall mandatorily get water flow meter calibrated on from an authorized agency once in a year.

iii. Proponents shall install roof top rain water harvesting & recharge systems in the project area.

iv. Proponents shall pay Ground Water Abstraction/ Restoration Charges based on quantum of ground water extraction as applicable as per the rates given in Section 5.

v. Purpose-built observation wells (piezometers) for ground water level monitoring shall be installed as per Section 14. Water level data shall be made available to CGWA through web portal. Detailed guidelines for construction of piezometers are given in **Annexure-II.**

vi. Proponents shall monitor quality of ground water from the abstraction structure(s) once in a year. Water samples from bore wells/ tube wells / dug wells shall be collected during April/May every year and analysed in NABL accredited laboratories for basic parameters (cations and anions), heavy metals, pesticides/ organic compounds etc. Water quality data shall be made available to CGWA through the web portal.

vii. If the existing well becomes defunct due to mechanical failure within the validity period of No Objection Certificate, the user can construct a replacement well under intimation to CGWA on web portal. The defunct well shall be properly sealed **(Refer Annexure VII).** The user will be required to submit documentary proof in this regard. However, if the existing abstraction structures fails to yield water and he proponent desires to drill another tubewell in the same premises, prior permission of the Authority shall be required. If the replacement well is to be drilled in some different place, the proponent shall obtain fresh No Objection Certificate.

viii. Wherever feasible, requirement of water for greenbelt (horticulture) shall be met from recycled / treated waste water.

ix. In case of change of ownership, new owner of the premises will have to apply for incorporation of necessary changes in the No Objection Certificate with documentary proof within 60 days of taking over possession of the premises.

10.0 Monitoring of compliance of No Objection Certificate Conditions

To monitor the compliance of No Objection Certificate conditions, Central Ground Water Authority and State/ UT Ground Water Authorities shall take the following steps:

a. Suitable MIS will be developed for compliance monitoring.

b. District Collectors/Deputy Commissioners (DCs) /District Magistrates (DMs) are authorized to take enforcement measures like sealing of unauthorized ground water abstraction structures, disconnection of electricity, launching of prosecution against those violating the No Objection Certificate conditions and taking action for imposition of Environmental Compensation.

c. Technical officers of CGWB/ CGWA and State groundwater organizations are authorized to take actions with respect to monitoring and periodic inspections with the approval of competent authority.

d. In case of violation of any of the No Objection Certificate conditions, the proponents shall be liable to pay the penalties as per **Section 16.**

11.0 Renewal of No Objection Certificate

No objection certificate shall be renewed periodically, subject to the compliance of the conditions mentioned therein:

i. The applicant shall apply for renewal of No Objection Certificate at least ninety days prior to expiry of its validity.

ii. Application for renewal of No Objection Certificate shall be accompanied by the Compliance Report.

iii. Before granting renewal, Central Ground Water Authority or State/ Ut Authority shall satisfy itself that the conditions of No Objection Certificate have been complied with.

iv. In case of change in category of the assessment unit, renewals would be granted with conditions as laid down for new category.

v. No Objection Certificate will be renewed for the terms specified for various uses as follows:

Category	Use	Term of renewal
Critical, Semi-critical And Safe	Infrastructure projects for drinking & domestic use and urban Water Supply Agencies	5 years
	Industries	3 years
	Mines	2 years
Over exploited	All users in 'Over-exploited areas'	2 years

vi. If the application for renewal is submitted in time and the CGWA/ the respective State/ Ut Authority is unable to process the application in time, No Objection Certificate shall be deemed to be extended till the date of renewal of No Objection Certificate.

vii. If the proponent fails to apply for renewal within 3 months from the date of expiry of No Objection Certificate, the proponent shall be liable to pay Environmental Compensation for the period starting from the date of expiry of No Objection Certificate till No Objection Certificate is renewed by the competent authority.

12.0 Extension of No Objection Certificate

If the proponent is unable to construct the well(s) during the validity period of No Objection Certificate for genuine reasons, the proponent will have to apply for extension of No Objection Certificate. Application for extension should be supported by documents justifying the reasons for delay. Other conditions for grant of extension of No Objection Certificate will be the same as that for fresh No Objection Certificate.

Extension of No Objection Certificate will be granted for a maximum period of two years. No further extension will be granted after the expiry of the extended period. In that case, the applicant will have to apply afresh for grant of No Objection Certificate.

13.0 Delegation of powers against illegal groundwater withdrawal

Central Ground Water Authority has appointed the District Magistrate/ District Collector/ Sub Divisional Magistrates of each Revenue District/Sub division as Authorized Officers, who have been delegated the power to seal illegal wells, disconnect electricity supply to the energised well, launch prosecution against offenders etc. including grievance redressal related to ground water in their respective jurisdictions.

In order to further decentralise and strengthen the monitoring and compliance mechanism as per the guidelines, officials of concerned Departments of Revenue and Industries of the States/Uts shall be appointed as Authorised Officers in consultation with the State/Ut Governments.

A copy of the No Objection Certificate issued by the CGWA in the No Objection Certificate Application

Portal (NOCAP) will be forwarded to the respective District Magistrate/ District Collector. In case of any violation of the directions of Central Ground Water Authority and non-fulfilment of the conditions laid down in the No Objection Certificate, the Authorised Officers will file appropriate Petition/Original Application etc under sections 15 to 21 of the Environment (Protection) Act, 1986 in appropriate Courts.

14.0 Ground Water Level Monitoring

In other than industrial areas as mentioned hereafter, all the project proponents (drawing ground water more than 100 m^3 /day of ground water for Hard rock aquifer type and more than 500 m^3 /day of ground water for Alluvium aquifer type have to mandatorily construct Piezometers (observation wells) within their premises for monitoring of the ground water levels. Further, in industrial areas (as designated or notified by Central/State Government), Central Ground Water Board (CGWB) shall construct need-based piezometers as per local hydro-geological conditions and further monitor water levels. Such a mechanism of compliance conditions has been made to ensure regular monitoring of ground water level in the project area. In this regard the necessary criteria for monitoring of water levels through piezometers by the project proponents is given in Table 14.1.

Table 14.1 No. of Piezometers with Digital Water Level Recorder (DWLR) and telemetry to be constructed & Type of Water Level Monitoring Mechanism

S. No.	Quantum of Ground water withdrawal (cum/day)	No. of piezometer(s) (with DWLR and telemetry required)
1.	0-100	0
2.	>100 (Hard rock aquifer type in other than industrial areas)	1
3.	>500 (Alluvium aquifer type in other than industrial areas)	1

The piezometer shall be suitably located to ensure that zone of aquifer tapped in the piezometer is the same as that of the pumping well.

15.0 Environmental Compensation

Extraction of ground water for commercial use by industries, infrastructure units and mining projects without a valid No Objection Certificate from appropriate authority shall be considered illegal and such entities shall be liable to pay Environmental Compensation for the quantum of ground water so extracted. The norms prescribed by Central Pollution Control Board (CPCB) shall be utilized for calculating the Environmental compensation as mentioned below:

EC_{GW} = Ground water consumption per day x Environmental Compensation rate (ECR_{GW}) x No. of days x Deterrence factor

where ground water consumption is in m3/day and ECR_{GW} in Rs./ cum

Rates of Environmental Compensation:

Rates of Environmental Compensation (ECR_{GW}) for various types of users in different categories of assessment units are given in Table 15.1 to 15.3.

Table 15.1 : ECR_{GW} for Packaged Drinking Water units

S.No.	Area Category	Water Consumption (cum/day)			
		<200/	200 to <1000	1000 to <5000	5000 & above
		Environmental Compensation Rate (ECR_{GW}) in Rs./m3			
	Safe	12	18	24	30
2	Semi critical	24	36	48	60
3	Critical	36	48	66	90
4	Over- exploited	48	72	96	120

Note :-Minimum EC_{GW} shall not be less than Rs 1,00,000/-

Table 15.2: ECR_{GW} for Mining/ infrastructure dewatering projects

S.No.	Area Category	Water Consumption (cum/day)			
		<200	200 to <1000	1000 to <5000	5000 & above
		Environmental Compensation Rate (ECR_{GW}) in Rs./m3			
1	Safe	15	21	30	40
2	Semi critical	30	45	60	75
3	Critical	45	60	85	115
4	Over- exploited	60	90	120	150
Note :-Minimum EC_{Gw} shall not be less thanRs 1,00,000/-					

Table 15.3: ECR_{GW} for Industrial units

S.No.	Area Category	Water Consumption (cum/day)			
		<200	200 to <1000	1000 to <5000	5000 & above
		Environmental Compensation Rate (ECR_{GW}) in Rs./m3			
1	Safe	20	30	40	50
2	Semi critical	40	60	80	100
3	Critical	60	80	110	150
4	Over- exploited	80	120	160	200
Note :-Minimum EC_{Gw} shall not be less thanRs 1,00,000/-					

Deterrent Factors to compensate losses and environmental damage (for packaged drinking water units, mining, industries and infrastructural dewatering projects)

The following deterrent factors based on the duration of illegal ground water extraction shall be levied to compensate for the losses and environmental damages as detailed in Table 15.4.

Table 15.4: Deterrent factor based on quantum of ground water withdrawal and number of years of illegal withdrawal

S.No.	Water Consumption	Deterrence Factor		
		< 2 years	2-5 years	>5 years
1	<1000 KLD	1.00	1.00	1.25
2	1000-5000 KLD	1.00	1.00	1.50
3	>5000 KLD	1.00	1.25	2.00

Note: KLD – Kilolitre per day

16.0 Provision of Penalty

Penalty shall be imposed on the proponents for non-compliance of No Objection Certificate conditions issued by the appropriate authority. Rates of penalty proposed for non-compliance of various conditions of No Objection Certificate are given in Table 16.1.The rates of the penalty shall be reviewed periodically with the approval of competent authority in Ministry of Jal Shakti.

Table 16.1: Penalty provision for non Compliance of No Objection Certificate conditions

S. No.	Items	Charges in Rs.
1	Non installation/faulty Digital water Flow meter with telemetry system.	200000
2	Non disclosure/ construction of additional groundwater abstraction structures a) Functional / Non-functional Structures. b) Defunct/Abandoned Note: Given rates are for unit non-functional/defunct/abandoned structures. This shall be multiplied with total such structures to arrive at consolidated penalty.	 200000 100000
3	Reporting of fresh water zones as Brackish / Saline zones in application.	200000
4	Non Installation of Piezometer.	200000
5	Non Installation/faulty DWLR/Telemetry system	100000
6	Non Construction/Inadequate capacity of Recharge / Water conservation structures.	500000
7	Non maintenance of water conservation structures/ recharge structure	200000
8	Injection of treated/untreated water into the aquifer system. Note: In addition to penalty, the proponent shall bear the cost of aquifer remediation as per the provisions of Environment (Protection) Act, 1986.	1000000
9	Non Submission of Water level/Water quality Data.	50000
10	Non-maintenance of log book of daily withdrawal/non submission of Groundwater abstraction data.	50000
11	Non submission of photograph of recharge structure(s).	50000
12	Non Submission of Self Compliance report.	100000
13	Construction of groundwater abstraction structures by un authorized/unregistered Drilling Rigs (per structures).	100000
14	Non registration of water supply tankers.	500000
15	Submission of false information/ undertaking.	100000

Application fee for fresh/ renewal of NOC shall be charged as per the rates prescribed by CGWA from time to time and intimated through the official web portal. Fee shall also be payable for correction/ modification in the existing issued No Objection Certificate letter.

Table 16.2: Charges for correction/Modification in the existing issued No ObjectionCertificate

S. No.	Items	Charges in Rs.
~~1~~	~~Change in recharge quantum~~ (Now Deleted)	~~10000~~
2	Change in User ID	5000
3	Change in firm Name	5000
4	Extension of No Objection Certificate	5000
5	Issuance of duplicate No Objection Certificate	5000
6	Issuance of corrigendum to No Objection Certificate	5000
7	Any other items/corrections etc	5000

17.0 Other important Conditions (Applicable to all):

i. Sale of ground water by a person/ agency not having valid no objection certificate from CGWA/StateGround Water Authority is not permitted.

ii. In infrastructure projects, paved/parking area must be covered with interlocking/perforated tiles or other suitable measures to ensure groundwater infiltration/harvesting.

iii. In case of Infrastructure projects, the firm/entity shall ensure implementation of dual water supply system in the projects. Compliance of the same shall be submitted through the web portal.

iv. Non-compliance of conditions mentioned in the No Objection Certificate may be taken as sufficient reason for cancellation of no objection certificate accorded/ non-renewal of No Objection Certificate.

v. No application shall be entertained without supporting documents as specified in relevant sections.

vi. Abstraction structure(s) should be located inside the premises of project property.

vii. Self compliance of conditions laid down in the no objection certificate shall be reported by the users online in the web portal of Central Ground Water Authority/state Ground Water Authority.

viii. Processing fee prescribed, if any, from time to time shall be charged for various services.

Note:

1. Guidelines are subject to modification from time to time.

2. In case of any discrepancy between Hindi and English versions of this document including the annexures, the English version shall prevail.

Annexure I

Estimation of Water Requirements for drinking and domestic use

(Source: National Building Code 2016, BIS)

a) Residential Buildings:

Accommodations	Population
1 Bedroom dwelling unit	4
2 Bedroom dwelling unit	5
3 Bedroom dwelling unit	6
4 Bedroom dwelling unit and above	7

Notes:

1) The above figures consider a domestic household including support personnel, wherever applicable.

2) For plotted development, the population may be arrived at after due consideration of the expected number and type of domestic household units.

3) Dwelling unit under EWS category shall have population requirement of 4 and studio apartment shall have population requirement of 2.

As a general rule the following rates per capita per day may be considered for domestic and non-domestic needs:

a) For communities with populations up to 20,000:

1)	Water supply through stand post:	40 lphd (Min)
2)	Water supply through house service: connection	70 to 100 lphd

b) For communities with: 100 to 135 lphd
population 20,000 to 100,00 together with
full flushing system

c) For communities with population: 150 to 200 lphd
above 100,000 together with
full flushing system

Note—The value of water supply given as 150 to 200 litre per head per day may be reduced to 135 litre per head per day for houses for Medium Income Group (MIG) and Low Income Groups (LIG) and Economically Weaker Section of Society (EWS), depending upon prevailing conditions and availability of water.

Out of the 150 to 200 litre per head per day, 45 litre per head per day may be taken for flushing requirements and the remaining quantity for other domestic purposes.

A. **Water Requirements for Buildings Other than Residences**

Sl No.	Type of Building	Domestic litres per head/ day	Flushing Litres per head/ day	Total Consumption Litres per head/ day
1.	Factories including canteen where bath rooms are required to be provided	30	15	45
2.	Factories including canteen where no bath rooms are required to be provided	20	10	30
3.	Hospital (excluding laundry and kitchen): a) Number of beds not exceeding 100	230	110	340
	b) Number of beds exceeding 100	300	150	450
	c) Out Patient Department (OPD)	10	5	15
4.	Nurses' homes and medical quarters	90	45	135
5.	Hostels	90	45	135
6.	Hotels (up to 3 star) excluding laundry, kitchen, staff and water bodies	120	60	180
7.	Hotels (4 star and above) excluding laundry, kitchen, staff and water bodies	260	60	320
8.	Offices (including canteen)	25	20	45
9.	Restaurants and food court including water requirement for kitchen: a) Restaurants	55 per seat	15 per seat	70 per seat
	b) Food Court	25 per seat	10 per seat	35 per seat
10.	Clubhouse	25	20	45
11.	Stadiums	4	6	10

12.	Cinemas, concert halls and theatres and multiplex	5 per seat	10 per seat	15 per seat
13.	Schools/Educational institutions: a) Without boarding facilities b) With boarding facilities	25	20	45
		90	45	135
14.	Shopping and retail (mall) a) Staff	25	20	45
	b) Visitors	5	10	15
15.	Traffic Terminal stations a) Airports	40	30	70
	b) Railway stations (Junction) with bathing facility	40	30	70
	c) Railway stations (Junction) without bathing facility	30	15	45
	d) Railway stations (Intermediate) with bathing facility	25	20	45
	e) Railway stations (Intermediate) without bathing facility	15	10	25
	f) Interstate bus terminals	25	20	45
	g) Intrastate Bus Terminals/Metro Stations	10	5	15

Notes:

1. For calculating water demand for visitors, consumption of 15 litre per head per day may be taken.
2. The water demand includes requirement of patients, attendants, visitors and staff. Additional water demand for kitchen, laundry and clinical water shall be computed as per actual requirements.
3. The number of persons shall be determined by average number of passengers handled by stations, with due considerations given to the staff and vendors who are using these facilities.
4. Consideration should be given for seasonal average peak requirements.
5. The hospitals may be categorized as Category A (25 to 50 beds), Category B(51 to 100 beds), Category C (101 to 300 beds), Category D (301 to 500) and Category E (501 to 750 beds).

Annexure II

Guidelines for construction of Piezometers and monitoring of Ground Water Levels and Quality

Piezometer is a borewell/tubewell used only for measuring the water level by lowering a tape/sounder or automatic / digital water level measuring equipment. It is also used to take water sample for water quality testing whenever needed. General guidelines for installation of piezometers are as follows:

- The piezometer is to be installed / constructed at the minimum distance of 15 m if the aquifer tapped is hard rock and 50 m if the aquifer is alluvium from the pumping well through which ground water is being withdrawn. The diameter of the piezometer should be about four inches to six inches.
- The depth of the piezometer should be the same as that of the pumping well from which ground water is being abstracted. If, more than one pumping wells are constructed tapping aquifers at different depths, more than one piezometers shall be required to be constructed tapping different aquifers as in the pumping wells.

- The measurement of water level in piezometer should be taken, only after the pumping from the surrounding tubewells has been stopped for about four to six hours.
- The ground water quality has to be monitored once in a year during pre-monsoon (April/ May) period by industries and mines drawing ground water. Samples of ground water should be analyzed from NABL accredited laboratory.
- A permanent display board should be installed at Piezometer/ Tubewell site for providing the location, piezometer/ tubewell number, depth and zone tapped of piezometer/tubewell for standard referencing and identification.
- Any other site specific requirement regarding safety and access for measurement may be taken care off.

Annexure III

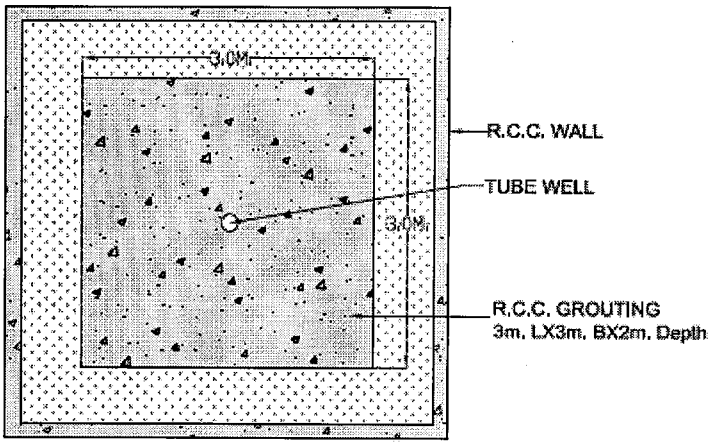
Measures to be adopted to ensure prevention from pollution in the plant premises of polluting industries/ projects

It has been observed that ground water in and around polluting industries like Tannery, Slaughter Houses, Dye, Chemical, Coalwashery, other hazardous units, etc., is polluted. In order to prevent further deterioration of ground water quality, it is essential to take all necessary measures for well head protection. All industries/ projects falling under this category are hereby directed to follow the under mentioned procedure both for existing and new category.

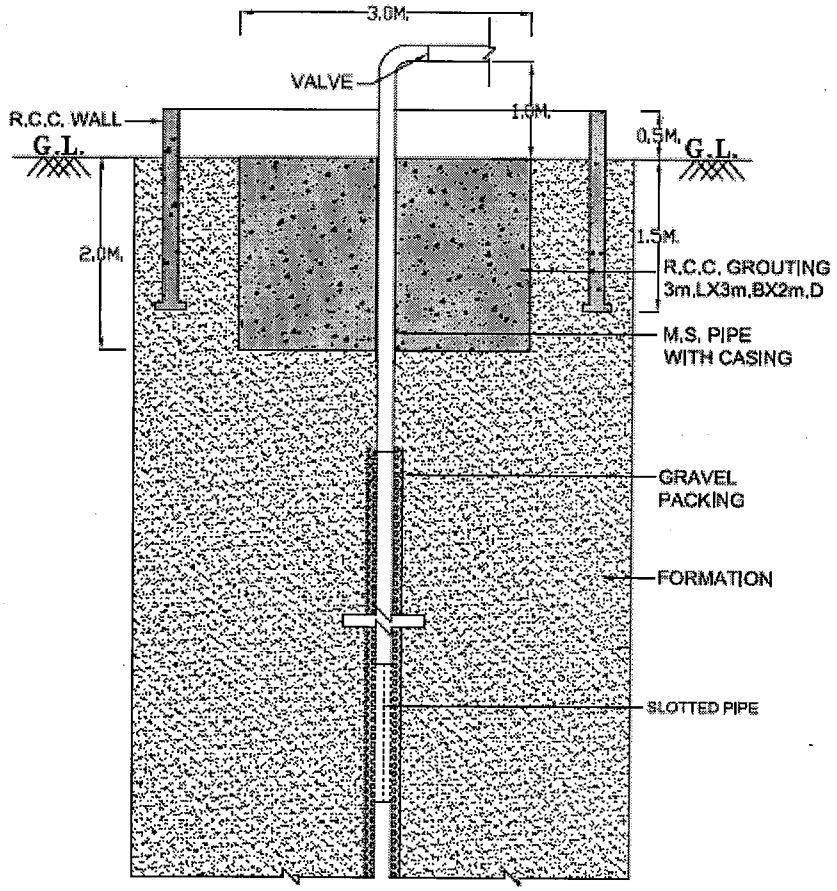
1. No tube well/ bore well / dug well should be constructed in the vicinity of the processing unit. Tube well/ bore well should be constructed at the place which is hygienically maintained.
2. Only Mild Steel pipe should be used for assembly/ casing and PVC (Poly Vinyl Chloride) or similar pipes should not be used. The tube well/ bore well having PVC or similar pipes should be abandoned and filled back.
3. Around the tube well/ bore well, RCC (Reinforced Concrete Cement) grouting of 3 meters (length) x 3 meters (width) x 2 meters (depth) must be provided. The pipe of the tube well/ bore well must be raised 1 meter above ground level (1 magl). The tube well/ bore well must be surrounded by RCC wall of 0.5 meter height and 1.5 meter depth to prevent any surface contamination to enter the constructed tube well/ bore well. Plan/Sectional diagram is enclosed for reference (Appendix 1 and 2).
3. The tube well/ bore well must be fitted with NRV (Non Return Valve) in order to ensure that the constructed tube well/ bore well is exclusively used for abstraction of ground water only.
4. At no point of time there should be any injection of any water or fluid into the constructed tube well/ bore well/ Piezometer.
5. The industries/ projects under this category should not implement any recharge measures within the plant premises.
6. Any tube well/ bore well located/ constructed in the vicinity of STP (Sewage Treatment Plant) or ETP (Effluent Treatment Plant) should be abandoned and filled back.
7. The piezometer to be constructed for monitoring purpose should follow the same procedure as that for tube well/ bore well for such industries/ projects.

Appendix 1

Plan/ Sectional diagram showing well head protection



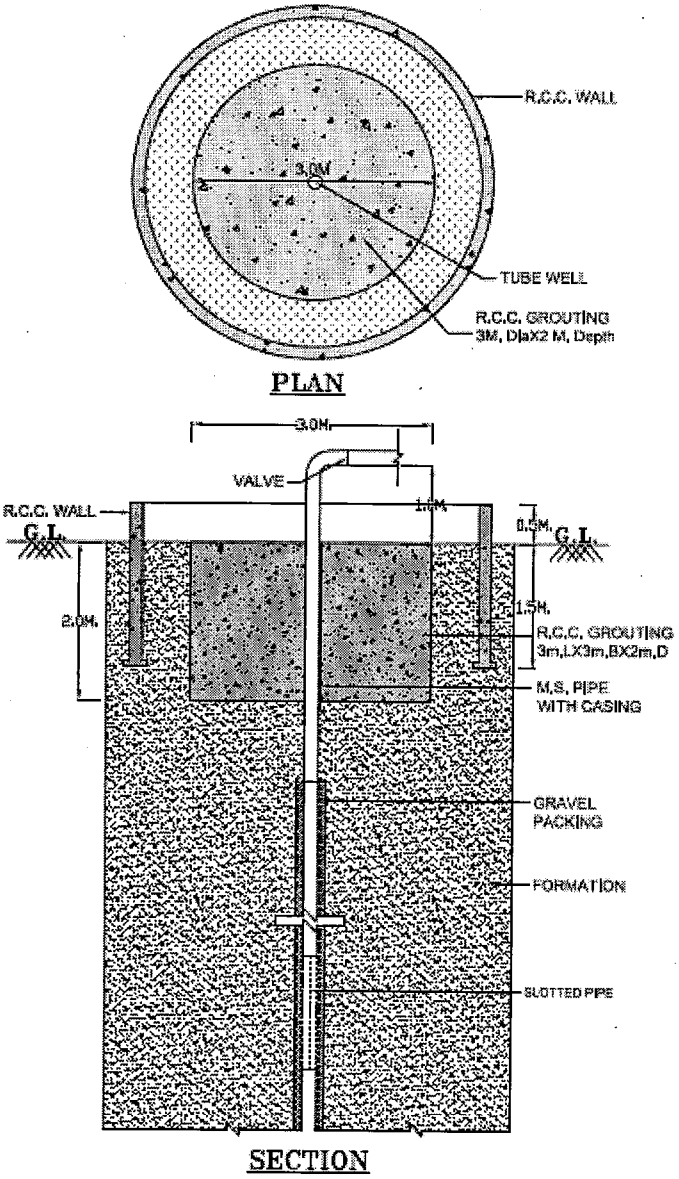
PLAN



SECTION

Appendix 2

Plan/ Sectional diagram showing well head protection



Annexure-IV

Outline of hydro-geological Report for obtaining No Objection Certificate for industries

1. Brief about the proposed project giving location details, coordinates, google/ toposheet maps, etc. demarcating the project area.
2. Ground water situation in and around the project area including water level and quality data and maps along with quality issues, if any. In case of mines, ground water conditions in both core and buffer zone should be described.
3. Details of the tubewells/ borewells proposed to be constructed. This includes the drilling depth, diameter, tentative lithological log, details of pump to be lowered, H.P. of pump, tentative discharge of tubewells/ borewells, etc. Locations to be marked on the site plan/ map. Location of proposed piezometers.

4. Details of Geophysical studies carried out in and around the project area. Ground water resources computation of the block in which the project falls.
5. Approved Mine plan in case of mines and detailed dewatering plan in case of mine/ infrastructure dewatering projects.
6. Proposed usage of pumped water in case of mining/ infrastructure dewatering projects.
7. Comprehensive assessment of the impact on the ground water regime in and around the project area highlighting the risks and proposed management strategies proposed to overcome any significant environmental issues.
8. Proposed measures for disposal of waste water by industries drawing saline water.
9. Measures to be adopted for water conservation which include recycling, reuse, treatment, etc. This includes the water balance chart being adopted by the firm along with details of water conservation methods to be adopted.
    - Brief write up along with capacity and flow chart of Sewage Treatment Plants / Effluent Treatment Plants / Combined Effluent Treatment Plants existing/ proposed within the project.
    - Details of water conservation measures to be adopted to reduce/ save the ground water.
    - Total water balance chart showing the usage of water for various processes.
10. Any other details pertaining to the project.

Annexure V

Format of the Report on ground water conditions (for mining projects)

Introduction

Project description

Background

Objectives and scope

Regional setting

Location

Landuse

Climate

Topography and drainage

Geology –Regional and Local

General Hydrogeology (aquifer types, aquifer depth, zone tapped etc.)

Groundwater condition (In core and buffer zones)

Spatial and temporal variations in water levels Groundwater quality (Shallow and deep aquifer)

Impact of groundwater extraction on local groundwater

Hydrograph of water level/piezometer in monitoring wells

Trend analysis of historical water levels Flow net analysis (groundwater flow direction)

Year wise/ bench wise mine dewatering computation as per approved mine plan

Conclusions

Annexure VI

Indicative list of location specific Infrastructure projects

Special Economic Zone
Metro Station/Railway Station & Bus Depot
Airport, Seaport, Logistics, Cargo & Warehouse
Highway Infrastructure
Fire station
Hospitals & Nursing Homes
Educational Institutions including schools, colleges, universities, coaching institutes, Training Centres/ Skill development centres

Note:- The requirement of NOC for Groundwater use may include the water requirement for drinking water/domestic uses also.

Annexure -VII

Supreme Court Order in Civil Writ petition 36 of 2009 regarding measures for prevention of fatal accidents of small children due to their falling into abandoned bore wells and tube wells

In Re: Measures for prevention of fatal accidents of small children due to their falling into abandoned bore wells and tube wells

Union of India and Ors. Respondents(s)

ORDER

With this Court issuing requisite guidelines vide order dated 11th February, 2010, subject to slight modifications, nothing survives in the present writ petition.

That modification is as follows:

(i) The owner of the land/ premises, before taking any steps for constructing bore well/ tube well must inform in writing to the concerned authorities in the area, i.e., District Collector/ District Magistrate/ Sarpanch of the Gram Panchayat/ any other Statutory Authority/ concerned officers of the Department of Ground Water/ Public Health/ Municipal Corporation, as the case may be, about the construction of bore well/ tube well.

(ii) Registration of all the drilling agencies, namely, Government/ Semi Government, Private etc. should be mandatory with the district administration/ Statutory Authority wherever applicable.

(iii) Erection of signboard at the time of construction near the well with the following details:-

(a) Complete address of the drilling agency at the time of construction/ rehabilitation of well.

(b) Complete address of the user agency/owner of the well.

(iv) Erection of barbed wire fencing or any other suitable barrier around the well during construction.

(v) Construction of cement/ concrete platform measuring 0.50x0.50x0.60 meter (0.30 meter above ground level and 0.30 meter below ground level) around the well casing.

(vi) Capping of well assembly by welding steel plate or by providing a strong cap to be fixed to the casing pipe with bolts & nuts.

(vii) In case of pump repair, the tube well should not be left uncovered.

(viii) Filling of mud pits and channels after completion of works.

(ix) Filling up abandoned bore wells by clay/sand/boulders/pebbles/drill cuttings etc. from bottom to ground level.

(x) On completion of the drilling operations at a particular location, the ground conditions are to be restored as before the start of drilling.

(xi) District Collector should be empowered to verify that the above guidelines are being followed and proper monitoring check about the status of bore holes/ tube wells are being taken care through the concerned state/ Central Government agencies.

(xii) District/ Block/ Village wise status of bore wells/tube wells drilled viz. No. of wells in use, No. of abandoned bore wells/ tube wells found open, No. of abandoned bore wells/ tube wells properly filled up to ground level and balance number of abandoned bore wells/ tube wells to be filled up to ground level is to be maintained at District Level.

In rural areas, the monitoring of the above is to be done through Village Sarpanch and the Executive from the Agriculture Department.

In case of urban areas, the monitoring of the above is to be done through Junior Engineer and the Executive from the concerned Department of Ground Water/Public Health/ Municipal Corporation etc.

(xiii) If a bore well/ tube well is 'Abandoned' at any stage, a certificate from the concerned department of Ground Water/ Public Health/ Municipal Corporation/ Private Contractor etc. must be obtained by the aforesaid agencies that the 'Abandoned' bore well/tube well is properly filled upto the ground level. Random inspection of the abandoned wells is also to be done by the Executive of the concerned agency/ department. Information on all such data on the above are to b maintained in the District Collector/ Block Development Office of the State.

We are informed that the last paragraph of the earlier order dated 11th February, 2010, concerning publicity has been duly complied with.

Subject to the above, the writ petition is disposed of.

.....CJI.
[S.H. KAPADIA]

.....J.
[K.S. RADHAKRISHNANA]

.....J.
[SWATANTER KUMAR]

New Delhi,

August 6, 2010

ANNEXURE VIII

List of States/Union territories where ground water extraction is being regulated by Central Ground Water Authority

1. Andaman and Nicobar Islands
2. Assam
3. Arunachal Pradesh
4. Bihar
5. Chhattisgarh
6. Dadra and Nagar Haveli and Daman and Diu
7. Gujarat
8. ~~Haryana~~
9. Jharkhand
10. Madhya Pradesh
11. Maharashtra
12. Manipur
13. Meghalaya
14. Mizoram
15. Nagaland
16. Odisha
17. ~~Punjab~~
18. Rajasthan
19. Sikkim
20. Tripura
21. ~~Uttar Pradesh~~
22. Uttarakhand
23. ~~Andhra Pradesh (only mining projects)~~
24. ~~Telangana (only mining projects)~~

Note: The above list is dynamic in nature and any addition/ deletion in this regard shall be communicated to the states/UTs, project proponents including industries by CGWA through its official web portal.

Annexure IX

Glossary of technical terms used

1. **Safe area**: Area categorized as SAFE from the ground water resources point of view, based on the latest ground water resources assessment carried out jointly by CGWB and State ground water organizations. Details available on the websites of NOCAP and CGWB.
2. **Semi-critical area**: Area categorized as SEMI-CRITICAL from the ground water resources point of view, based on the latest ground water resources assessment carried out jointly by CGWB and State ground water organizations. Details available on the websites of NOCAP and CGWB.
3. **Critical area**: Area categorized as CRITICAL from the ground water resources point of view, based on the latest ground water resources assessment carried out jointly by CGWB and State ground water organisations. Details available on the websites of NOCAP and CGWB.
4. **Over-exploited area**: Area categorized as OVER-EXPLOITED from the ground water resources point of view, based on the latest ground water resources assessment carried out jointly by CGWB and State ground water organisations. Details available on the websites of NOCAP and CGWB.

5. **Aquifer**: Geological formation capable of storing and transmitting ground water.
6. **Deeper Aquifer**: In areas having multiple aquifer system, the aquifer(s) occurring below the uppermost aquifer.
7. **Well**: Any structure used for the extraction of groundwater, including open wells, dug wells, bore wells, dug-cum-bore wells, tube wells, filter points, collector wells, infiltration galleries, recharge wells, or any of their combinations or variations.
8. **Government Agency**: May be Central or State Government body.
9. **Supplier**: Government/ Government approved Water Supply Agency.
10. **Mine**: Area where mining activity is taking place, or area abandoned after mining.
11. **Illegal Ground Water abstraction Structure**: Any energized abstraction structure viz. dugwell, tubewell, borewell which is being used to withdraw ground water without valid No Objection Certificate from Central Ground Water Authority.
12. **Rainwater Harvesting**: The technique or system of collection and storage of rainwater, at micro watershed scale, including roof-top harvesting, for future use or for recharge of groundwater.
13. **Mining Project**: Project which involves mining activity either open cast or underground or both.
14. **Ground Water Draft**: Quantum of ground water withdrawal.
15. **Saline Water**: Water having salinity in excess of 2500 µsiemens/cm at 25^0C.
16. **Water Table Intersection**: Intersection of the water table on excavation of the overlying material due to mining or other activities.
17. **Drinking and domestic use**: Water required for daily household activities including hygienic purposes, such as cooking food, bathing, cleaning / washing, sanitation etc. Besides drinking & domestic use of households this category will cover drinking requirement of industries not requiring water for industrial process; drinking, washing, cleaning use etc. in case of hospitals, hotels, malls & multiplexes, institutions, offices, banquet halls, fire stations, metro stations, railway stations, airports, sea ports, stadia etc.
18. **Recycle/Reuse**: Using treated waste water for various purposes/ putting water to multiple uses.
19. **Government Department:** Either Central Government or State Government.
20. **Municipality:** Municipality, a Municipal Corporation or similar body of local urban governance by any other name.
21. **Groundwater:** Water, which exists below the surface in the zone of saturation and can be extracted through wells or any other means or emerges as springs and base flows in streams and rivers;
22. **Bgl :** Below Ground Level.
23. **BCM :** Billion cubic metres.
24. **Groundwater Abstraction structure:** Structure used to withdraw groundwater like bore well / tube well / dug well/dug cum bore well/tunnel well.
25. **Observation well or Piezometer:** A bore well/tube well used only for measuring the water level/piezometric head and to take water sample periodically but not used for groundwater abstraction.
26. **Water Audit:** A method of quantifying water use in simple or complex systems, with a view to reducing water usage and often saving money on otherwise unnecessary water use.
27. **Ground water pollution:** If concentration of any parameter in ground water exceeds the maximum permissible limit for drinking water prescribed by the Bureau of Indian Standards.
28. **Cooperative Group Housing Societies/ Builder flats**: A Housing Society is a society formed by house owners within a residential complex. The housing society formed must be formally registered with registrar of co-operatives.
29. **KLD** – Kilo Litre per day
30. EC_{GW} - Environmental compensation for drawing illegal ground water.
31. EC_{GWR} - Environmental compensation rates for drawing illegal ground water.

ANNEXURE X

Water audits by the industries (Source – CII)

Water audit is a systematic process of objectively obtaining a water balance by measuring flow of water from the site of water withdrawal or treatment, through the distribution system, and into areas where it is used and finally discharged. Conducting a water audit involves calculating water balance, water use and identifying ways for saving water.

Water audit involves preliminary water survey and detailed water audit. Preliminary water survey is conducted to collect background information regarding plant activities, water consumption and water discharge pattern and water billing, rates and water cess. After the analysis of the secondary data collected from the industry, detailed water audit is conducted, which involves the following steps:

- On site training and discussion with facility manager and personnel
- Water system analysis
- Quantification of baseline water map
- Monitoring and measurements using pressure and flow meters and various other devices
- Quantification of inefficiencies and leaks
- Quantification of water quality loads and discharges
- Quantification of variability in flows and quality parameters
- Strategies for water treatment and reuse or direct use

A detailed water balance is finally developed. Water quality requirement at various user areas is mapped, which helps in developing 'recycle' and 'reuse' opportunities.

The detailed water audit report contains the following:

- Water consumption and wastewater generation pattern
- Specific water use and conservation
- Complete water balance of the facility
- Water saving opportunities
- Method of implementing the proposals
- Full description and figures
- Investment required

Industries can undertake following measures for water conservation:

- Setting up of norms for water budgeting
- Modernization of industrial process to reduce water consumption
- Recycling water with a re-circulating cooling system
- Ozonation cooling water approach which can result in five fold reduction in blow down when compared to traditional chemical treatment
- Reduction in reuse of de-ionized water by eliminating some plenum flushes, converting from a continuous flow to an intermittent flow system and improving control on the use
- Use of waste water for gardening
- Proper processing of effluents to adhere to the norms of disposal.

Annexure R-2

38

Government of India
Ministry of Jal Shakti
Department of Water Resources, River Development and Ganga Rejuvenation
Central Ground Water Authority (CGWA)

Application for Issue of NOC to Abstract Ground Water (NOCAP)

Welcome: AOMidEastR
Previous Login Date Time: 15/11/2024 19:39:08 PM , **IP Address:** 117.245.2.143

Logout

Application for Permission to Abstract Ground Water for Industrial Use

Application Number : 21-4/590/JH/IND/2019	1st Renewal (Approved)		Final Evaluation		NOC Letter	Self Compliance	Self Inspection	Piezometer/Telemetry Detail	Payment Details / Passbook

Application Code :	**41798**
Investor Request ID :	
PAN Number :	
GST Number :	
Please ensure that the project is MSME and the application iss for groundwater extraction upto 100 LKD :	**NotDefined**

1. General Information:

Water Quality: *	Fresh Water
Application Type Category/ Type of Application: *	Foundary Operation
(i) Name of Industry: *	M/S BIHAR FOUNDRY AND CASTINGS LIMITED Ferro Alloys Unit
Is Renew Applied: *	Yes
Is Renewd: *	Yes

(ii) Location Details of the Industrial Unit- (Attach Approved Site Plan with Location Map) ($) *

Address Line 1: *	PLOT1405 (P)
Address Line 2:	MARAR INDUSTRIAL AREA
Address Line 3:	PS RAMGARH
State: *	JHARKHAND
District: *	RAMGARH
Sub-District: *	MANDU
Village/Town: *	Mandu (CT)
Latitude *	23.657965
Longitude *	85.506128 Show Latitude & Longitude
Area Type: *	**Non-Notified**
Area Type Category: *	**Semi Critical**
Whether industry is MSME: *	**Not Define**
Whether the project falls in Wetland Area: *	**Not Define**

(iii) Communication Address

Address Line 1: *	MANAGING DIRECTOR
Address Line 2:	M/S BIHAR FOUNDRY AND CASTINGS LTD
Address Line 3:	MAIN ROAD, RANCHI-834001

State: *	JHARKHAND
District: *	RANCHI
Sub-District:	NAMKUM
Pincode: *	834001
Phone Number with Area Code:	
Mobile Number: *	91-7004614975
Fax Number:	
E-Mail: *	bfclgfanoc@gmail.com

(iv) Salient Features of the Industrial Activity: *

Ferro Alloys Silico/ Manganese

(v) Land Use Details of the Existing / Proposed Industrial Unit Premises Ownership of the Land :

Land Use Details	Existing (sq meter)	Proposed (sq meter)	Grand Tot
Green Belt Area	10121.00	0.00	10121.00
Open Land	5411.00	0.00	5411.00
Road/ Paved Area	257.10	0.00	257.10
Rooftop area of building/ sheds	23682.09		23682.09
Total	39471.19	0.00	39471.19

(vi) Drainage in the Area (River/ Nala etc) :*	Damodar River. Perennial in nature
(vii) Source of Availability of Surface Water for Industrial Use (Submit Water Availability / Non Availability Certificate): * ($)	Not available
(viii) Average Annual Rainfall in the Area (in mm): *	1251.00
(ix) Townships / Villages (Within 2km Radius of the Industrial Unit): *	Mandu, Marar, Ramgarh
(x) Whether Ground Water Utilization for: *	ExistingIndustry
Date of Commencement :	31/10/2011
Date of Expansion :	
(xi) Whether Ground Water Utilization for: *	☐ Drinking and Domestic Use ☐ Construction Activity Use ☐ Commercial Use ☐ Dewatering Use

2.Details of Water Requirement (Fresh and Recycled Water Usage):

(Please Enclose Water Flow Chart of Activities and Requirement of Water at each Stage) ($)

(i) Total Water Requirement (a+b+c+d) (m^3/day)

	Existing	Propos
Water Requirement Details (Fresh Water) (m^3/day)		
a) Ground Water Requirement (m^3/day): *	35.00	0.00
b). Surface Water Available (Canal, River, Ponds etc.) (m^3/day): *	0.00	0.00
c). Water Supply from Any Agency (m^3/day): *	0.00	0.00
Total Fresh Water Requirement : (a+b+c) (m^3/day)		
d). Recycled Water Usage (m^3/day):	5.00	0.00
Total Water Requirement (a+b+c+d) (m^3/day):		

(ii) Breakup of Water Requirement and Usage:

Activity	Existing Requirement (m3/day)	Proposed Requirement (m3/day)	Total Requirement (m3/day)	No. of Operational Days in a Year	Ann

Industrial Activity	34.00	0.00	34.00	365	124
Residential / Domestic	1.00	0.00	1.00	365	365
Greenbelt Development /Environment Maintenance	5.00	0.00	5.00	365	182
Other Use	0.00	0.00	0.00	0	0.0
Grand Total	**40.00**	**0.00**	**40.00**		146

(iii) Breakup of Recycled Water Usage:

	(m^3/day)	(Days)	
a) Total Waste Water Generated :	6.00	365	219
b). Quantity of Treated Water Available :	5.00		
i). Reuse in Industrial Activity :	0.00	365	0.0
ii) Reuse in Greenbelt Development :	5.00	365	182
iii) Other Uses :	0.00	0	0.0
c). Total Treated Water Utilised :			
Net Ground Water Requirement:	**35.00** (m^3/day)		

3 (a). Groundwater Abstraction Structure- Existing

Number of Existing Structures: * 2

SNo.	Type of Structure Name	Year of Construction	Depth (Meter)	Diameter (mm)	Depth to Water Level (Meters below Ground Level)	Discharge (m3/Hour)	Operational Hours/Day	Operational Days/Year	Mode of Lift Name	Horse Power of Pump	Whether fitted with Water Meter	Whether
1	Borewell	2012	160.00	150	17.51	3.18	4	365	Submersible Pump	1.50	Yes	No
2	Borewell	2013	160.00	150	17.63	3.08	4	65	Submersible Pump	1.50	Yes	No

3 (b). Groundwater Abstraction Structure- Proposed

Number of Proposed Structures: * 1

SNo.	Type of Structure Name	Year of Construction	Depth (Meter)	Diameter (mm)	Depth to Water Level (Meters below Ground Level)	Discharge (m3/Hour)	Operational Hours/Day	Operational Days/Year	Mode of Lift Name	Horse Power of Pump	Whether fitted with Water Meter	Whether
1	Borewell	2020	260.00	175	18.58	3.55	4	365	Submersible Pump	1.50	Yes	No

4. Groundwater Availability (Please Enclose a Comprehensive Report on Groundwater Condition in and Around the Area) Applicable to Industries Consuming Greater Than 500 m^3/day.

Details:

GW Requirement 35 KLD, as per guideline of CGWA, report required for withdrawal above 500 KLD

5. Details of Rrainwater Harvesting and Artificial Recharge Measures Proposed / Implemented. If Ground Water Recharge outside the Industrial Unit Premises, then provide NOC from the Concerned Authority / Agency if Already implemented, details may be furnished. (Attach Rainwater Harvesting /Artificial Recharge

Details:

RWH Report Attached

6. Consent to Operate / Estibilish / Approval Letter from Statutory Bodies viz Ministry of Environment & Forests(MoEF) or State Pollution Control Board(SPCB) or State Level Expert Ap or State Level Environment Impact Assessment Authority(SLEIAA):-* ($)

Letter Number: B 42

a). Attached **Consent/ Approval of Government Agency(Previous:** Referral Letter)

State Pollution Control Board	Sr.No.	Attachment Name	File Name	Dowr
	1	CTO	BFCL-GFA-CTO.PDF	Dowr

7. Have You Applied Earlier for Groundwater Clearance from CGWA / State Government Agency:

If Yes, so Details thereof with Status:

Processing Fee:

	Bharat Kosh Transaction Ref. No:	3009190005784
	Bharat Kosh Transaction Date:	30/09/2019

INDUSTRIAL USE- NOC Condition

☑ **NOC Condition-I have read and understood, I agreed.**

INDUSTRIAL USE- Self Declaration

☑

I hereby certify that the data and information furnished above are true to the best of my knowledge and belief and I am aware that if any part of the data / information submitted is found to be false or application will be rejected outright.

I hereby declare that all the mandatory documents prescribed in the application form have been uploaded and no blank /irrelevant documents have been uploaded. I am also aware that any false/ wr of document will lead to rejection of my application without any notice.

It is to certify that no case related to ground water withdrawal/ contamination is pending against the industry/ project/ unit as on date. Any such case filed against the company/ project/ unit in respect contamination during the pendency of this application shall be immediately brought to the notice of CGWA.

I hereby undertake that in case any environmental compensation/ penalty is imposed on the firm by any statutory authority, I shall comply with the decision of such authority.

1. Application proforma is subject to modification from time to time.

2. Application should be submitted to

Regional Director Central Ground Water Board Mid Eastern Region,

6th & 7th Floor,

Lok Nayak Jai Prakash Bhawan,

Frazer Road Dak Banglow,

PATNA, BIHAR - 800011

3. Incomplete application will be summarily rejected.

4. Processing Fee:	Rs. 1000.00/- (Rupees One Thousand Only)

Filled By EO:

Processing Fee Submitted :	Yes	**Bharatkosh Details:**	
		Bharat Kosh Transaction Ref. No:-	30091900
		Bharat Kosh Transaction Dated:	30/09/20

5. Hard copy of application required:	Yes

6. Ground Water Charges / Quality	Ground Water Quality Approved	Fresh Water
	Ground Water Charge Required:	Yes
	Ground Water Charge Recieve:	Yes (Ground water abstraction charges)
	Ground Water Charge Amount:	76650.00
	Ground Water Arear Amount:	
	Ground Water Charge Type:	◉ Fresh Water ○ Saline/ Brackish ○ Saline-Rann of Kachch

Ground Water Charge

SN	Amount	Recieved	Due Date	Recieved Amount

1	76650.00	Yes	02/02/2022	0.00

Ground Water Arrear

SN	Amount	Recieved	Due Date	Recieved Amount
No Record Exists.				

(7) Environment Compensation Required:	No

SN	Date From	Date To	Daily Quantum (m3/day)(KLD)	Operational Days	Total Quantum	Area Type Category	Reason Name	Rate
No Record Exists.								

(8) **Penalty for non Compliance of NOC conditions Required:**	No

Penalty SN	Remark	PenaltyReceived	Penalty Amount	Corre
1	Lost User ID by The Firm	No	0.00	5000.00

Submitted Application will not be Processed till it the Print Out of the Signed Complete Application is Submitted to Regional Office.

Attached Files

A). Affidavit regarding Non-availability of water supply from local government agencies No Attachment Found !

B). Source Water Availability/Non-availability Certificate(Previous: Source of Availability of Surface Water) : (Refer: 1 (vii))

Sr.No.	Attachment Name	File Name	Download File	View File	Si
1	Letter of Non Supply	BFCL Water Supply.pdf	Download	View	01 Oct 2019

C). Ground Water Quality Report(Previous: Non-Polluting Effluent) :

Sr.No.	Attachment Name	File Name	Download File	View File	
1	GW Quality Report	BFCL GFA Water Quality Report.pdf	Download	View	01 Oct 2(

D). Rain Water Harvesting/Artificial Recharge proposal(Previous: Details of Rainwater Harvesting / Artificial Recharge Measures) : (Refer: 5)

Sr.No.	Attachment Name	File Name	Download File	View File	
1	BFCL GFA RWH Proposal	BFCL GFA RWH Proposal.pdf	Download	View	01 Oct 2

E). Impact AssementReport for OCS areas by accredited consultants No Attachment Found !

F). Consent to Establish in case of Over Exploited Category No Attachment Found !

G). MSME certificate in case of MSME No Attachment Found !

H). Affidavit in case of drinking/domestic/green belt (OE areas) for industries other than MSME No Attachment Found !

I). Approval from Wetland Authority (in case of project area falling in Wetland zone) No Attachment Found !

J). Bharat Kosh Reciept (Processing Fee) :

Sr.No.	Attachment Name	File Name	Download File	View File	
1	Bharat Kosh Payment Receipt	BFCL GFA BK Receipt.pdf	Download	View	01 Oct 2

K). Bharatkosh reciept/Copy of Demand Draft (Abstraction Charges) No Attachment Found !

L). Bharatkosh reciept/Copy of Demand Draft (Restoration Charges) No Attachment Found !

M). Application with Signature and Seal: No Attachment Found !

N). Site Plan with Location Map (Previous: Site Plan) : (Refer: 1 (ii)) No Attachment Found !

O). Certified Revenue Sketch : (Refer: 1 (ii)) No Attachment Found !

P). Documents of Ownership / Lease : (Refer: 1 (v)) No Attachment Found !

Q). Water Balance Flow Chart (Previous: Enclose Flow Chart of Activity and Requirement of Water): (Refer: 2)

No Attachment Found !

R). Hydrogeological Report(Previous: Groundwater Availability Report) : (Refer: 4)

Sr.No.	Attachment Name	File Name	Download File	View File	
1	BFCL GFA GWR STMT	BFCL GFA GW Report Stmt.pdf	Download	View	01 Oct 2(

S). Authorization Letter (Previous:Authorization):

Sr.No.	Attachment Name	File Name	Download File	View File	
1	Letter of Authorization	BFCL Board Resolution.pdf	Download	View	01 Oct 2019

T). Extra Attachment :

Sr.No.	Attachment Name	File Name	Download File	View File	
1	Environmental Clearance of BFCL GFA	BFCL GFA EC.PDF	Download	View	01 Oct

U). Scanned Industrial Application : No Attachment Found !

V). Penalty : No Attachment Found !

V). Additional Documents :

Sr.No.	Attachment Name	File Name	Submitted On	Submitted By	View File
1	Request letter for new User ID	request letter (3).pdf	31/01/2022		View
2	Transaction receipt of rs 5000 for new user ID	TransactionReceipt (8).pdf	31/01/2022		View
3	PAN no. for new user ID	BFCL PAN.pdf	31/01/2022		View
4	Existing NOC	NOC.pdf	31/01/2022		View

Application Submitted By:	bfclgfa
Application Submitted On:	01/10/2019
Application Created On:	30/09/2019
Application Modified By PP On:	01/10/2019
Associated User:	bfcl001

Print Close

F. No. J-11011/384/2010-IA-II (I)
Government of India
Ministry of Environment and Forests
(I.A. Division)

Paryavaran Bhawan
CGO Complex, Lodhi Road
New Delhi – 110 003
E-mail: ms.industry-mef@nic.in
Tele/fax: 011 – 2436 3973
Dated: 31st October, 2011

To,

The Director,
M/s Bihar Foundary and Casting Limited
Main Road, Ranchi- 834 001

Ph: 0651- 2202699
E-mail: consafescience@gmail.com / bfclgfa@gmail.com

Sub: Expansion of Ferro Alloy Plant by installing SAF (9 MVAx1= 40 TPD) for manufacture of Ferro Silicon/Ferro-Manganese at Plot No. 1405, Ramgarh Industrial Area, Marar Village, Ramgarh District in Jharkhand by **M/s Bihar Foundary and Casting Limited- regarding Environmental Clearance**

Sir,

This has reference to your letter no. nil dated 10.04.2011 along with copies of EIA/EMP reports and subsequent communication dated 30.06.2011 seeking environmental clearance under the provisions of EIA Notification, 2006.

2. The Ministry of Environment and Forests has examined your application. It is noted that M/s Bihar Foundary and Casting Limited have proposed for expansion of Ferro Alloy Plant by installing SAF (9 MVAx1= 40 TPD) to manufacture Ferro Silicon/Ferro-Manganese at Plot No. 1405, Ramgarh Industrial Area, Marar Village, Ramgarh District in Jharkhand. The proposed expansion will be in the existing plant area of 14 acres and green belt will be developed in 33% of the project area. No additional land is required for the proposed expansion. No R&R is involved. No national park / wildlife sanctuary and reserve forests are located within 10 km radius of the project site. Mn ore, Dolomite, Quartz and Coke will be used as raw materials. Total cost of the project is Rs. 20.0 Crores and the budget for Environment Management and Pollution Control measures is Rs. 2.0 Crores.

3. Following are the details of existing and proposed expansion facilities:

S.No	Name of the project	Existing	Proposed Expansion
1	Ferro Alloy (2x5 MVA)	26 TPD (Silico / Manganese)	----
2	Ferro Alloy (7.5 MVA)	30 TPD (Silico / Manganese)	----
3	Ferro Alloy (9 MVAx1)	----	40 TPD (Ferro Silicon/Ferro-Manganese)

4. Fume extraction system followed by bag filter to control the emissions from the submerged arc furnace and crushing house will be installed. The emissions will be dispersed

through stack of adequate height as per the CPCB / SPCB standards. Total water requirement will be 35m^3/day, which will be sourced from bore wells. There will be no generation of wastewater from the process. Domestic effluent will be treated in septic tank followed by soak pit. Rain water harvesting system to recharge the ground water and reduce the fresh water consumption will be installed. Presently slag is collected and sent for crushing where the crushed slag is segregated through screen into the metallic and non metallic. The silica waste is sold for road works for filling and the metallic parts are reused in the process.

5. The Ferro Alloy Plants are listed at S.No. 3(a) in Primary Metallurgy Industry in Category 'A' under the schedule of EIA Notification, 2006 and appraised by the Expert Appraisal Committee -1 (Industry).

6. The proposal was considered by the Expert Appraisal Committee-1 (industry) in its 24th meeting held during 19th - 20th May, 2011. The Committee sought additional information for reconsideration of project. On receipt of additional information, the committee reconsidered the project in its 26th meeting held during 21st - 22nd July, 2011. The Committee recommended the proposal for environmental clearance subject to stipulation of specific conditions along with other environmental conditions. Public hearing is not required as per Para 7(i) III (b) of EIA Notification, 2006 as the project is located in notified industrial area.

7. Based on the information submitted by you, presentation made by you and consultant, M/s Consafe Science (India), Hyderabad, the Ministry of Environment and Forests hereby accords environmental clearance to the above project under the provisions of EIA Notification dated 14th September 2006 subject to strict compliance of the following Specific and General conditions:

A. SPECIFIC CONDITIONS :

i. Compliance to all the specific and general conditions stipulated for the existing plant by the Central/State Government shall be ensured and regular reports submitted to the Ministry's Regional Office at Bhubaneswar/SPCB.

ii. No charcoal shall be used as fuel. Pet coke shall be used as fuel instead of charcoal from unknown sources.

iii. Continuous monitoring facilities for all the stacks and sufficient air pollution control equipments viz. fume extraction system with bag filters, ID fan and stack of adequate height to submerged arc furnace shall be provided to control emissions below 50 mg/Nm^3.

iv. The National Ambient Air Quality Standards issued by the Ministry vide G.S.R. No. 826(E) dated 16th November, 2009 shall be followed.

v. Secondary fugitive emissions from all the sources shall be controlled within the latest permissible limits issued by the Ministry and regularly monitored. Guidelines / Code of Practice issued by the CPCB shall be followed.

vi. Regular monitoring of influent and effluent surface, sub-surface and ground water shall be ensured and treated wastewater shall meet the norms prescribed by the State Pollution Control Board or described under the Environment (Protection) Act, 1986 whichever are more stringent. Leachate study for the effluent generated and analysis should also be regularly carried out and report submitted to the Ministry's Regional Office at Bhubaneswar, SPCB and CPCB.

vii. The total water requirement shall not exceed 35m^3/day. Permission to draw the water from the Competent Authority shall be obtained. 'Zero' effluent discharge shall be strictly followed and no wastewater should be discharged outside the premises.

viii. Efforts shall be made to make use of rain water harvested. If needed, capacity of the reservoir should be enhanced to meet the maximum water requirement. Only balance water requirement should be met from other sources.

ix. Slag produced in Ferro Manganese (Fe-Mn) production shall be used in manufacture of Silico Manganese (Si-Mn). All the other ferro alloy slag shall be used in the preparation of building materials.

x. Risk and Disaster Management Plan along with the mitigation measures should be prepared and a copy submitted to the Ministry's Regional Office at Bhubaneswar, SPCB and CPCB within three months of issue of environment clearance letter.

xi. As proposed, green belt should be developed in at least 33 % of the project area Selection of plant species shall be as per the CPCB guidelines in consultation with the DFO.

xii. At least 5 % of the total cost of the project should be earmarked towards the Enterprise Social Commitment based on locals need and item-wise details along with time bound action plan should be prepared and submitted to the Ministry's Regional Office at Bhubaneswar. Implementation of such program shall be ensured accordingly in a time bound manner.

xiii. The company shall provide housing for construction labour within the site with all necessary infrastructure and facilities such as fuel for cooking, mobile toilets, safe drinking water, medical health care, crèche etc. The housing may be in the form of temporary structures to be removed after the completion of the project.

xiv. The Company shall submit within three months their policy towards Corporate Environment Responsibility which should inter-alia address (i) Standard operating process/ procedure to being into focus any infringement/deviation/violation of environmental or forest norms/conditions, (ii) Hierarchical system or Administrative order of the Company to deal with environmental issues and ensuring compliance to the environmental clearance conditions and (iii) System of reporting of non compliance/violation environmental norms to the Board of Directors of the company and/or stakeholders or shareholders.

A. GENERAL CONDITIONS:

i. The project authorities must strictly adhere to the stipulations made by the Jharkhand State Pollution Control Board and the State Government.

ii. No further expansion or modifications in the plant shall be carried out without prior approval of the Ministry of Environment and Forests.

iii. The gaseous emissions from various process units shall conform to the load/mass based standards notified by this Ministry on 19th May, 1993 and standards prescribed from time to time. The State Board may specify more stringent standards for the relevant parameters keeping in view the nature of the industry and its size and location.

iv. At least four ambient air quality monitoring stations should be established in the downward direction as well as where maximum ground level concentration of PM10, SO_2 and NO_x are anticipated in consultation with the SPCB. Data on ambient air quality and stack emission shall be regularly submitted to this Ministry including its Regional Office at Bhubaneswar and the SPCB/CPCB once in six months.

v. Industrial wastewater shall be properly collected, treated so as to conform to the standards prescribed under GSR 422 (E) dated 19th May, 1993 and 31st December, 1993 or as amended form time to time. The treated wastewater shall be utilized for plantation purpose.

vi. The overall noise levels in and around the plant area shall be kept well within the standards (85 dBA) by providing noise control measures including acoustic hoods, silencers, enclosures etc. on all sources of noise generation. The ambient noise levels should conform to the standards prescribed under EPA Rules, 1989 viz. 75 dBA (daytime) and 70 dBA (nighttime).

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

viii. The company shall develop surface water harvesting structures to harvest the rain water for utilization in the lean season besides recharging the ground water table.

ix. The project proponent shall also comply with all the environmental protection measures and safeguards recommended in the EIA/EMP report. Further, the company must undertake socio-economic development activities in the surrounding villages like community development programmes, educational programmes, drinking water supply and health care etc.

x. Requisite amount shall be earmarked towards capital cost and recurring cost/annum for environment pollution control measures to implement the conditions stipulated by the Ministry of Environment and Forests as well as the State Government. An implementation schedule for implementing all the conditions stipulated herein shall be submitted to the Regional Office of the Ministry at Bhubaneswar. The funds so provided shall not be diverted for any other purpose.

xi. A copy of clearance letter shall be sent by the proponent to concerned Panchayat, Zila Parishad/Municipal Corporation, Urban Local Body and the local NGO, if any, from whom suggestions/representations, if any, were received while processing the proposal. The clearance letter shall also be put on the web site of the company by the proponent.

xii. The project proponent shall upload the status of compliance of the stipulated environment clearance conditions, including results of monitored data on their website and shall update the same periodically. It shall simultaneously be sent to the Regional Office of the MOEF at Bhubaneswar. the respective Zonal Office of CPCB and the CECB. The criteria pollutant levels namely; PM10, SO_2, NOx (ambient levels as well as stack emissions) or critical sectoral parameters, indicated for the projects shall be monitored and displayed at a convenient location near the main gate of the company in the public domain.

xiii. The project proponent shall also submit six monthly reports on the status of the compliance of the stipulated environmental conditions including results of monitored data (both in hard copies as well as by e-mail) to the Regional Office of MOEF, the respective Zonal Office of CPCB and the SPCB. The Regional Office of this Ministry at Bhubaneswar/ CPCB / SPCB shall monitor the stipulated conditions.

xiv. The environmental statement for each financial year ending 31st March in Form-V as is mandated to be submitted by the project proponent to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently, shall also be put on the website of the company alongwith the status of compliance of environmental conditions and shall also be sent to the respective Regional Office of the MOEF at Bhubaneswar by e-mail.

xv. The Project Proponent shall inform the public that the project has been accorded environmental clearance by the Ministry and copies of the clearance letter are available with the SPCB and may also be seen at Website of the Ministry of Environment and Forests at http:/envfor.nic.in. This shall be advertised within seven days from the date of issue of the clearance letter, at least in two local newspapers that are widely circulated in the region of which one shall be in the vernacular language of the locality concerned and a copy of the same should be forwarded to the Regional office at Bhubaneswar.

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

8. The Ministry may revoke or suspend the clearance, if implementation of any of the above conditions is not satisfactory.

9. The Ministry reserves the right to stipulate additional conditions if found necessary. The Company in a time bound manner shall implement these conditions.

10. The above conditions shall be enforced, inter-alia under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, the Air (Prevention & Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986, Hazardous Wastes (Management, Handling and Transboundary Movement) Rules, 2008 and the Public (Insurance) Liability Act, 1991 along with their amendments and rules.

P Ahujarai

(Dr. P.L. Ahujarai)
Scientist -F

Copy to:-

1. The Secretary, Department of Forest, Govt. of Jharkhand, Nepal House, Ranchi.
2. The Chief Conservator of Forests, Ministry of Environment & Forests, Regional Office, (EZ) A-3, Chandrashekharpur , Bhubaneswar-715023.
3. The Chairman, Central Pollution Control Board Parivesh Bhavan, CBD-cum-Office Complex, East Arjun Nagar New Delhi – 110 032.

4. The Chairman, Jharkhand State Pollution Control Board, T.A Division Building (Ground Floor) HEC Campus, Dhurwa, Ranchi -834004.
5. Guard File/Monitoring File/Record File.

(Dr. P. L. Ahujarai)
Scientist 'F'

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पत्रांक 1180 / दिनांक 02/9/09

प्रेषक,

कार्यपालक अभियंता,
पेयजल एवं स्वच्छता प्रमण्डल,
रामगढ़ ।

सेवा में,

विकास पदाधिकारी,
रॉची औधोगिक क्षेत्र विकास प्राधिकार,
रियाडा भवन , मेन रोड रॅची ।

Recieved 3/9/09

विषयः— रामगढ़ औधोगिक क्षेत्र जलापूर्ति योजना से जलापूर्ति लेने के संबंध में ।

प्रसंगः— बिहार फाउन्ड्री एवं कास्टिंग लि0 , औधोगिक क्षेत्र , रामगढ़ का पत्रांक 10/590 दिनांक 07.08.09

महाशय,

उपरोक्त विषयक प्रसांगिक पत्र आपके अग्रतर कार्रवाई हेतु इस पत्र के साथ संलग्न कर भेजी जा रही है ।

अनुः— प्रासंगिक पत्र की मूल प्रति ।

विश्वासभाजन

हस्ता/-

कार्यपालक अभियंता
पेयजल एवं स्वच्छता प्रमण्डल, रामगढ़

ज्ञापांक 1180 दिनांक 02/09/09

प्रतिलिपि :— निदेशक , बिहार फाउन्ड्री एवं कास्टिंग लि0 , औधोगिक क्षेत्र , रामगढ़ , पो0—मरार , रामगढ़ को सूचनार्थ प्रेषित ।

02/9/09

कार्यपालक अभियंता
पेयजल एवं स्वच्छता प्रमण्डल, रामगढ़ ।

02/9/09

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झारखण्ड सरकार

राँची औद्योगिक क्षेत्र विकास प्राधिकार
Ranchi Industrial Area Development Authority

Providing Opportunity for Rapid Industrialisation

RIADA Bhawan, Main Road, RANCHI - 834 001
Phone: 2330407, 2330063, 2330817: Gram: RIADA : Fax: 0091-0651-2330407
Website: www.ranchiindustry.com • www.riada.in

Letter No..... Date.....

प्रेषकः--

श्री ए0के0 श्रीवास्तव,
विकास पदाधिकारी।

सेवा में,

कार्यपालक अभियंता,
पेयजल एवं स्वच्छता विभाग,
रामगढ़ प्रमंडल, रामगढ़ ।

विषयः– रामगढ़ औद्योगिक क्षेत्र में जलापूर्त्ति योजना के संबंध में।
प्रसंगः– आपका पत्रांक 1180 दिनांक 02.09.2009
महाशय,

उपर्युक्त विषयक एवं प्रसंगाधीन पत्र के आलोक में कहना है कि रामगढ़ औद्योगिक क्षेत्र में जलापूर्त्ति योजनाओं का कियान्वयन आपके प्रमंडल के द्वारा किया गया है। उक्त योजना के लिए प्राधिकार के द्वारा आपके प्रमंडल को 12.73 लाख रूपये पूर्व में उपलब्ध कराया गया है। विशेष सचिव, उद्योग विभाग के पत्रांक 2905 दिनांक 18.2.1985 के अनुसार औद्योगिक क्षेत्र में जलापूर्त्ति योजनाओं का सम्पोषण का भी कार्य लोक स्वास्थ्य अभियंत्रण (पेयजल एवं स्वच्छता) विभाग के द्वारा किया जाना है। (प्रतिलिपि संलग्न)

उल्लेखनीय है कि रामगढ़ औद्योगिक क्षेत्र में अवस्थित सर्वश्री बिहार फाउण्ड्री एवं कास्टिंग्स लि0 के द्वारा अपने स्पंज आयरन विस्तार योजना के निमित 4000 मी0क्यू0/प्रतिदिन Raw Water की माँग उक्त जलापूर्त्ति योजना के माध्यम से प्रस्तावित है।

अतः वर्णित आलोक में रामगढ़ औद्योगिक क्षेत्र में जलापूर्त्ति योजनाओं की अद्यतन स्थिति से अवगत कराने की कृपा की जाय।

अनुलग्नक: यथा उपरि।

विश्वास भाजन,
ह0/–
विकास पदाधिकारी।

ज्ञापांक– 1266 दिनांक– 13.10.2009

प्रतिलिपि सर्वश्री बिहार फाउण्ड्री एवं कास्टिंग्स लि0, रामगढ़ औद्योगिक क्षेत्र, रामगढ़ को सूचनार्थ प्रेषित ।

13/10/2009
विकास पदाधिकारी।

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Government of Jharkhand

Receipt of Online Payment of Stamp Duty

NON JUDICIAL

Receipt Number : ddae8fc2a05ab9d72d78
Receipt Date : 21-Dec-2020 06:18:11 pm
Receipt Amount : 10/-
Amount In Words : Ten Rupees Only
Document Type : Affidavit
District Name : Ranchi
Stamp Duty Paid By : BFCL UNIT GAUTAM FERRO ALLOYS
Purpose of stamp duty paid : AFFIDAVIT
First Party Name : CENTRAL GROUND WATER AUTHORITY
Second Party Name : BFCL UNIT GAUTAM FERRO ALLOYS
GRN Number : 2003411229

-: This stamp paper can be verified in the jharnibandhan site through receipt number :-

This Receipt is to be used as proof of payment of stamp duty only for one document.The use of the same receipt as proof of payment of stamp duty in another document through reprint,photo copy or other means is penal offence under section-62 of Indian Stamp Act,1899

इस रसीद का उपयोग केवल एक ही दस्तावेज पर मुद्रांक शुल्क का भुगतान के प्रमाण हेतु ही किया जा सकता है। पुन: प्रिन्ट कर अथवा फोटो कॉपी आदि द्वारा इसी रसीद का दुसरे दस्तावेज पर मुद्रांक शुल्क का भुगतान के प्रमाण हेतु उपयोग भारतीय मुद्रांक अधिनियम, 1899 की धारा 62 अन्तर्गत दण्डनीय अपराध है।

For Gautam Ferro Alloys
Unit of Bihar Foundry & Castings Ltd.

Director

NOTARY PUBLIC
RANCHI

Authorised under Notaries Act-1952
Notaries Rules 1956 by Govt. of India (Jharkhand)

22 DEC 2020 Date

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AFFIDAVIT

(To be submitted with NOC applications)

I, Gaurav Budhia, S/o Sri Hari Krishna Budhia, working as Director (Designation) in **M/s BFCL- GAUTAM FERRO ALLOYS, Mauza -MARAR , P S -RAMGARH , District –RAMGARH, Registered Office at Main Road, Ranchi-834001 (Jharkhand)** (address of company/firm/ project) do solemnly affirm and state as under:-

1. I in my capacity as an authorized representative of the above mentioned Company /Firm/ Project hereby undertake/ declare to say the firm is not getting any water supply from Municipal Corporation/Gram Panchayat/ ZilaParishad/ State Industrial Development Corporation/ State Public Health Engineering Department/ State Irrigation Department.

   OR

   The firm is getting. **ZERO** (quantum of water in KLD) water supply from Municipal Corporation/Gram Panchayat/ ZilaParishad/ State Industrial Development Corporation/ State Public Health Engineering Department/ State Irrigation Department.

   OR

   The firm is presently getting..... (quantum of water in KLD) water supply from Municipal Corporation/Gram Panchayat/ ZilaParishad/ State Industrial Development Corporation/ State Public Health Engineering Department/ State Irrigation Department. However the supply is irregular. Groundwater will be used only in exigencies.

2. I hereby declare that in future, if any water supply is available to the firm, it will be brought to notice to the competent authority.

3. I hereby declare that the information furnished to the authority is true to the best of my knowledge and if any information or part thereof is found to be false or incomplete or misleading, the Authority is entitled to take action in accordance with law in force.

4. I hereby undertake to say that I shall abide by the directions/orders of any Court/ Tribunal on sustainable development and management of ground water resources in and around my Company /Firm/ Project.

5. I solemnly state that the contents of this affidavit are true to the best of my knowledge and belief and that it conceals nothing and that no part of it is false.

For Gautam Ferro Alloys
Unit of Bihar Foundry & Castings Ltd.

Director

DEPONENT
(Signature with Date, Place and Seal)

Place: Ranchi

Authorised under Notaries Act-1952 and Notaries Rules 1956 by Govt. of India (Jharkhand)

22 DEC 2020

SUJAY KUMAR * NOTARY PUBLIC Regn. No-13551/2016 * Govt. of India (Jharkhand) Ranchi

22-12-2020

NOTARY
(Signature with Date, Place and Seal)

NOTARY PUBLIC
RANCHI

22.12.20

Signature attested on identification of Lawye

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GEMS PROJECTS PVT.LTD.

(ENVIRONMENTAL LABORATORY DIVISION)
APPROVED BY JHARKHAND STATE POLLUTION CONTROL BOARD, GOVT OF JHARKHAND

Water Test Report

Name & address	M/s Bihar Foundary & Castings Limited (Unit : Gautam Ferro Alloys) Add. Mauza- Marar, P.S – Ramgarh Dist. – Ramgarh , Jharkhand	Report ID : G/RG/190324/DW/01 Sample Code : G/RG/190324/DW/01 Sampling date : 24-03-2019 Date of Issue : 30 -03-2019
Sample Details : Drinking water Sample Quantity : 1 litre Test start date : 25/03/2019 Test Complete date: 29/03/2019		Type of Industries : Ferro Alloys Plant Sampling Location : Water Harvesting Plant Area Sample collected by : Aril & Team Sampling Protocol : IS method

Test Report

Sl. No.	Tested Parameters	Unit	Result	Method	Permissible limit IS 10500:2012
1	pH	---	7.2	IS 3025 (part -11)	6.5 to 8.5
2	Temperature	°C	24.5	IS 3025 (part -09)	---
3	Total Dissolved Solid	mg/l	592.07	IS 3025 (part-16)	500 to 2000
4	Total Hardness (as $CaCO_3$)	mg/l	291.72	IS 3025(Part-21)	200 to 600
5	Total Alkalinity (as $CaCO_3$)	mg/l	30	IS 3025(Part-23)	200 to 600
6	Calcium (as Ca)	mg/l	102.60	IS 3025(Part-40)	75-200
7	Magnesium	mg/l	45.95	APHA 3500 – Mg B	30-100
8	Chloride (as Cl)	mg/l	92.47	IS 3025(Part-32)	250 to 1000
9	Sulphate (as SO_4)	mg/l	29.29	IS 3025(Part-24)	200 to 400
10	Iron (as Fe)	mg/l	0.05	IS 3025(Part-53)	1.0
11	Fluoride (as F)	mg/l	0.85	APHA 4500 F D SPADNS Method	1.0-1.5
12	Nitrate (as NO_3)	mg/l	1.20	IS 3025(Part-34)	45
13	Ammoniacal Nitrogen	mg/l	0.28	IS 3025(Part-34)	0.5
14	Total Chromium(as Cr)	mg/l	ND	IS 3025(Part-52)	0.05

***** End of Test report*****

Remarks: - According to tested parameter, result found within the prescribed limit of Drinking water Specification IS 10500:2012

- ND – Not Detected

1. Test values are reported based on the sample received.
2. Sample(s) will be destroyed after 7 days from date of issues of the test report.
3. The test report shall not be reproduced without the written approval laboratory.

Section In-charge (Chemical) 30/03/19

GEMS PROJECTS PVT.LTD. GEMS Environmental Laboratory Division

Tested by Ashutosh Nag 30/3/2019

Lab In-charge 30/03/2019

Lab In-Charge
Gems Projects Pvt. Ltd.

1236/2 Lajpat Nagar, Near Lala Lajpat Rai School, Pundag, Argora, Ranchi, Jharkhand- 834004
Mobile - +91-9431115961, +91-9934307900
E-mail: gems.projects@yahoo.in, md@gemsgroup.in, info@gemsgroup.in, gemslab17@gmail.com | Website – www.gemsgroup.in

RAINWATER HARVESTING (RWH) CALCULATION FOR M/s Gautam Ferro Alloys of BFCL:

Type of Structure	Area in Sq. M. (A)	Rainfall in Meters (R)	Runoff Coefficient (C)	Rainwater Generation in Cu. M. per Annum (AxRxC)
Rooftop	23682.71	1.251	0.85	25183.01
Green	10120.82	1.251	0.25	3165.29
Paved	256.00	1.251	0.15	48.04
Open	5411.66	1.251	0.15	1015.50
TOTAL	**39471.19**			**29411.83**

TABLE 1: RWH CALCULATION FOR M/s BFCL- Gautam Ferro Alloys

* Ref: Manual of Artificial Recharge of Ground Water, (CGWB,2007)

The layout and cross section of recharge pit (5 Nos) having size: 4.33 m x 2.58 m x 3 m with one bore well of 115 mm diameter and upto 80 meters depth (upto second level fracture zone) is shown overleaf.

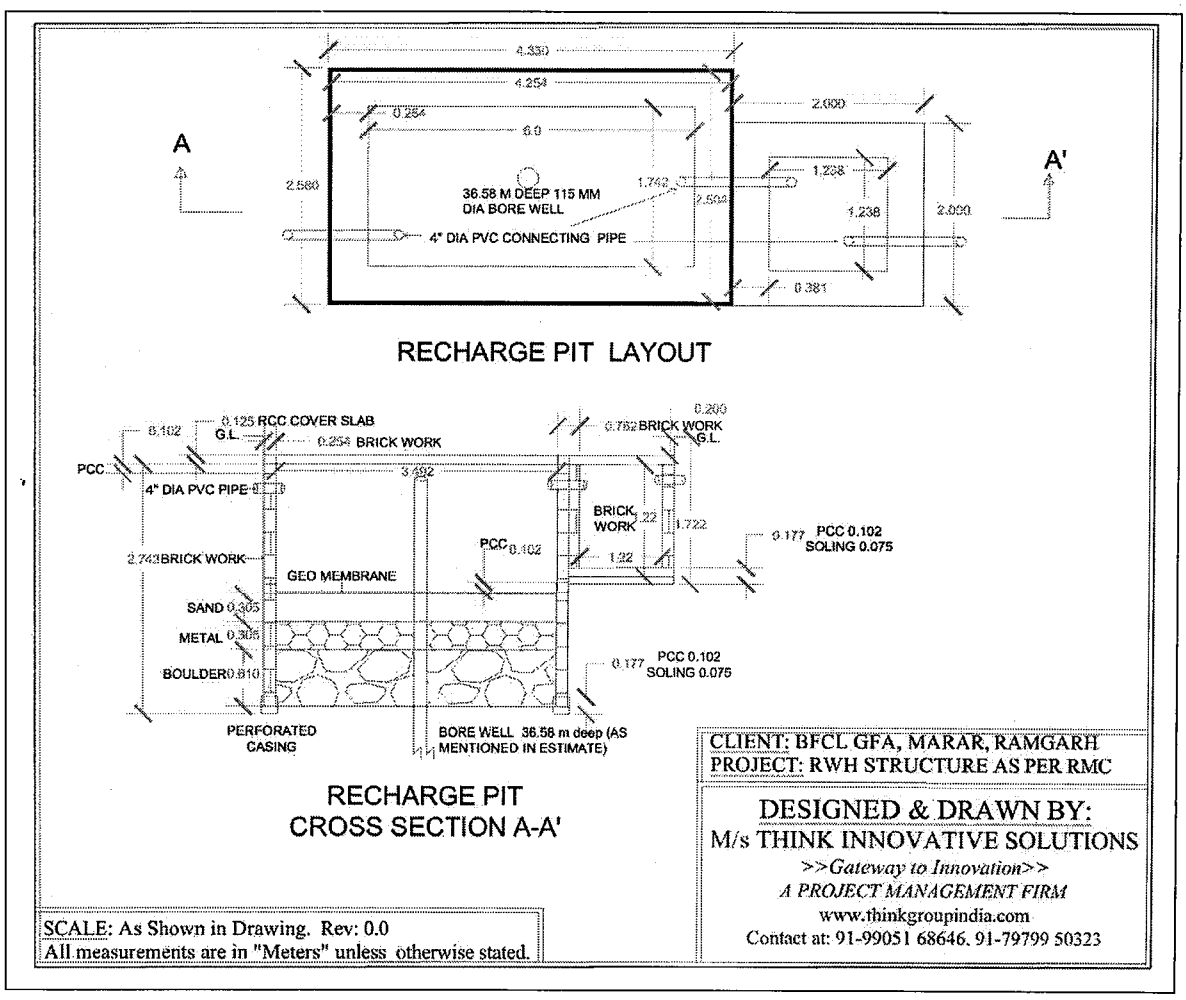

FIGURE 1: LAYOUT AND CROSS SECTION OF PROPOSED RWH STRUCTURE

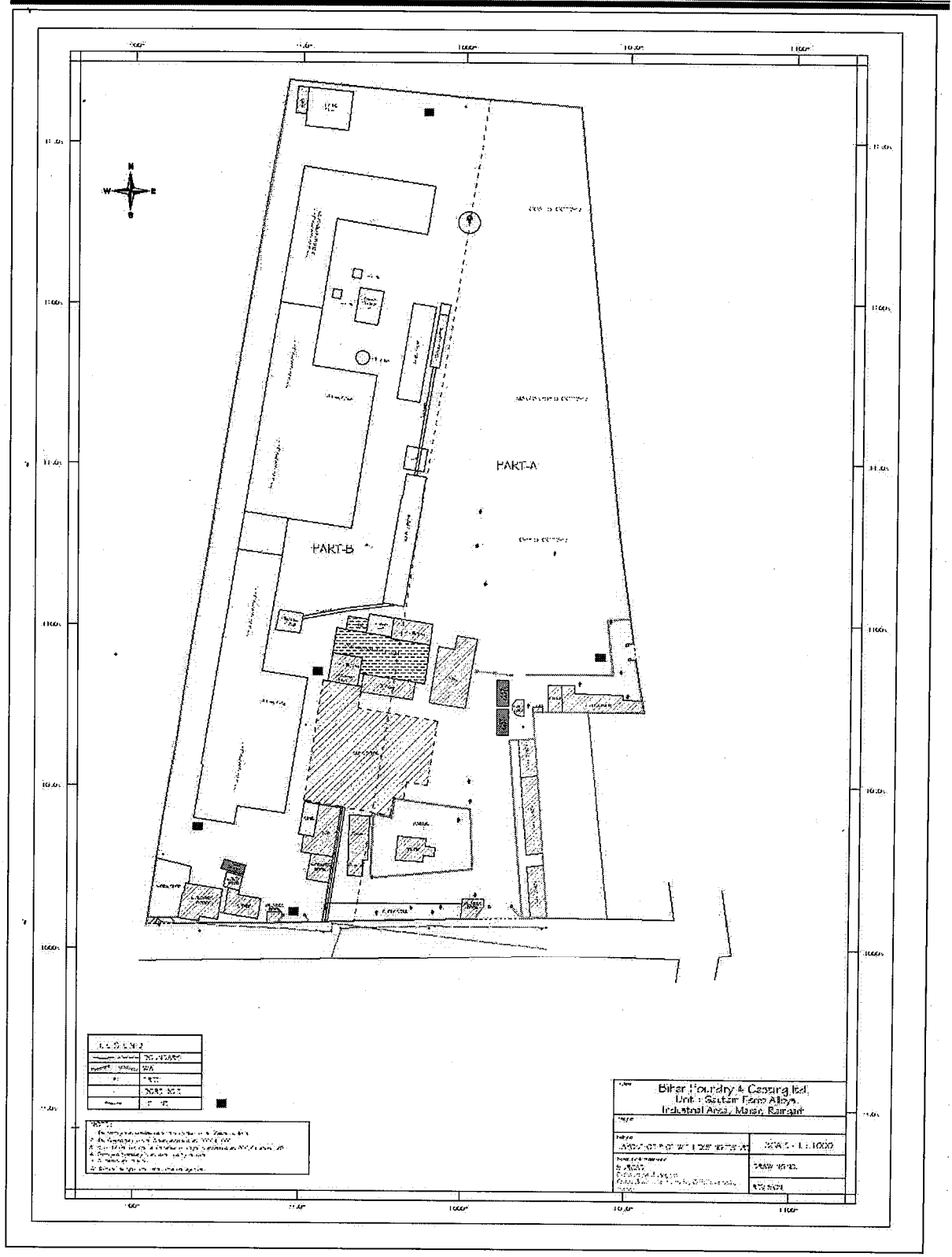

FIGURE 2: MASTER LAYOUT PLAN OF BFCL GFA WITH LOCATION F RWH STRUCTURES- 5 Nos of Recharge Pits

GFA (CTO) 57

JHARKHAND STATE POLLUTION CONTROL BOARD

TOWNSHIP ADMINISTRATION BUILDING, HEC COMPLEX, DHURWA, RANCHI 834004
Telephone: 0651-2400850 (Fax)/ 2400851/2400852/2401847/2400979/2400139

Ref No. B - 42 — 06/1/16

Ranchi Dated : 2016-01-05

Consent to operate (CTO) under section 25 /26 of the Water (Prevention & Control of Pollution) Act, 1974 and under section 21 of the Air (Prevention & Control of Pollution) Act, 1981

1. Application (s) dated 2015-08-20 of GAUTAM FERRO ALLOYS (UNIT OF BFCL), Occupier Name :HARI KRISHNA BUDHIA for consent under section 25 (1) (b)/25 (1) (c)/26 of the Water (Prevention & Control of Pollution) Act, 1974 and under section 21(1) of the Air (Prevention & Control of Pollution) Act,1981.

2. **Documents Relied Upon:**

(a) The content of Environmental Clearance (EC) Ref. No.-J-11011/384/2010/-IA-II(I), Dated- 31.10.2011 issued by Ministry of Environment & Forest, Govt. of India, New Delhi.

(b) The content of Consent-to-Establish (CTE), vide Ref. No. T-551, Dated- 24.02.2000 for 26 TPD, Ref.-2577, Dated-20.05.2009 for 30 TPD & Ref.-D-1510(N), Dated. 21.05.2014 for 40 TPD.

(c) The content of Consent-to-Operate (CTO), vide Ref. No. B-635, Dated. 12.03.2015.

(d) The content of Inspection Report (IR), vide Ref. No.2512, Dated. 03.11.2015.

3. The consent is granted under section 25 / 26 of the Water (Prevention & Control of Pollution) Act, 1974 and under section 21 of the Air (Prevention & Control of Pollution) Act, 1981 to operate the project in Mauza -MARAR , P S -RAMGARH , District -RAMGARH , as follows:

Project	Site-Area		Invesumen t (Rs)	Product & Capacity	Period of CTO	Total
	Plot Nos.	Area				
Before Expansion	1405 (P)	7.26 Acre	35.0 Crore	Ferro Alloys Silico/ Manganese-96 TPD	Date of issue to 31.12.2020	

(A) General Conditions :

(1) That, the occupier shall comply with all conditions of EC, Ref No J-11011/384/2010/-IA-II(I) , Dated 31/10/2010, CTE, Ref No T-551, Dated- 24.02.2000, Ref.-2577, Dated-20.05.2009 & Ref.-D-1510(N) , and dated 21/05/2014 , previous CTO, Ref No B-635dated12/03/2015 and shall submit report to this effect with supporting documents.

(2) That, the occupier shall maintain the ambient air quality within the standard given below:

S N	Parameter	Standard
1	Respirable Suspended Particulate Matter	100 µg/Nm³
2	Sulphur Dioxide	80 µg/Nm³
3	Oxides of Nitrogen	80 µg/Nm³

(3) That, the occupier shall maintain the emission quality within the standard and the quantity, as follows:

S N	Parameter	Standard
1	Particulate Matter	150 mg/Nm³
2	Sulphur Dioxide	
3	Oxides of Nitrogen	
4	Quantity of Emission	

(4) That, the occupier shall keep process effluent in close-circuit and the quality of effluent from other sources in conformity with the standard (s) and the discharge quantity as below:

S N	Parameter	Standard
1	Total Suspended Solids	100 mg/L
2	BOD	30 mg/L
3	COD	250 mg/L
4	Oil & Grease	10 mg/L
5	Quantity of Discharge	

(5) That, the occupier shall dispose of solid wastes as follows:

S N	Waste Type	Mode of Disposal
1	Hazardous Carbonaceous Wastes	In co-processing in high temperature furnace or kilns.
2	Hazardous Non-Carbonaceous Wastes	In TSDF
3	Non-Carbonaceous Non-Hazardous solid wastes/ Mine Over Burden	As a substitute of Soil or Mineral

(6) That, the occupier shall keep D G Set(s) within acoustic enclosure (s) and shall keep the height(s) of exhaust pipe(s) as per Central Pollution Control Board norm.

(7) That, the occupier shall create and maintain new water body(ies)/ remove deposit (s) of existing water body(ies)/ nearby stream(s) and pond(s) and well (s) and shall maintain the wholesomeness of water.

(8) That, the occupier shall install and maintain Central Ground Water Board/ State Ground Water Directorate approved system of rain water harvesting-cum-ground water recharge.

(9) That, the occupier shall grow and maintain greenery in the periphery and other available spaces and shall continue enhancing its plant density and biodiversity.

(10) That, the occupier shall submit environmental statement with every year by 30th September.

(11) That, the occupier shall submit report(s) duly monitored and issued by any registered laboratory in compliance of sub-para (2), (3), (4) and (9) of paragraph 3 of this CTO annually.

(12) That, the occupier shall comply with all applicable provisions of the Water (Prevention & Control of Pollution) Act, 1974; the Water (Prevention & Control of Pollution) Cess Act, 1977; the Air(Prevention & Control of Pollution) Act, 1981; and the Environment (Protection) Act, 1986 and Rules there under.

(B) Specific Conditions:

(1) That, the occupier shall obtain raw materials from valid source only.

(2) That, the occupier shall install & operate online stack emission monitoring system with connectivity to Jharkhand State Pollution Control Board server.

(3) That, the occupier shall comply all the noncomplied conditions of NOC and Environment Clearance.

(4) That, the occupier shall do regular cleaning and wetting of the ground and shall maintain good housekeeping.

(5) That, the occupier shall install and operate fixed type water sprinklers at all dusty places inside the plant.

(6) That, the occupier shall upgrade, operate and maintain air pollution control device such as fume extraction system and bag filters.

(7) That, the occupier shall utilize solid waste properly.

(8) That, the occupier shall submit six monthly compliance report of conditions mentioned in Environmental Clearance and compliance report of CTO conditions regularly.

(9) That, the occupier shall submit applications for renewal of consent under section 25 / 26 of the Water (Prevention & Control of Pollution) Act, 1974 and under section 21 of the Air (Prevention & Control of Pollution) Act, 1981 again 120 days prior to the date of expiry of this consent i.e. 31.12.2020 with documents showing compliance of all of the above conditions.

4. The Order shall be valid subject to compliance of all other legal requirements applicable to the unit.

This is issued with the approval of the Competent authority

(Sanjay Kumar Suman)

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Memo No. : B-42

Member Secretary

Dated : 2016-01-05

06/1/16

Copy to Sri Hari Krishna Budhia (M.D.), M/s Gautam Ferro Alloys (Unit Of BFCL), At + P.O. Marar, Ramgarh Industrial Area, Dist. Ramgarh (Jharkhan)/ Director of Industry, Government of Jharkhand,Ranchi/ Chief Inspector of factories, Ranchi/ Deputy Commissioner, Ramgarh/ DFO, Ramgarh/ Regional Officer, RO, Hazaribagh for information & ensuring compliance of the above conditions. Regional Officer, Hazaribagh is requested to examine the status of compliance every year and shall submit the report to the Board.

(Sanjay Kumar Suman)
Member Secretary

Annexure-R-3
61

भारत सरकार
जल शक्ति मंत्रालय
जल संसाधन, नदी विकास
और गंगा संरक्षण विभाग
केन्द्रीय भूमि जल प्राधिकरण
Government of India
Ministry of Jal Shakti
Department of Water Resources,
River Development & Ganga Rejuvenation
Central Ground Water Authority

(भूजल निकासी हेतु अनापत्ति प्रमाण पत्र)
NO OBJECTION CERTIFICATE (NOC) FOR GROUND WATER ABSTRACTION

Project Name:	Bfcl- Gautam Ferro Alloys		
Project Address:	Plot1405 (p), Marar Industrial Area, Ps Ramgarh		
Town:	Mandu (ct)	Block:	Mandu
District:	Ramgarh	State:	Jharkhand
Pin Code:			
Communication Address:	Managing Director, M/s Bihar Foundry And Castings Ltd, Main Road, Ranchi-834001, Namkum, Ranchi, Jharkhand - 834001		
Address of CGWB Regional Office :	Central Ground Water Board Mid Eastern Region, 6th & 7th Floor, Lok Nayak Jai Prakash Bhawan, Frazer Road Dak Banglow, Patna, Bihar - 800011		

1.	**NOC No.:**	CGWA/NOC/IND/ORIG/2021/10628			
2.	Application No.:	21-4/590/JH/IND/2019	3.	Category: (GWRE 2017)	Semi Critical
4.	Project Status:	Existing Project	5.	NOC Type:	New
6.	**Valid from:**	02/01/2021	7.	**Valid up to:**	01/01/2024

8. Ground Water Abstraction Permitted:

Fresh Water		Saline Water		Dewatering		Total	
m³/day	m³/year	m³/day	m³/year	m³/day	m³/year	m³/day	m³/year
35.00	12775.00						

9. Details of ground water abstraction /Dewatering structures

	Total Existing No.:2						Total Proposed No.:1					
	DW	DCB	BW	TW	MP	MPu	DW	DCB	BW	TW	MP	MPu
Abstraction Structure*	0	0	2	0	0	0	0	0	1	0	0	0

*DW- Dug Well; DCB-Dug-cum-Bore Well; BW-Bore Well; TW-Tube Well; MP-Mine Pit;MPu-Mine Pumps

10.	Ground Water Abstraction/Restoration Charges paid (Rs.):	76650.00			
11.	Number of Piezometers(Observation wells) to be constructed/ monitored & Monitoring mechanism.	No. of Piezometers	Monitoring Mechanism		
			Manual	DWLR**	DWLR With Telemetry
	**DWLR - Digital Water Level Recorder	1	1	0	0

(Compliance Conditions given overleaf)

This is an auto generated document & need not to be signed.

18/11, जामनगर हाउस, मानसिंह रोड, नई दिल्ली - 110011 / 18/11, Jamnagar House, Mansingh Road, New Delhi-110011
Phone: (011) 23383561 Fax: 23382051, 23386743
Website: cgwa-noc.gov.in

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Validity of this NOC shall be subject to compliance of the following conditions:

Mandatory conditions:

1) Installation of digital water flow meter (conforming to BIS/ IS standards) having telemetry system in the abstraction structure(s) shall be mandatory for all users seeking No Objection Certificate and intimation regarding their installation shall be communicated to the CGWA within 30 days of grant of No Objection Certificate through the web-portal.

2) Proponents shall mandatorily get water flow meter calibrated from an authorized agency once in a year.

3) Construction of purpose-built observation wells (piezometers) for ground water level monitoring shall be mandatory as per Section 14 of Guidelines . Water level data shall be made available to CGWA through web portal. Detailed guidelines for construction of piezometers are given in Annexure-II.

4) Proponents shall monitor quality of ground water from the abstraction structure(s) once in a year. Water samples from bore wells/ tube wells / dug wells shall be collected during April/May every year and analysed in NABL accredited laboratories for basic parameters (cations and anions), heavy metals, pesticides/ organic compounds etc. Water quality data shall be made available to CGWA through the web portal.

5) In case of mining projects, additional key wells shall be established in consultation with the Regional Director, CGWB for ground water level monitoring four (4) times a year (January, May, August and November) in core as well as buffer zones of the mine.

6) In case of mining project the firm shall submit water quality report of mine discharge/ seepage from Govt. approved/ NABL accredited lab.

7) The firm shall report compliance of the NOC conditions online in the website (www.cgwa-noc.gov.in) within one year from the date of issue of this NOC.

8) The firm shall submit the water audit report in case of water requirement is in excess of 100 m3/day through certified auditors within three months of completion of the same to CGWA.

9) Application for renewal can be submitted online from 90 days before the expiry of NOC. Ground water withdrawal, if any, after expiry of NOC shall be illegal & liable for legal action as per provisions of Environment (Protection) Act, 1986.

10) This NOC is subject to prevailing Central/State Government rules/laws/norms or Court orders related to construction of tube well/ground water abstraction structure / recharge or conservation structure/discharge of effluents or any such matter as applicable.

General conditions:

11) No additional ground water abstraction and/or de-watering structures shall be constructed for this purpose without prior approval of the Central Ground Water Authority (CGWA).

12) The proponent shall seek prior permission from CGWA for any increase in quantum of groundwater abstraction (more than that permitted in NOC for specific period).

13) Proponents shall install roof top rain water harvesting in the premise as per the existing building bye laws in the premise.

14) The project proponent shall take all necessary measures to prevent contamination of ground water in the premises failing which the firm shall be responsible for any consequences arising thereupon.

15) In case of industries that are likely to contaminate the ground water, no recharge measures shall be taken up by the firm inside the plant premises. The runoff generated from the rooftop shall be stored and put to beneficial use by the firm.

16) Wherever feasible, requirement of water for greenbelt (horticulture) shall be met from recycled / treated waste water.

17) Wherever the NOC is for abstraction of saline water and the existing wells (s) is /are yielding fresh water, the same shall be sealed and new tubewell(s) tapping saline water zone shall be constructed within 3 months of the issuance of NOC. The firm shall also ensure safe disposal of saline residue, if any.

18) Unexpected variations in inflow of ground water into the mine pit, if any, shall be reported to the concerned Regional Director, Central Ground Water Board.

19) In case of violation of any NOC conditions, the applicant shall be liable to pay the penalties as per Section 16 of Guidelines.

20) This NOC does not absolve the proponents of their obligation / requirement to obtain other statutory and administrative clearances from appropriate authorities.

21) The issue of this NOC does not imply that other statutory / administrative clearances shall be granted to the project by the concerned authorities. Such authorities would consider the project on merits and take decisions independently of the NOC.

22) In case of change of ownership, new owner of the industry will have to apply for incorporation of necessary changes in the No Objection Certificate with documentary proof within 60 days of taking over possession of the premises.

23) This NOC is being issued without any prejudice to the directions of the Hon'ble NGT/court orders in cases related to ground water or any other related matters.

(Non-compliance of the conditions mentioned above is likely to result in the cancellation of NOC and legal action against the proponent.)

Annexure-R-4
C3

Government of India
Ministry of Jal Shakti
Department of Water Resources, River Development and Ganga Rejuvenation
Central Ground Water Authority (CGWA)

Application for Issue of NOC to Abstract Ground Water (NOCAP)

Welcome: AOMidEastR
Previous Login Date Time: 15/11/2024 19:39:08 PM , **IP Address:** 117.245.2.143

Logout

Renewal - Application for Permission to Abstract Ground Water for Industrial Use

Application Number : 21-4/590/JH/IND/2019 Applied For Renewal : 1st	First Application	Final Evaluation		NOC Letter		Payment Details Passbook

Application Code :	**84880**
PAN Number :	
GST Number :	

1. General Information:

Water Quality Type: *	Fresh Water
Application Type Category/ Type of Application: *	Foundary Operation
(i) Name of Industry: *	M/S BIHAR FOUNDRY AND CASTINGS LIMITED Ferro Alloys Unit
Is Renew Applied: *	No
Is Renewd: *	NotDefined

(ii) Location Details of the Industrial Unit

Address Line 1: *	PLOT1405 (P)
Address Line 2:	MARAR INDUSTRIAL AREA
Address Line 3:	PS RAMGARH
State: *	JHARKHAND
District: *	RAMGARH
Sub-District: *	MANDU
Village/Town: *	Mandu (CT)
Area Type: *	**Non-Notified**
Area Type Category: *	**Safe**
Whether industry is MSME: *	**No**
Status of Approval of Previous EAC:	Not Applicable
EAC No:	

(iii) Communication Address

Address Line 1: *	MANAGING DIRECTOR
Address Line 2:	M/S BIHAR FOUNDRY AND CASTINGS LTD
Address Line 3:	MAIN ROAD, RANCHI-834001
State: *	JHARKHAND
District: *	RANCHI
Sub-District:	NAMKUM

Pincode: *	834001
Phone Number with Area Code:	
Mobile Number: *	91-7004614975
Fax Number:	
E-Mail: *	bfclgfanoc@gmail.com

(iv) Details of Existing NOC Issued by CGWA

NOC Letter No:	CGWA/NOC/IND/ORIG/2021/10628
Date of Issuance:	02/02/2021
Validity Start Date:	02/01/2021
Validity End Date:	01/01/2024
Reason for not applying for renewal before expiry of NOC validity:	NA
Purpose of Renewal Application:	Existing Ground Water

2. Details of Water Requirement (Fresh/Saline/Brackish and Recycled Water Usage):

(i) Total Water Requirement (a+b+c+d) (m^3/day)

	Existing	Additional	Total
Water Requirement Details (Fresh Water) (m^3/day)			
a) Ground Water Requirement (m^3/day): *	35.00	0.00	35.00 Ground Water Number Of Operation Days 0 Ground Water Years Total 0.00
b). Surface Water Available (Canal, River, Ponds etc.) (m^3/day): *	0.00	0.00	0.00
c). Water Supply from Any Agency (m^3/day): *	0.00	0.00	0.00
Total Fresh Water Requirement : (a+b+c) (m^3/day)	**35.00**	**0.00**	**35.00**
d). Recycled Water Usage (m^3/day):	5.00	0.00	5.00
Total Water Requirement (a+b+c+d) (m^3/day):	**40.00**	**0.00**	**40.00**

(ii) Breakup of Water Requirement and Usage:

Activity	Existing Requirement (m3/day)	Additional Requirement (m3/day)	Total Requirement (m3/day)	No. of Operational Days in a Year	
Industrial Activity	34.00	0.00	34.00	365	124
Domestic	1.00	0.00	1.00	365	365
Greenbelt Development /Environment Maintenance	5.00	0.00	5.00	365	182
Other Use	0.00	0.00	0.00	0	0.0
Grand Total	**40.00**	**0.00**	**40.00**		**146**

(iii) Details of Water Availability from ETP / STP for Recycle / Reuse usage:

	Existing			Additional			
	(m^3/day)	No. Of Days	(m^3/year)	(m^3/day)	No. Of Days	(m^3/year)	
Effluent / Sewerage generated and treated in ETP / STP:	0.00	365	0.00				0
Availability treated Effluent / Sewerage for usage:	0.00	365	0.00				0
Effluent / Sewerage discharge after treatment:	0.00	365	0.00				0

Available treated effluent usage: Total quantity same as 2 i (d) and 2 iii (b) above

Reuse / Recycle Usage Activity	Existing Use (m^3/day)	Additional Availability (m^3/day)	Tot Availalbi
Industrial Activity	0.00	0.00	0.00
Domestic	0.00	0.00	0.00
Greenbelt development	5.00	0.00	5.00
Other Use	0.00	0.00	0.00
Total	**5.00**	**0.00**	**5.00**

3 (a). Groundwater Abstraction Structure- Existing

Number of Existing Structures: * 2

SNo.	Type of Structure Name	Year of Construction	Depth (Meter)	Diameter (mm)	Depth to Water Level (Meters below Ground Level)	Discharge (m3/Hour)	Operational Hours/Day	Operational Days/Year	Mode of Lift Name	Horse Power of Pump	Whether fitted with Water Meter	Whethei Register
1	Borewell	2012	160.00	150	42.57	5.52	4	365	Submersible Pump	1.50	Yes	No
2	Borewell	2013	160.00	150	42.57	4.71	4	365	Submersible Pump	1.50	Yes	No

3 (b). Groundwater Abstraction Structure- Additional

Number of Additional Structures: * 1

SNo.	Type of Structure Name	Year of Construction	Depth (Meter)	Diameter (mm)	Depth to Water Level (Meters below Ground Level)	Discharge (m3/Hour)	Operational Hours/Day	Operational Days/Year	Mode of Lift Name	Horse Power of Pump	Whether fitted with Water Meter	Whethei Register
1	Borewell	2020	260.00	175	42.57	3.55	4	365	Submersible Pump	1.50	Yes	No

4 (a). Compliance to the Conditions prescribed in the NOC

Sr.No.	Conditions given in NOC	Compliance Conditions Applicable	Status of compliance
1	Area Specific Plantation	Yes	Adequate plantation has been done in project area. Details of plant are attached as Annexure 1.
2	Domestic Water School Sanitation	Yes	
3	Groundwater quality monitoring - Pre monsoon and Post monsoon	Yes	Groundwater quality monitoring-Pre monsoon and Post monsoon c enclosed as Anexure 2.
4	Maintenance of recharge structures	Yes	
5	Number of Pizometers as per NOC and Water Level Record	Yes	We have installed 1 nos.of Piezometers in bore well for ground wat level data is available to CGWA through web portal.Photographs of Annexure 3.
6	Number of Tubewells Borewales as per NOC	Yes	we have 2 nos. of Borewells as per CGWA NOC. Photographs of B Annexure 4.
7	Pizometer fitted with AWLRs with telemetrry as per NOC	Yes	Photographs of Piezometer fitted with AWLRs with telemetrry as pe Annexure 3.
8	Quantum of Groundwater as per NOC	Yes	The abstraction of ground water has not exceeded 35 m3 per day(year).CGWA Noc enclosed as Annexure 5.
9	Recharge through ponds	Yes	
10	Recycle and reuse of water	Yes	Recycle and reuse of water used for Greenbelt development.
11	RWH and AR structures implemented	Yes	Rain water harvesting pit is available within plant premises.Further plan is enclosed as Annexure 6.

12	Submission of Compliance report to the Region	Yes	We have Submitting CGWA Compliance report periodically.CGWA enclosed as Annexure 7.
13	Water conservation measures	Yes	1.The STP will be installed after expansion to recycle and reuse the other than drinking/ domestic. 2.Rain water harvesting pit is availat further a
14	Water Security Plan of villages	Yes	1. Installation of borewell with water tank in nearby villages. 2. Wat tankers in nearby villages. 3. Rain water harvesting structure const
15	Well monitored around the plant premises	Yes	Well monitored around the plant premises regularly.For monitoring Nos. of Piezometer for Ground level water monitoring. Photographs Annexure 3.
16	Wells fitted with water meter and its Record	Yes	We have installed digital water flow meter with telemetry system in Near Time office. 2. Near Coal Crusher. Photographs enclosed as /

4 (b). Compliance to the Conditions prescribed in the NOC - Other

Sr.No.	Conditions given in NOC	Status of compliance
1	Groundwater Availability (Please Enclose a Comprehensive Report / Note on Groundwater Condition in and Around the Area) Applicable to Industries Consuming Greater Than 500 m3/day : ($)	GW Requirement 35 KLD, as per guideline of CGWA, report required for withdrawal above 5
2	Details of Rrainwater Harvesting and Artificial Recharge Measures Proposed / Implemented. If Ground Water Recharge outside the Industrial Unit Premises, then provide NOC from the Concern Authority /	RWH Report Attached

5. Groundwater Availability Report (Please Enclose a Comprehensive Report / Note on Groundwater Condition / Groundwater Quality in and Around 5km of the Areas) Applicable only i Programme of the Project. ($)

Details:

6. Details of Rrainwater Harvesting and Artificial Recharge Measures for Groundwater Recharge in the Area. ($)

Details:

Rain water Harvesting System available inside the plant premises,The average Rainfall in the area has been considered as 1251.2 mm for rain water potential calculation, it is considered as 1250mr

(i) Total built up area including factory shed(Rain water potential)= 23682 m3.

(ii) Area covered in paved road(Rain water potential)= 161m3.

(iii) Open space inside factory campus(Rain water potential)= 1353m3.

Total rain water potential of the factory premises 23682+161+1353= 25196m3.Annexure 5.

Processing Fee:

	Bharat Kosh Transaction Ref. No:
	Bharat Kosh Transaction Date:

INDUSTRIAL USE- NOC Condition

☐ **NOC Condition-I have read and understood, I agreed.**

INDUSTRIAL USE- Self Declaration

☐

I hereby certify that the data and information furnished above are true to the best of my knowledge and belief and I am aware that if any part of the data / information submitted is found to be false or application will be rejected outright.

I hereby declare that all the mandatory documents prescribed in the application form have been uploaded and no blank /irrelevant documents have been uploaded. I am also aware that any false/ wr of document will lead to rejection of my application without any notice.

It is to certify that no case related to ground water withdrawal/ contamination is pending against the industry/ project/ unit as on date. Any such case filed against the company/ project/ unit in respect contamination during the pendency of this application shall be immediately brought to the notice of CGWA.

I hereby undertake that in case any environmental compensation/ penalty is imposed on the firm by any statutory authority, I shall comply with the decision of such authority.

1. Application proforma is subject to modification from time to time.

2. Application should be submitted to

Regional Director Central Ground Water Board Mid Eastern Region,

6th & 7th Floor,

Lok Nayak Jai Prakash Bhawan,

Frazer Road Dak Banglow,

PATNA, BIHAR - 800011

3. Incomplete application will be summarily rejected.

4. Processing Fee:	Rs. 5000.00/- (Rupees Five Thousand Only)

Filled By EO:

Processing Fee Submitted :	Yes	**Bharatkosh Details:**	
		Bharat Kosh Transaction Ref. No:-	
		Bharat Kosh Transaction Dated:	
		DD Details:	
		DD No:	
		DD Dated:	
		Bank Name:	
		In Favour Of:	

5. Hard copy of application required:	No

6. Ground Water Charges / Quality	Ground Water Quality Approved	Fresh Water
	Ground Water Charge Required:	Yes
	Ground Water Charge Recieve:	Yes (Ground water abstraction charges)
	Ground Water Charge Amount:	
	Ground Water Arear Amount:	0.00
	Ground Water Charge Type:	(•) Fresh Water ( ) Saline/ Brackish ( ) Saline-Rann of Kachch

Ground Water Charge

SN	Amount	Recieved	Due Date	Recieved Amount
1	38325.00	Yes	02/09/2024	38325.00

Ground Water Arrear

SN	Amount	Recieved	Due Date	Recieved Amount
No Record Exists.				

(7) Environment Compensation Required:	No

SN	Date From	Date To	Daily Quantum (m3/day)(KLD)	Operational Days	Total Quantum	Area Type Category	Reason Name	Rate
No Record Exists.								

(8) Penalty for non Compliance of NOC conditions Required:	No

Scanned copy of signature and seal document should be attached at prescribed place before submission of application.

Attached Files

1). Reason for Not Applying for Renewal before Expiring NOC : (Refer: 1 (iv))	No Attachment Found !

2). Existing NOC : (Refer: 1 (iv))

Sr.No.	Attachment Name	File Name	Download File	View File	
1	BFCL Ferro Alloys Unit CGWA NOC	BFCL FA CGWA NOC.pdf	Download	View	02 Au

3). Groundwater Availability Report : (Refer: 5) No Attachment Found !

4). Details of Rainwater Harvesting / Artificial Recharge Measures : (Refer: 6)

Sr.No.	Attachment Name	File Name	Download File	View File
1	RWH Scheme for BFCL-Ferro Alloys Unit	RWH Scheme for BFCL-Ferro Alloys Unit.pdf	Download	View

5). Authorization: No Attachment Found !

6). Extra Attachment :

Sr.No.	Attachment Name	File Name	Download File	View File	
1	Request letter for name change	Request letter for name change.pdf	Download	View	12 A

Impact AssementReport for OCS areas by accredited consultants: No Attachment Found !

7). Compliance Report: (Refer: 4(a))

Sr.No.	Conditions given in NOC	Attachments
1	Area Specific Plantation	Sr.No. 1 | Attachment Name: Annexure 1 greenbelt | File Name: Annexure 1 greenbelt.pdf | Download File | View File
2	Domestic Water School Sanitation	Sr.No. | Attachment Name | File Name | Download File | View File — No Records Exist.
3	Groundwater quality monitoring - Pre monsoon and Post monsoon	Sr.No. 1 | Attachment Name: Annexure 2 Ground water report | File Name: Annexure 2 Ground water report.pdf | Download File | View Fi
4	Maintenance of recharge structures	Sr.No. | Attachment Name | File Name | Download File | View File — No Records Exist.
5	Number of Pizometers as per NOC and Water Level Record	Sr.No. 1 | Attachment Name: Annexure 3 Piezometer FA | File Name: Annexure 3 Piezometer FA.pdf | Download File | View File
6	Number of Tubewells Borewales as per NOC	Sr.No. 1 | Attachment Name: Annexure 4. Ground water abstraction structure | File Name: Annexure 4 Ground water abstraction structure.pdf | Download File | Vi / View
7	Pizometer fitted with AWLRs with telemetrry as per NOC	Sr.No. 1 | Attachment Name: Annexure 3 Piezometer FA | File Name: Annexure 3 Piezometer FA.pdf | Download File | View File
8	Quantum of Groundwater as per NOC	Sr.No. 1 | Attachment Name: Annexure 5 CGWA NOC | File Name: Annexure 5 CGWA NOC.pdf | Download File | View File
9	Recharge through ponds	Sr.No. | Attachment Name | File Name | Download File | View File — No Records Exist.
10	Recycle and reuse of water	Sr.No. | Attachment Name | File Name | Download File | View File — No Records Exist.
11	RWH and AR structures implemented	Sr.No. | Attachment Name | File Name | Download File | V

		1	Annexure 6 RWH Scheme for BFCL-Ferro Alloys Unit	Annexure 6 RWH Scheme for BFCL-Ferro Alloys Unit.pdf	Download	View

		Sr.No.	Attachment Name	File Name	Download File	View File
12	Submission of Compliance report to the Region	1	Annexure 7 FA-CGWA	Annexure 7 FA-CGWA.pdf	Download	View

		Sr.No.	Attachment Name	File Name	Download File	V
13	Water conservation measures	1	Annexure 6 RWH Scheme for BFCL-Ferro Alloys Unit	Annexure 6 RWH Scheme for BFCL-Ferro Alloys Unit.pdf	Download	View

		Sr.No.	Attachment Name	File Name	Download File	View File
14	Water Security Plan of villages	No Records Exist.				

		Sr.No.	Attachment Name	File Name	Download File	View File
15	Well monitored around the plant premises	1	Annexure 3 Piezometer FA	Annexure 3 Piezometer FA.pdf	Download	View

		Sr.No.	Attachment Name	File Name	Download File	View
16	Wells fitted with water meter and its Record	1	Annexure 8 Digital Water Flowmeter FA	Annexure 8 Digital Water Flowmeter FA.pdf	Download	View

8). Compliance Report - Other : (Refer: 4(b)) No Attachment Found !

9). Bharat Kosh Reciept (Processing Fee) : No Attachment Found !

10). Application with Signature and Seal:

Sr.No.	Attachment Name	File Name	Download File	View File	
1	NOC Renewal declaration	NOC Renewal declaration.pdf	Download	View	15 Aug 2

11). Affidavit of Compliance of NOC Condition:

Sr.No.	Attachment Name	File Name	Download File	View File
1	Affidavit for withdraw Ground water upto 100 KLD	Affidavit for withdraw Ground water upto 100 KLD.pdf	Download	View

12). Water Audit Report:

Sr.No.	Attachment Name	File Name	Download File	View File
1	Water Audit Report-BFCL-Ferro Alloys unit	Water Audit Report-BFCL_-Ferro Alloys unit.pdf	Download	View

13). Source Water Non-availability Certificate:

Sr.No.	Attachment Name	File Name	Download File	View Fil
1	Water Availability/Non-availability Certificate.	Affidavit for Water Availaibility or non Availaibility certificate.pdf	Download	View

14). MSME certificate in case of MSME: No Attachment Found !

15). Bharatkosh reciept/Copy of Demand Draft (Abstraction Charges) No Attachment Found !

16)). Penalty : No Attachment Found !

V). Additional Documents : No Attachment Found !

No Records Exist in Official Document.

Vi). IAR Modeling :

Application Submitted By:	bfcl001
Application Created On:	02/08/2023
Application Submitted On:	02/09/2023
Application Modified By PP On:	01/09/2023

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Associated User:	bfcl001

Annexure 6

Bihar Foundry & Castings Limited - Ferro Alloys Unit

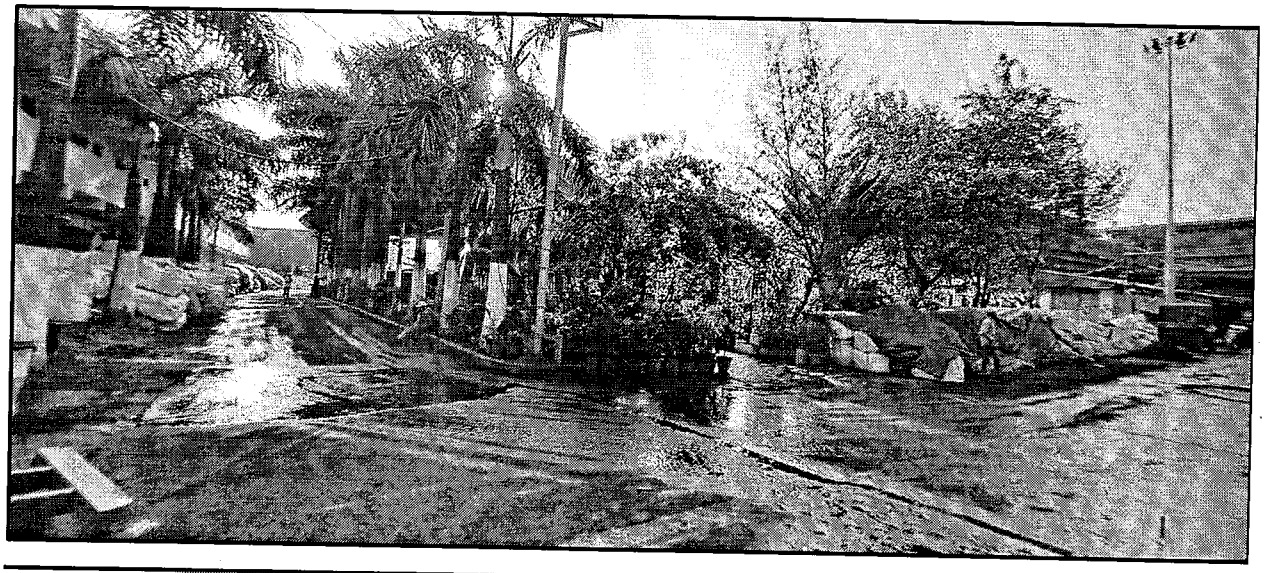
Green Belt Development - Existing and Proposed Plan

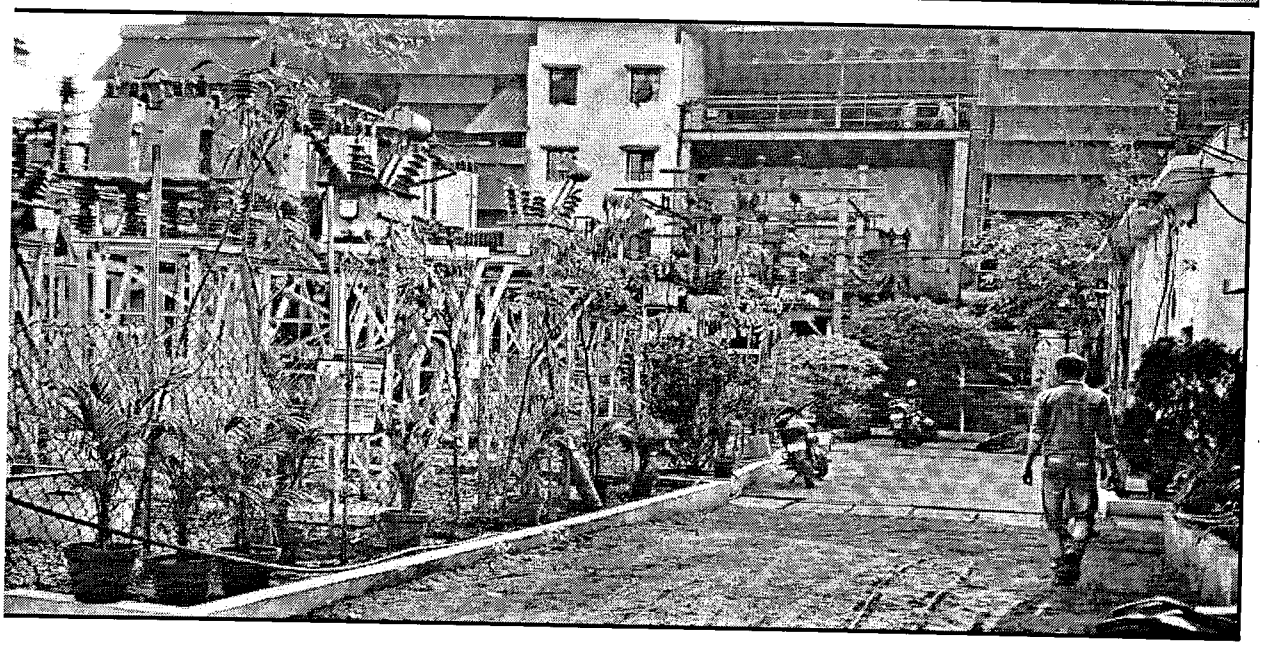
Exising Greenbelt Development

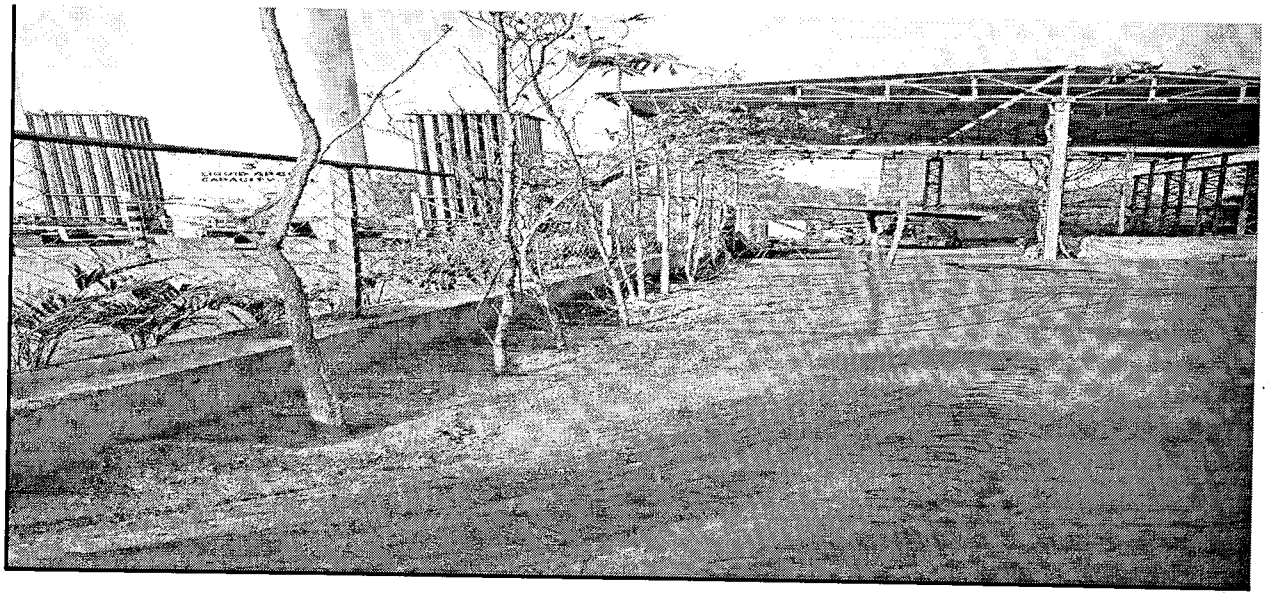
S. No.	Year	No. of trees	Area covered, acre
1	Upto 2022-23	1300	1.3

Proposed Greenbelt Development Plan

S.No	Year	No. of trees	Cumulative tree plantation	Cumulative Area to be covered, acre
1	2023-24	500	1800	1.80
2	2024-25	310	2110	2.11
3	2025-26	250	2360	2.36







J2

YUGANTAR BHARATI

ANALYTICAL & ENVIRONMENTAL ENGINEERING LABORATORY

Accredited by :- NABL accredited testing laboratory vide certificate Number TC-4032
Certified by :- Jharkhand State Pollution Control Board (JSPCB)
ISO 9001:2015 & ISO 45001:2018

TC-4032

Test Certificate

ULR (Unique Lab Report) No.			T C 4 0 3 2 2 2 0 0 0 0 1 4 5 2 F		
Discipline	Chemical	Group	Water	Sample Description	Ground Water
Report Release Date		13th August, 2022		Report ID	YBAEEL-220803-150802-GW01
W. Order / JSPCB App. No.		BFCL/ENV/2022/15		Work Order Date	03.08.2022
Type of Industry(If any)		Ferro Alloys Plant		Job code/ Ref. no.	YBAEEL/WA/L/C/Aug-22/02
Report Issue to		M/s Bihar Foundry & Castings Limited (Ferro Alloys Plant) Ramgarh Industrial Area, P.O. Marar, Dist. - Ramgarh, Jharkhand - 829117			
Sampling Date		06/08/2022		Mode of sample collection	By YBAEEL Team
Sampling Protocol		IS : 3025 (Part-1) 1987, R-2003		Sample Code	220808-GW-X01
Sampling Location		Near Main Gate BW-I		Sampling Source	Ground Water
Sample pkg. Condition		Sealed Pack in PP Bottle		Sample Quantity	3000 ml
Meteorological Cond. of Field		W.C.– Clear		RH % - 68	Temp. – 30°C
Sample receipt Date	06/08/2022	Analysis Started on	06/08/2022	Analysis completed on	13/08/2022

******Test Results******

Sl	Parameter	Test Method	Units	MU %	Results	Limits
1.	pH value	IS 3025 (P-11):2002	pH	1.77	6.56	6.5-8.5
2.	Colour	IS 3025 (P-04):1983	Hazen	--	5	5-15
3.	Conductivity	IS 3025 (P-14):2013	µs/cm	1.90	600.0	--
4.	Turbidity	IS 3025 (P-10):2002	NTU	3.57	BDL (MDL 1.0)	1-5
5.	Total Alkalinity (as $CaCO_3$)	IS 3025 (P-23):2003	mg/l	3.66	128.0	200-600
6.	Total Hardness (as $CaCO_3$)	IS 3025 (P-21):2009	mg/l	1.45	214.0	200-600
7.	Total dissolved solids	IS 3025 (P-16):2006	mg/l	2.86	320.0	500-2000
8.	Chloride (as Cl^-)	IS 3025 (P-32):2003	mg/l	3.41	39.98	250-1000
9.	Fluoride (as F^-)	APHA 4500 F-C 23rd edition 2017	mg/l	12.23	1.0	1.0-1.5
10.	Calcium (as Ca^{2+})	IS 3025 (P-40): 2003	mg/l	4.19	68.8	75-200
11.	Magnesium (as Mg^{2+})	APHA 3500 Mg B : 2017	mg/l	1.90	10.20	30-100
12.	Sulphate (as SO_4^{2-})	IS 3025 (P-24):2003	mg/l	5.42	76.3	200-400
13.	Sodium (as Na^+)	APHA 3111 B 23rd edition 2017	mg/l	16.55	29.0	--
14.	Potassium (as K^+)	APHA 3111 B 23rd edition 2017	mg/l	4.71	2.0	--

******End of Report******

Limit is specified as	IS 10500: 2021
Abbreviation	MDL : Minimum detection limit, BDL : Below detection limit
Env. Condition of Lab	Laboratory is maintaining Temperature 27 ± 2°C and Relative Humidity 65 ± 5% in all testing areas as per IS 196: 1966 (R)
Specific contractual notes	All values are expressed in as unit and results relate solely to the tested sample and applicable parameter in Lab's Permanent Facility
	The report, in full or in part, shall not be used for advertising or as evidence in any court of law
	This report cannot be reproduced, except when in full, without the written permission of the CEO
	The samples collected shall be destroyed after 15 days from the date of issue of the certificate unless specified otherwise
	The liability of the laboratory is limited to the invoiced amount
	All disputes are subjected to the Ranchi Jurisdiction
Remarks	Sample complies with prescribed limits.

Sample Drawn By – Mukesh Singh
Tested By – Akash Khakho (Lab Analyst)

13.08.2022	13/8/22
Verified by	Issued by
Shyam Kumar Singh	Umesh Das
Authorized Signatory	Authorized Signatory

Authorized Signatory
Chemical Section
Yugantar Bharati Analytical &
Environmental Engineering Laboratory

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YUGANTAR BHARATI
ANALYTICAL & ENVIRONMENTAL ENGINEERING LABORATORY

Accredited by :- Jharkhand State Pollution Control Board (JSPCB)
Certified by :- An ISO 9001:2015 & ISO 45001:2018

State Pollution Control Board

Test Certificate

Discipline	Chemical	Group	Water	Sample Description	Ground Water
Report Release Date		13th August, 2022		Report ID	YBAEEL-220803-150802-GW01
W. Order / JSPCB App. No.		BFCL/ENV/2022/15		Work Order Date	03.08.2022
Type of Industry(If any)		Ferro Alloys Plant		Job code/ Ref. no.	YBAEEL/WAI/C/Aug-22/02
Report Issue to		M/s Bihar Foundry & Castings Limited (Ferro Alloys Plant) Ramgarh Industrial Area, P.O. Marar, Dist. - Ramgarh, Jharkhand - 829117			
Sampling Date		06/08/2022		Mode of sample collection	By YBAEEL Team
Sampling Protocol		IS : 3025 (Part-1) 1987, R-2003		Sample Code	220808-GW-X01
Sampling Location		Near Main Gate BW-I		Sampling Source	Ground Water
Sample pkg. Condition		Sealed Pack in PP Bottle		Sample Quantity	3000 ml
Meteorological Cond. of Field		W.C.– Clear		RH % - 68	Temp. – 30°C
Sample receipt Date	08/08/2022	Analysis Started on	08/08/2022	Analysis completed on	12/08/2022

******Test Results ******

Sl	Parameter	Test Method	Units	MU %	Results	Limits
1.	Odour	IS 3025 (P-05):2002	--	--	Agree.	Agreeable
2.	Taste	IS 3025 (P-07):2002	--	--	Agree.	Agreeable
3.	Phenols (C_6H_5OH)	IS 3025 (P-43):1992	mg/l	--	BDL (MDL 0.001)	0.001-0.002
4.	Hexavalent Chromium (as Cr^{+6})	IS: 3025 (P-52):2003	mg/l	--	BDL (MDL 0.03)	--

******End of Report******

Limit is specified as	IS 10500: 2012
Abbreviation	MU - Minimum detectable limit, BDL - Below detection limit
Env. Condition of Lab	Laboratory is maintaining Temperature 27 ± 2°C and Relative Humidity 65 ± 5% in all testing areas as per IS 196: 1968 (R)
Specific contractual notes	All values are expressed in its unit and reports listed refer only to the tested sample and applicable parameters in Lab's Permanent Facility
	This report, in full or in part, shall not be used for advertising or as evidence in any court of law
	This report cannot be reproduced, except when in full, without the written permission of the CEO
	The samples collected shall be destroyed after 15 days from the date of issue of the certificate unless specified otherwise
	The liability of the laboratory is limited to the invoiced amount
	All disputes are subjected to the Ranchi Jurisdiction
Remarks	Sample complies with prescribed limits

Sample Drawn By - Mukesh Singh
Tested By - Akash Khalkho (Lab Analyst)

13.08.2022	13/8/22
Verified by	Issued By
Shivani Kumari Singh	Utpala Das
Authorized Signatory	Authorized Signatory

Authorized Signatory
Chemical Section
Yugantar Bharati Analytical &
Environmental Engineering Laboratory

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YUGANTAR BHARATI

ANALYTICAL & ENVIRONMENTAL ENGINEERING LABORATORY

Accredited by :- NABL accredited testing laboratory vide certificate Number TC-4032
Certified by :- Jharkhand State Pollution Control Board (JSPCB)
ISO 9001:2015 & ISO 45001:2018

TC-4032

Test Certificate

ULR (Unique Lab Report) No.				T	C	4	0	3	2	2	2	0	0	0	0	0	1	4	5	4	F

Discipline	Chemical	Group	Water	Sample Description	Residue & Contaminants in Water
Report Release Date		13th August, 2022		Report ID	YBAEEL-220803-150302-GW01
W. Order / JSPCB App. No.		BFCL/ENV/2022/15		Work Order Date	03.08.2022
Type of Industry(if any)		Ferro Alloys Plant		Job code/ Ref. no.	YBAEEL/WA/L/R/Aug-22/01
Report Issue to		M/s Bihar Foundry & Castings Limited (Ferro Alloys Plant) Ramgarh Industrial Area, P.O. Marar, Dist. - Ramgarh, Jharkhand - 829117			
Sampling Date		06/08/2022		Mode of sample collection	By YBAEEL Team
Sampling Protocol		IS : 3025 (Part-1) 1987, R-2003		Sample Code	Z20808-GW-X01
Sampling Location		Near Main Gate BW-I		Sampling Source	Ground Water
Sample pkg. Condition		Sealed Pack in PP Bottle		Sample Quantity	3000 ml
Meteorological Cond. of Field		W.C.- Clear		RH % - 68	Temp. - 30°C
Sample receipt Date	08/08/2022	Analysis Started on	08/08/2022	Analysis completed on	13/08/2022

******Test Results******

Sl	Parameter	Test Method	Units	MU %	Results	Limits
1.	Arsenic (as As)	APHA 3114 B 23rd edition 2017	mg/l	10.34	BDL (MDL 0.003)	0.01-No relaxation
2.	Copper (as Cu)	APHA 3111 B 23rd edition 2017	mg/l	11.11	BDL (MDL 0.01)	0.05-1.5
3.	Iron (as Fe)	APHA 3111 B 23rd edition 2017	mg/l	2.34	0.24	1.0-No relaxation
4.	Lead (as Pb)	APHA 3111 B 23rd edition 2017	mg/l	10.64	BDL (MDL 0.02)	0.01-No relaxation
5.	Selenium (as Se)	APHA 3111 B 23rd edition 2017	mg/l	5.95	BDL (MDL 0.01)	0.01-No relaxation
6.	Zinc (as Zn)	APHA 3111 B 23rd edition 2017	mg/l	15.38	BDL (MDL 0.1)	5-15
7.	Cadmium (as Cd)	APHA 3111 B 23rd edition 2017	mg/l	5.6	BDL (MDL 0.02)	0.003-No relaxation
8.	Mercury (as Hg)	APHA 3112 B 23rd edition 2017	mg/l	8.47	BDL (MDL 0.003)	0.001-No relaxation
9.	Chromium (as Cr)	APHA 3111 B 23rd edition 2017	mg/l	12.53	0.12	0.05-No relaxation

******End of Report******

Limit is specified as	IS 10500: 2021
Abbreviation	MDL- Minimum detection limit, BDL - Below detection limit
Env. Condition of Lab	Laboratory is maintaining Temperature 27 ± 2°C and Relative Humidity 65 ± 5% in all testing areas as per IS 196:1966 (R)
Specific contractual notes	All values are expressed in as unit and results listed refer only to the tested sample and applicable parameter in Lab's Permanent Facility This report, in full or in part, shall not be used for advertising or as evidence in any court of law. This report cannot be reproduced, except when in full, without the written permission of the CEO. The samples collected shall be destroyed after 15 days from the date of issue of the certificate unless specified otherwise. The liability of the laboratory is limited to the invoiced amount. All disputes are subjected to the Ranchi jurisdiction.
Remarks	Sample complies with prescribed limits.

Sample Drawn By – Mukesh Singh

13.08.2022	
Tested by	Verified & Issued by
Shivani Kumari Singh	Umesh Das
(Lab Analyst)	Authorised Signatory

Authorized Signatory
Chemical Section
Yugantar Bharati Analytical &
Environmental Engineering Laboratory

YUGANTAR BHARATI
ANALYTICAL & ENVIRONMENTAL ENGINEERING LABORATORY

Accredited by :- Jharkhand State Pollution Control Board (JSPCB)
Certified by :- An ISO 9001:2015 & ISO 45001:2018

Test Certificate

Discipline	Biological	Group	Water	Sample Description	Ground Water
Report Release Date		13th August, 2022		Report ID	YBAEEL-220803-150502-GW01
W. Order / JSPCB App. No.		BFCL/ENV/2022/15		Work Order Date	03.08.2022
Type of Industry(if any)		Ferro Alloys Plant		Job code/ Ref. no.	YBAEEL/WA/L/M/Aug-22/02
Raport Issue to		M/s Bihar Foundry & Castings Limited (Ferro Alloys Plant) Ramgarh Industrial Area, P.O. Marar, Dist. - Ramgarh, Jharkhand - 829117			
Sampling Date		06/08/2022		Mode of sample collection	By YBAEEL Team
Sampling Protocol		IS : 1622:1982, R - 2019		Sample Code	220805-GW-X01
Sampling Location		Near Main Gate BW-I		Sampling Source	Ground Water
Sample pkg. Condition		Sealed Pack in PP Bottle		Sample Quantity	250 m
Meteorological Cond. of Field		W.C.- Clear		RH % - 68	Temp. - 30°C
Sample receipt Date		08/08/2022	Analysis Started on	10/08/2022	Analysis completed on 12/08/2022

******Test Results ******

Sl	Parameter	Test Method	Units	Results	Limits
1.	Total coliform	IS 15185:2016, RA - 2021	[illegible] ml	Absence	Shall not to be Detectable in any 100 ml sample
2.	Fecal coliform	IS 15185:2016, RA - 2021	[illegible] ml	Absence	

******End of Report******

Limit is specified as	IS 10500: 2012
Abbreviation	MDL : Minimum detection limit, BDL : Below detection limit, <1.8 / <1.1 MPN/100 ml denotes that the presence probability of bacteria is absent in the tested sample
Env. Condition of Lab	Laboratory is maintaining Temperature 27 ± 2°C and Relative Humidity 65 ± 5% in all testing areas as per IS 196:1966 (R)
Specific contractual notes	All values are expressed in as unit and results listed refer only to the tested sample and applicable parameter in Lab's Permanent Facility
	This report, in full or in part, shall not be used for advertising or as evidence in any court of law
	This report cannot be reproduced, except when in full, without the written permission of the CEO
	The samples collected shall be destroyed after 7 days from the date of issue of the certificate unless specified otherwise
	The liability of the laboratory is limited to the invoiced amount
	All disputes are subjected to the Ranchi Jurisdiction
Remarks	Sample complies with prescribed limit.

Sample Drawn By - Mukesh Singh

Tested By	Verified & Issued by
Madhuri Sinha	Mukesh Kumar
(Lab Analyst)	Authorised Signatory

Authorized Signatory
Microbiological Section
Yugantar Bharati Analytical &
Environmental Engineering Laboratory

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YUGANTAR BHARATI

ANALYTICAL & ENVIRONMENTAL ENGINEERING LABORATORY

Accredited by :- NABL accredited testing laboratory vide certificate Number TC-4032
Certified by :- Jharkhand State Pollution Control Board (JSPCB)
ISO 9001:2015 & ISO 45001:2018

TC-4032

Test Certificate

ULR (Unique Lab Report) No.		T C 4 0 3 2 2 2 0 0 0 0 0 1 4 5 3 F			
Discipline	Chemical	Group	Water	Sample Description	Ground Water
Report Release Date		13th August, 2022		Report ID	YBAEEL-220803-150802-GW02
W. Order / JSPCB App. No.		BFCL/ENV/2022/15		Work Order Date	03.08.2022
Type of Industry(If any)		Ferro Alloys Plant		Job code/ Ref. no.	YBAEEL/WA/L/C/Aug-22/02
Report Issue to		M/s Bihar Foundry & Castings Limited (Ferro Alloys Plant) Ramgarh Industrial Area, P.O. Marar, Dist. - Ramgarh, Jharkhand - 829117			
Sampling Date		06/08/2022		Mode of sample collection	By YBAEEL Team
Sampling Protocol		IS : 3025 (Part-1) 1987, R-2003		Sample Code	220808-GW-X02
Sampling Location		Coal Crushing Area BW-2		Sampling Source	Ground Water
Sample pkg. Condition		Sealed Pack in PP Bottle		Sample Quantity	3000 ml
Meteorological Cond. of Field		W.C.- Clear		RH % - 68	Temp. - 30°C
Sample receipt Date	08/08/2022	Analysis Started on	08/08/2022	Analysis completed on	13/08/2022

******Test Results******

Sl	Parameter	Test Method	Units	MU %	Results	Limits
1.	pH value	IS 3025 (P-11):2002	pH	1.77	6.78	6.5-8.5
2.	Colour	IS 3025 (P-04):1983	Hazen	-	5	5-15
3.	Conductivity	IS 3025 (P-14):2013	µs/cm	1.90	1424.0	--
4.	Turbidity	IS 3025 (P-10):2002	NTU	3.63	BDL (MDL 1.0)	1-5
5.	Total Alkalinity (as $CaCO_3$)	IS 3025 (P-23):2003	mg/l	3.68	108.0	200-600
6.	Total Hardness (as $CaCO_3$)	IS 3025 (P-21):2009	mg/l	1.35	522.0	200-600
7.	Total dissolved solids	IS 3025 (P-16):2006	mg/l	3.85	778.0	500-2000
8.	Chloride (as Cl^-)	IS 3025 (P-32):2003	mg/l	3.41	303.4	250-1000
9.	Fluoride (as F^-)	APHA 4500 F-C 23rd edition 2017	mg/l	12.72	1.0	1.0-1.5
10.	Calcium (as Ca^{2+})	IS 3025 (P-40): 2003	mg/l	4.19	174.4	75-200
11.	Magnesium (as Mg^{2+})	APHA 3500 Mg B : 2017	mg/l	1.50	20.39	30-100
12.	Sulphate (as SO_4^{2-})	IS 3025 (P-24):2003	mg/l	5.42	112.0	200-400
13.	Sodium (as Na^+)	APHA 3111 B 23rd edition 2017	mg/l	16.96	79.0	--
14.	Potassium (as K^+)	APHA 3111 B 23rd edition 2017	mg/l	9.21	3.0	--

******End of Report******

Limit is specified as	IS 10500: 2021
Abbreviation	MDL - Minimum detection limit, BDL - Below detection limit
Env. Condition of Lab	Laboratory is maintaining Temperature 27 ± 2°C and Relative Humidity 65 ± 5% in all testing areas as per IS 196: 1966 (C)
Specific contractual notes	All values are expressed in as unit and results listed refer only to the tested sample and applicable parameter in Lab's Permanent Facility
	This report, in full or in part, shall not be used for advertising or as evidence in any court of law
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	The samples collected shall be destroyed after 15 days from the date of issue of the certificate unless specified otherwise
	The liability of the laboratory is limited to the invoiced amount
	All disputes are subjected to the Ranchi Jurisdiction
Remarks	Sample complies with prescribed limits.

Sample Drawn By - Mukesh Singh
Tested By - Akash Khakhe (Lab Analyst)

13.08.2022	13/8/22
Verified by Shivan Kumar Singh Authorized Signatory	Issued by Umesh Das Authorized Signatory

Authorized Signatory
Chemical Section
Yugantar Bharati Analytical &
Environmental Engineering Laboratory

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YUGANTAR BHARATI

ANALYTICAL & ENVIRONMENTAL ENGINEERING LABORATORY

Accredited by :- Jharkhand State Pollution Control Board (JSPCB)
Certified by :- An ISO 9001:2015 & ISO 45001:2018

Test Certificate

Discipline	Chemical	Group	Water	Sample Description	Ground Water
Report Release Date		13th August, 2022		Report ID	YBAEEL-220803-150802-GW02
W. Order / JSPCB App. No.		BFCL/ENV/2022/15		Work Order Date	03.08.2022
Type of Industry(If any)		Ferro Alloys Plant		Job code/ Ref. no.	YBAEEL/WA/LIC/Aug-22/02
Report Issue to		M/s Bihar Foundry & Castings Limited (Ferro Alloys Plant) Ramgarh Industrial Area, P.O. Marar, Dist. - Ramgarh, Jharkhand - 829117			
Sampling Date		06/08/2022		Mode of sample collection	By YBAEEL Team
Sampling Protocol		IS : 3025 (Part-1) 1987, R-2003		Sample Code	220808-GW-X02
Sampling Location		Coal Crushing Area BW-2		Sampling Source	Ground Water
Sample pkg. Condition		Sealed Pack in PP Bottle		Sample Quantity	3000 ml
Meteorological Cond. of Field		W.C.– Clear		RH % - 58	Temp. – 30°C
Sample receipt Date	08/08/2022	Analysis Started on	08/08/2022	Analysis completed on	13/08/2022

******Test Results******

Sl	Parameter	Test Method	Units	MU %	Results	Limits
1.	Odour	IS 3025 (P-05):2002	--	--	Agree.	Agreeable
2.	Taste	IS 3025 (P-07):2002	--	--	Agree.	Agreeable
3.	Phenols (C_6H_5OH)	IS 3025 (P-43):1992	mg/l	--	BDL (MDL 0.001)	0.001-0.002
4.	Hexavalent Chromium (as Cr^{+6})	IS: 3025 (P-52)-2003	mg/l	--	BDL (MDL 0.03)	--

******End of Report******

Limit is specified as	IS 10500: 2021
Abbreviation	MDL : Minimum detection limit, BDL : Below detection limit
Env. Condition of Lab	Laboratory is maintaining Temperature 27 ± 2°C and Relative Humidity 55 ± 5% in all testing areas as per IS 196: 1966 (C)
Specific contractual notes	All values are expressed in as unit and results listed refer only to the tested sample and applicable parameter in Lab's Permanent Facility.
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	The liability of the laboratory is limited to the invoiced amount.
	All disputes are subjected to the Ranchi Jurisdiction.
Remarks	Sample complies with prescribed limits.

Sample Drawn By – Mukesh Singh
Tested By – Akash Khalkho (Lab Analyst)

13.08.2022	13/8/22
Verified by : Shivam Kumar Singh Authorized Signatory	Issued by Umesh Das Authorized Signatory

Authorized Signatory
Chemical Section
Yugantar Bharati Analytical &
Environmental Engineering Laboratory

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YUGANTAR BHARATI
ANALYTICAL & ENVIRONMENTAL ENGINEERING LABORATORY

Accredited by: - NABL accredited testing laboratory vide certificate Number TC-4032
Certified by: - Jharkhand State Pollution Control Board (JSPCB)
ISO 9001:2015 & ISO 45001:2018

TC-4032

Test Certificate

ULR (Unique Lab Report) No.	T C 4 0 3 2 2 2 0 0 0 0 0 1 4 5 5 F				
Discipline: Chemical	Group: Water	Sample Description	Residue & Contaminants in Water		
Report Release Date	13th August, 2022	Report ID	YBAEEL-220803-150802-GW02		
W. Order / JSPCB App. No.	BFCL/ENV/2022/15	Work Order Date	03.08.2022		
Type of Industry(if any)	Ferro Alloys Plant	Job code/ Ref. no.	YBAEEL/WA/L/R/Aug-22/01		
Report Issue to	M/s Bihar Foundry & Castings Limited (Ferro Alloys Plant) Ramgarh Industrial Area, P.O. Marar, Dist. - Ramgarh, Jharkhand - 829117				
Sampling Date	06/08/2022	Mode of sample collection	By YBAEEL Team		
Sampling Protocol	IS : 3025 (Part-1) 1987, R-2003	Sample Code	220808-GW-X02		
Sampling Location	Coal Crushing Area BW-2	Sampling Source	Ground Water		
Sample pkg. Condition	Sealed Pack in PP Bottle	Sample Quantity	3000 ml		
Meteorological Cond. of Field	W.C.– Clear	RH % - 68	Temp. – 30°C		
Sample receipt Date	08/08/2022	Analysis Started on	08/08/2022	Analysis completed on	13/08/2022

******Test Results******

Sl	Parameter	Test Method	Units	MU %	Results	Limits
1.	Arsenic (as As)	APHA 3114 B 23rd edition 2017	mg/l	18.34	BDL (MDL 0.003)	0.01-No relaxation
2.	Copper (as Cu)	APHA 3111 B 23rd edition 2017	mg/l	11.11	BDL (MDL 0.01)	0.05-1.5
3.	Iron (as Fe)	APHA 3111 B 23rd edition 2017	mg/l	2.34	0.41	1.0-No relaxation
4.	Lead (as Pb)	APHA 3111 B 23rd edition 2017	mg/l	10.64	BDL (MDL 0.02)	0.01-No relaxation
5.	Selenium (as Se)	APHA 3111 B 23rd edition 2017	mg/l	5.56	BDL (MDL 0.01)	0.01-No relaxation
6.	Zinc (as Zn)	APHA 3111 B 23rd edition 2017	mg/l	15.35	BDL (MDL 0.1)	5.15
7.	Cadmium (as Cd)	APHA 3111 B 23rd edition 2017	mg/l	9.0	BDL (MDL 0.02)	0.003-No relaxation
8.	Mercury (as Hg)	APHA 3112 B 23rd edition 2017	mg/l	8.47	BDL (MDL 0.003)	0.001-No relaxation
9.	Chromium (as Cr)	APHA 3111 B 23rd edition 2017	mg/l	12.53	0.16	0.05-No relaxation

******End of Report******

Limit is specified as	IS 10500: 2091
Abbreviation	MDL - Minimum detection limit, BDL - Below detection limit
Env. Condition of Lab	Laboratory is maintaining Temperature 27 ± 2°C and Relative Humidity 65 ± 5% in all testing areas as per IS 196: 1966 (C)
Specific contractual notes	All values are expressed in as unit and results listed refer only to the tested sample and applicable parameter in Lab's Permanent Facility
	This report, in full or in part, shall not be used for advertising or as evidence in any court of law
	This report cannot be reproduced, except when in full, without the written permission of the CEO
	The samples collected shall be destroyed after 15 days from the date of issue of the certificate unless specified otherwise
	The liability of the laboratory is limited to the invoiced amount
	All disputes are subjected to the Ranchi Jurisdiction
Remarks	Sample complies with prescribed limits

Sample Drawn By – Mukesh Singh

13.08.2022	13/8/22
Tested By Shivam Kumar Singh Authorized Signatory	Verified & Issued by Umesh Das Authorized Signatory

Authorized Signatory
Chemical Section
Yugantar Bharati Analytical &
Environmental Engineering Laboratory

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YUGANTAR BHARATI

ANALYTICAL & ENVIRONMENTAL ENGINEERING LABORATORY

Accredited by :- Jharkhand State Pollution Control Board (JSPCB)
Certified by :- An ISO 9001:2015 & ISO 45001:2018

State Pollution Control Board

Test Certificate

Discipline	Biological	Group	Water	Sample Description	Ground Water
Report Release Date		13th August, 2022		Report ID	YBAEEL-220803-150802-GW02
W. Order / JSPCB App. No.		BFCL/ENV/2022/15		Work Order Date	03.08.2022
Type of Industry(if any)		Ferro Alloys Plant		Job code/ Ref. no.	YBAEEL/WA/L/M/Aug-22/02
Report Issue to		M/s Bihar Foundry & Castings Limited (Ferro Alloys Plant) Ramgarh Industrial Area, P.O. Marar, Dist. - Ramgarh, Jharkhand - 829117			

Sampling Date	06/08/2022		Mode of sample collection	By YBAEEL Team	
Sampling Protocol	IS : 1622:1982, R - 2019		Sample Code	220808-GW-X02	
Sampling Location	Coal Crushing Area BW-2		Sampling Source	Ground Water	
Sample pkg. Condition	Sealed Pack in PP Bottle		Sample Quantity	250 ml	
Meteorological Cond. of Field	W.C.– Clear	RH % - 68		Temp. – 30°C	
Sample receipt Date	08/08/2022	Analysis Started on	10/08/2022	Analysis completed on	12/08/2022

******Test Results ******

Sl	Parameter	Test Method	Units	Results	Limits
1.	Total coliform	IS 15185:2016, RA - 2021	cfu/100 ml	Absence	Shall not to be Detectable in any 100 ml sample
2.	Fecal coliform	IS 15185:2016, RA - 2021	Cfu/100 ml	Absence	

******End of Report******

Limit is specified as	IS 10500: 2012
Abbreviation	MDL : Minimum detection limit, BDL : Below detection limit <1.8 / < 1.1 MPN/100 ml denotes that the presence probability of bacteria is absent in the tested sample.
Env. Condition of Lab	Laboratory is maintaining, Temperature 27 ± 2°C and Relative Humidity 65 ± 5% in all testing areas as per IS 196:1966 (C)
Specific contractual notes	All values are expressed in as unit and results listed relate only to the tested sample and applicable parameter in Lab's Permanent Facility.
	This report, in full or in part, shall not be used for advertising or as evidence in any court of law.
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	The samples collected shall be destroyed after 7 days from the date of issue of the certificate unless specified otherwise.
	The liability of the laboratory is limited to the invoiced amount.
	All disputes are subjected to the Ranchi Jurisdiction
Remarks	Sample complies with prescribed limit.

Sample Drawn By – Mukesh Singh

Madhuri Sinha	Mukesh Kumar
Tested By Madhuri Sinha (Lab Analyst)	Verified & Issued by Mukesh Kumar Authorized Signatory

Authorized Signatory
Microbiological Section
Yugantar Bharati Analytical & Environmental Engineering Laboratory

ISO 45001:2018 ISO 9001:2015

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YUGANTAR BHARATI
ANALYTICAL & ENVIRONMENTAL ENGINEERING LABORATORY

Accredited by :- Jharkhand State Pollution Control Board (JSPCB)
Certified by :- ISO 9001:2015 & ISO 45001:2018

TC-4032

Test Certificate

ULR (Unique Lab Report) No.	TC403223000003790F				
Discipline: Chemical	Group: Water		Sample Description	Ground Water	
Report Release Date	10th April, 2023		Report ID	YBAEEL-230306-121842-GW01	
W. Order / JSPCB App. No.	15747848		Work Order Date	06.03.2023	
Type of Industry(if any)	Ferro Alloys Plant		Job code/ Ref. no.	YBAEEL/WA/L/CIApr.-23/01	
Report Issue to	M/s Bihar Foundry & Castings Limited (Ferro Alloys Unit) At.+P.O. - Marar, Ramgarh Industrial Area, Dist. - Ramgarh, Jharkhand - 829117				
Sampling Date	05/04/2023		Mode of sample collection	By YBAEEL Team	
Sampling Protocol	IS : 3025 (Part-1) 1987, R-2003		Sample Code	230406-GW-W01	
Sampling Location	Near Main Gate		Sampling Source	Ground Water	
Sample pkg. Condition	Sealed Pack in PP Bottle		Sample Quantity	3000 ml	
Meteorological Cond. of Field	W.C.– Clear		RH % - 28	Temp. – 33°C	
Sample receipt Date	06/04/2023	Analysis Started on	06/04/2023	Analysis completed on	10/04/2023

******Test Results ******

Sl	Parameter	Test Method	Units	MU %	Results	Limits
1.	pH value	IS 3025 (P-11):2002	pH	1.77	6.65	6.5-8.5
2.	Colour	IS 3025 (P-04):1983	Hazen	--	5	5-15
3.	Conductivity	IS 3025 (P-14):2013	µs/cm	1.90	624.0	--
4.	Turbidity	IS 3025 (P-10):2002	NTU	3.65	BDL (MDL 1.0)	1-5
5.	Total Alkalinity (as $CaCO_3$)	IS 3025 (P-23):2003	mg/l	3.88	124.0	200-600
6.	Total Hardness (as $CaCO_3$)	IS 3025 (P-21):2009	mg/l	1.45	216.0	200-600
7.	Total dissolved solids	IS 3025 (P-16):2006	mg/l	2.85	312.0	500-2000
8.	Chloride (as Cl^-)	IS 3025 (P-32):2003	mg/l	3.41	38.0	250-1000
9.	Fluoride (as F-)	APHA 4500 F-C 23rd edition 2017	mg/l	12.22	1.1	1.0-1.5
10.	Calcium (as Ca^{2+})	IS 3025 (P-40): 2003	mg/l	4.19	66.2	75-200
11.	Magnesium (as Mg^{2+})	APHA 3500 Mg B : 2017	mg/l	1.98	12.27	30-100
12.	Sulphate (as SO_4^{2-})	IS 3025 (P-24):2003	mg/l	5.48	74.0	200-400
13.	Sodium (as Na^+)	APHA 3111 B 23rd edition 2017	mg/l	16.58	24.0	--
14.	Potassium (as K^+)	APHA 3111 B 23rd edition 2017	mg/l	9.21	2.0	--

******End of Report******

Limit is specified as	IS 10500: 2021
Abbreviation	MDL : Minimum detection limit, BDL : Below detection limit.
Env. Condition of Lab	Laboratory is maintaining Temperature 27 ± 2°C and Relative Humidity 65 ± 5% in all testing areas as per IS 196:1966 (C).
Specific contractual notes	All values are expressed in as unit and results listed refer only to the tested sample and applicable parameter in Lab's Permanent Facility This report, in full or in part, shall not be used for advertising or as evidence in any court of law. This report cannot be reproduced, except when in full, without the written permission of the CEO. The samples collected shall be destroyed after 15 days from the date of issue of the certificate unless specified otherwise. The liability of the laboratory is limited to the invoiced amount. All disputes are subjected to the Ranchi Jurisdiction.
Remarks	Sample complies with prescribed limits.

Sample Drawn By - Angad Munda
Tested By - Satyam Kumar (Lab Analyst)

Only CONCERN for
Jharkhand State Pollution Control Board
Application No. 15747848
Allotted Date 06-03-23
Submission Date 10-04-23

10.4.23	10.4.23
Verified by	Issued by
Shivam Kumar Singh	Sanjeev Kumar Singh
(Authorized Signatory)	(Technical Manager)

Authorized Signatory
Chemical Section
Yugantar Bharati Analytical &
Environmental Engineering Laboratory

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YUGANTAR BHARATI

ANALYTICAL & ENVIRONMENTAL ENGINEERING LABORATORY

Accredited by :- Jharkhand State Pollution Control Board (JSPCB)
Certified by :- An ISO 9001:2015 & ISO 45001:2018

State Pollution Control Board

Test Certificate

Discipline	Chemical	Group	Water	Sample Description	Ground Water
Report Release Date		10th April, 2023		Report ID	YBAEEL-230306-121842-GW01
W. Order / JSPCB App. No.		15747648		Work Order Date	06.03.2023
Type of Industry(if any)		Ferro Alloys Plant		Job code/ Ref. no.	YBAEEL/WA/L/C/Apr.-23/01
Report Issue to		M/s Bihar Foundry & Castings Limited (Ferro Alloys Unit) At.+P.O. - Marar, Ramgarh Industrial Area, Dist. - Ramgarh, Jharkhand - 829117			
Sampling Date		05/04/2023		Mode of sample collection	By YBAEEL Team
Sampling Protocol		IS : 3025 (Part-1) 1987, R-2003		Sample Code	230406-GW-W01
Sampling Location		Near Main Gate		Sampling Source	Ground Water
Sample pkg. Condition		Sealed Pack in PP Bottle		Sample Quantity	3000 ml
Meteorological Cond. of Field		W.C.- Clear		RH % - 28	Temp. - 33°C
Sample receipt Date	06/04/2023	Analysis Started on	06/04/2023	Analysis completed on	10/04/2023

******Test Results ******

Sl	Parameter	Test Method	Units	MU %	Results	Limits
1.	Odour	IS 3025 (P-05):2002	--	--	Agree.	Agreeable
2.	Taste	IS 3025 (P-07):2002	--	--	Agree.	Agreeable
3.	Phenols (C_6H_5OH)	IS 3025 (P-43):1992	mg/l	--	BDL (MDL 0.001)	0.001-0.002
4.	Hexavalent Chromium (as Cr^{+6})	IS: 3025 (P-52):2003	mg/l	--	BDL (MDL 0.03)	--

******End of Report******

Limit is specified as	IS 10500: 2021
Abbreviation	MDL - Minimum detection limit, BDL - Below detection limit.
Env. Condition of Lab	Laboratory is maintaining, Temperature 27 ± 2°C and Relative Humidity 55 ± 5% in all testing areas as per IS 196:1966 (C)
Specific contractual notes	All values are expressed in as unit and results listed refer only to the tested sample and applicable parameter in Lab's Permanent Facility
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	The liability of the laboratory is limited to the invoiced amount.
	All disputes are subjected to the Ranchi Jurisdiction.
Remarks	Sample complies with prescribed limits.

Sample Drawn By – Angad Munda
Tested By – Satyam Kumar (Lab Analyst)

Only CONSENT for
Jharkhand State Pollution Control Board
Application No. 10-178548
Allotted Date 06-03-23
Submission Date 10-04-23

10.4.23	10/4/23
Verified by	Issued by
Shivani Kumari Singh	Sanjeev Kumar Singh
(Authorized Signatory)	(Technical Manager)

Authorized Signatory
Chemical Section
Yugantar Bharati Analytical &
Environmental Engineering Laboratory

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YUGANTAR BHARATI

ANALYTICAL & ENVIRONMENTAL ENGINEERING LABORATORY

Accredited by: - Jharkhand State Pollution Control Board (JSPCB)

Certified by :- ISO 9001:2015 & ISO 45001:2018

TC-4032

Test Certificate

ULR (Unique Lab Report) No.				T	C	4	0	3	2	2	3	0	0	0	0	0	3	8	1	F

Discipline	Chemical	Group	Water	Sample Description	Residue & Contaminants in Water
Report Release Date		10th April, 2023		Report ID	YBAEEL-230306-121842-GW01
W. Order / JSPCB App. No.		15747848		Work Order Date	06.03.2023
Type of Industry(if any)		Ferro Alloys Plant		Job code/ Ref. no.	YBAEEL/WAIL/R/Apr.-23/01
Report Issue to		M/s Bihar Foundry & Castings Limited (Ferro Alloys Unit) At.+P.O. - Marar, Ramgarh Industrial Area, Dist. - Ramgarh, Jharkhand - 829117			
Sampling Date		05/04/2023		Mode of sample collection	By YBAEEL Team
Sampling Protocol		IS : 3025 (Part-1) 1987, R-2003		Sample Code	230406-GW-W01
Sampling Location		Near Main Gate		Sampling Source	Ground Water
Sample pkg. Condition		Sealed Pack in PP Bottle		Sample Quantity	1000 ml
Meteorological Cond. of Field		W.C.– Clear		RH % - 28	Temp. – 33°C
Sample receipt Date	06/04/2023	Analysis Started on	06/04/2023	Analysis completed on	10/04/2023

******Test Results******

Sl	Parameter	Test Method	Units	MU %	Results	Limits
1.	Arsenic (as As)	APHA 3114 C 23rd edition 2017	mg/l	10.34	BDL (MDL 0.003)	0.01-No relaxation
2.	Copper (as Cu)	APHA 3111 B 23rd edition 2017	mg/l	11.11	BDL (MDL 0.01)	0.05-1.5
3.	Iron (as Fe)	APHA 3111 B 23rd edition 2017	mg/l	2.34	0.20	1.0-No relaxation
4.	Lead (as Pb)	APHA 3111 B 23rd edition 2017	mg/l	16.84	BDL (MDL 0.02)	0.01-No relaxation
5.	Selenium (as Se)	APHA 3111 C 23rd edition 2017	mg/l	5.08	BDL (MDL 0.01)	0.01-No relaxation
6.	Zinc (as Zn)	APHA 3111 B 23rd edition 2017	mg/l	15.35	BDL (MDL 0.1)	5-15
7.	Cadmium (as Cd)	APHA 3111 B 23rd edition 2017	mg/l	5.0	BDL (MDL 0.02)	0.003-No relaxation
8.	Mercury (as Hg)	APHA 3112 B 23rd edition 2017	mg/l	6.47	BDL (MDL 0.003)	0.001-No relaxation
9.	Chromium (as Cr)	APHA 3111 B 23rd edition 2017	mg/l	12.53	BDL (MDL 0.02)	0.05-No relaxation
10.	Cobalt (Co)	APHA 3111 B 23rd edition 2017	mg/l	28.33	BDL (MDL 0.03)	–

******End of Report******

Limit is specified as	IS 10500: 2021
Abbreviation	MDL : Minimum detection limit, BDL : Below detection limit
Env. Condition of Lab	Laboratory is maintaining, Temperature 27 ± 2°C and Relative Humidity 65 ± 5% in all testing areas as per IS 196:1968 (C).
Specific contractual notes	All values are expressed in as unit and results listed refer only to the tested sample and applicable parameter in Lab's Permanent Facility.
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	The liability of the laboratory is limited to the invoiced amount.
	All disputes are subjected to the Ranchi Jurisdiction.
Remarks	Sample complies with prescribed limits.

Sample Drawn By – Angad Munda

Any CONCERN for
Jharkhand State Pollution Control Board
Application No. 15747848
Allotted Date 06-03-23
Submission Date 10-04-23

10.4.23	10/4/23
Tested by	Verified & Issued by
Shivam Kumar Singh	Sanjeev Kumar Singh
(Lab Analyst)	(Technical Manager)

Authorised Signatory
Chemical Section
Yugantar Bharati Analytical & Environmental Engineering Laboratory

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YUGANTAR BHARATI

ANALYTICAL & ENVIRONMENTAL ENGINEERING LABORATORY

Accredited by: - Jharkhand State Pollution Control Board (JSPCB)

Certified by: - ISO 9001:2015 & ISO 45001:2018

TC-4032

Test Certificate

ULR (Unique Lab Report) No.	TC403223000003703F				
Discipline: Biological	Group: Water		Sample Description	Ground Water	
Report Release Date	08th April, 2023		Report ID	YBAEEL-230402-113921-GW01	
W. Order / JSPCB App. No.	15747848		Work Order Date	06.03.2023	
Type of Industry(# any)	Ferro Alloys Plant		Job code/ Ref. no.	YBAEEL/WA/LIM/Apr-23/01	
Report Issue to	M/s Bihar Foundry & Castings Limited (Ferro Alloys Unit) At.+P.O. - Marar, Ramgarh Industrial Area, Dist. - Ramgarh, Jharkhand - 829117				
Sampling Date	05/04/2023		Mode of sample collection	By YBAEEL Team	
Sampling Protocol	IS : 1622:1982, R - 2019		Sample Code	230406-GW-W01	
Sampling Location	Near Main Gate		Sampling Source	Ground Water	
Sample pkg. Condition	Sealed Pack in PP Bottle		Sample Quantity	250 ml	
Meteorological Cond. of Field	W.C.– Clear	RH % - 28		Temp. – 33°C	
Sample receipt Date	06/04/2023	Analysis Started on	06/04/2023	Analysis completed on	08/04/2023

******Test Results******

Sl	Parameter	Test Method	Units	Results	Limits
1.	Total coliform	APHA 9221 B, 23rd Edition 2017	MPN/100 ml	BDL (MDL 1.1)	Shall not to be Detectable in any 100 ml sample
2.	Fecal coliform	APHA 9221 E, 23rd Edition 2017	MPN/100 ml	BDL (MDL 1.1)	

******End of Report******

Limit is specified as	IS 10500: 2012
Abbreviation	MDL : Minimum detection limit, BDL : Below detection limit. <1.8 / < 1.1 MPN/100 ml denotes that the presence probability of bacteria is absent in the tested sample.
Env. Condition of Lab	Laboratory is maintaining, Temperature 27 ± 2°C and Relative Humidity 55 ± 5% in all testing areas as per IS 196:1966 (C).
Specific contractual notes	All values are expressed in mg/l unit and results listed refer only to the tested sample and applicable parameter in Lab's Permanent Facility.
	This report, in full or in part, shall not be used for advertising or as evidence in any court of law.
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	The samples collected shall be destroyed after 7 days from the date of issue of the certificate unless specified otherwise.
	The liability of the laboratory is limited to the invoiced amount.
	All disputes are subjected to the Ranchi Jurisdiction.
Remarks	Sample complies with prescribed limit.

Sample Drawn By – Angad Munda

Dly CONCERN for
Jharkhand State Pollution Control Board
Application No. 15747848
Alloted Date 06-03-2023
Submission Date.....08-04-23

Madhuri Sinha 8.4.23	Mukesh Kumar 8-4-23
Tested by	Verified & Issued by
Madhuri Sinha	Mukesh Kumar
(Lab Analyst)	(Authorized Signatory)

Authorized Signatory
Microbiological Section
Yugantar Bharati Analytical &
Environmental Engineering Laboratory

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YUGANTAR BHARATI
ANALYTICAL & ENVIRONMENTAL ENGINEERING LABORATORY

Accredited by :- Jharkhand State Pollution Control Board (JSPCB)
Certified by :- ISO 9001:2015 & ISO 45001:2018

TC-4032

Test Certificate

ULR (Unique Lab Report) No.	TC403223000000038OF				
Discipline: Chemical	Group: Water		Sample Description	Ground Water	
Report Release Date	10th April, 2023		Report ID	YBAEEL-230306-121842-GW02	
W. Order / JSPCB App. No.	15747848		Work Order Date	06.03.2023	
Type of Industry(if any)	Ferro Alloys Plant		Job code/ Ref. no.	YBAEEL/WAIL/C/Apr.-23/01	
Report Issue to	M/s Bihar Foundry & Castings Limited (Ferro Alloys Unit) At.+P.O. - Marar, Ramgarh Industrial Area, Dist. - Ramgarh, Jharkhand - 829117				
Sampling Date	05/04/2023		Mode of sample collection	By YBAEEL Team	
Sampling Protocol	IS : 3025 (Part-1) 1987, R-2003		Sample Code	230406-GW-W02	
Sampling Location	Coal Yard		Sampling Source	Ground Water	
Sample pkg. Condition	Sealed Pack in PP Bottle		Sample Quantity	3000 ml	
Meteorological Cond. of Field	W.C.– Clear		RH % - 28	Temp. – 33°C	
Sample receipt Date	06/04/2023	Analysis Started on	06/04/2023	Analysis completed on	10/04/2023

******Test Results******

Sl	Parameter	Test Method	Units	MU %	Results	Limits
1.	pH value	IS 3025 (P-11):2002	pH	1.77	6.86	6.5-8.5
2.	Colour	IS 3025 (P-04):1983	Hazen	--	5	5-15
3.	Conductivity	IS 3025 (P-14):2013	µs/cm	1.90	1928.0	--
4.	Turbidity	IS 3025 (P-10):2002	NTU	3.63	BDL (MDL 1.0)	1-5
5.	Total Alkalinity (as $CaCO_3$)	IS 3025 (P-23):2003	mg/l	3.68	112.0	200-600
6.	Total Hardness (as $CaCO_3$)	IS 3025 (P-21):2009	mg/l	1.35	524.0	200-600
7.	Total dissolved solids	IS 3025 (P-16):2006	mg/l	2.85	966.0	500-2000
8.	Chloride (as Cl^-)	IS 3025 (P-32):2003	mg/l	3.41	300.0	250-1000
9.	Fluoride (as F^-)	APHA 4500 F-C 23rd edition 2017	mg/l	12.22	1.2	1.0-1.5
10.	Calcium (as Ca^{2+})	IS 3025 (P-40): 2003	mg/l	4.19	172.4	75-200
11.	Magnesium (as Mg^{2+})	APHA 3500 Mg B : 2017	mg/l	1.90	22.6	30-100
12.	Sulphate (as SO_4^{2-})	IS 3025 (P-24):2003	mg/l	5.42	113.0	200-400
13.	Sodium (as Na^+)	APHA 3111 B 23rd edition 2017	mg/l	16.88	76.0	--
14.	Potassium (as K^+)	APHA 3111 B 23rd edition 2017	mg/l	9.21	3.0	--

******End of Report******

Limit is specified as	IS 10500: 2021
Abbreviation	MDL : Minimum detection limit, BDL : Below detection limit.
Env. Condition of Lab	Laboratory is maintaining Temperature 27 ± 2°C and Relative Humidity 65 ± 5% in all testing areas as per IS 196:1966 (E)
Specific contractual notes	All values are expressed in as unit and results listed refer only to the tested sample and applicable parameter in Lab's Permanent Facility This report, in full or in part, shall not be used for advertising or as evidence in any court of law. This report cannot be reproduced, except when in full, without the written permission of the CEO. The samples collected shall be destroyed after 15 days from the date of issue of the certificate unless specified otherwise. The liability of the laboratory is limited to the invoiced amount. All disputes are subjected to the Ranchi Jurisdiction.
Remarks	Sample complies with prescribed limits.

Sample Drawn By - Angad Munda
Tested By - Satyam Kumar (Lab Analyst)

Only CONCERN for
Jharkhand State Pollution Control Board
Application No. ...15747848
Alloted Date 06-03-23
Submission Date..... 10-04-23

Verified by Shivam Kumar Singh (Authorized Signatory)	Issued by Sanjeev Kumar Singh (Technical Manager)

Authorised Signatory
Chemical Section
Yugantar Bharati Analytical &
Environmental Engineering Laboratory

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YUGANTAR BHARATI

ANALYTICAL & ENVIRONMENTAL ENGINEERING LABORATORY

Accredited by :- Jharkhand State Pollution Control Board (JSPCB)
Certified by :- An ISO 9001:2015 & ISO 45001:2018

State Pollution Control Board

Test Certificate

Discipline	Chemical	Group	Water	Sample Description	Ground Water
Report Release Date		10th April, 2023		Report ID	YBAEEL-230306-121842-GW02
W. Order / JSPCB App. No.		15747848		Work Order Date	06.03.2023
Type of industry(if any)		Ferro Alloys Plant		Job code/ Ref. no.	YBAEEL/WA/L/C/Apr.-23/01
Report Issue to		M/s Bihar Foundry & Castings Limited (Ferro Alloys Unit) At.+P.O. - Marar, Ramgarh Industrial Area, Dist. - Ramgarh, Jharkhand - 829117			
Sampling Date		05/04/2023		Mode of sample collection	By YBAEEL Team
Sampling Protocol		IS : 3025 (Part-1) 1987, R-2003		Sample Code	230405-GW-W02
Sampling Location		Coal Yard		Sampling Source	Ground Water
Sample pkg. Condition		Sealed Pack in PP Bottle		Sample Quantity	3000 ml
Meteorological Cond. of Field		W.C.– Clear		RH % - 28	Temp. – 33°C
Sample receipt Date		06/04/2023	Analysis Started on	06/04/2023	Analysis completed on 10/04/2023

******Test Results ******

Sl	Parameter	Test Method	Units	MU %	Results	Limits
1.	Odour	IS 3025 (P-05):2002	--	--	Agree.	Agreeable
2.	Taste	IS 3025 (P-07):2002	--	--	Agree.	Agreeable
3.	Phenols (C_6H_5OH)	IS 3025 (P-43):1992	mg/l	--	BDL (MDL 0.001)	0.001-0.002
4.	Haxavalent Chromium (as Cr^{+6})	IS: 3025 (P-52):2003	mg/l	--	BDL (MDL 0.03)	--

******End of Report******

Limit is specified as	IS 10500: 2021
Abbreviation	MDL : Minimum detection limit, BDL : Below detection limit
Env. Condition of Lab	Laboratory is maintaining, Temperature 27 ± 2°C and Relative Humidity 65 ± 5% in all testing areas as per IS 196:1966 (C).
Specific contractual notes	All values are expressed in as unit and results listed refer only to the tested sample and applicable parameter in Lab's Permanent Facility.
	This report, in full or in part, shall not be used for advertising or as evidence in any court of law.
	This report cannot be reproduced, except when in full, without the written permission of the CEO.
	The samples collected shall be destroyed after 15 days from the date of issue of the certificate unless specified otherwise.
	The liability of the laboratory is limited to the invoiced amount.
	All disputes are subjected to the Ranchi Jurisdiction.
Remarks	Sample complies with prescribed limits.

Sample Drawn By – Angad Munda
Tested By – Satyam Kumar (Lab Analyst)

Only CERTIFIED for
Jharkhand State Pollution Control Board
Application No. 15747848
Allotted Date 06-03-23
Submission Date 10-04-23

10.4.23	10.4.23
Verified by	Issued by
Shivani Kumari Singh	Sanjeev Kumar Singh
(Authorized Signatory)	(Technical Manager)

Authorized Signatory
Chemical Section
Yugantar Bharati Analytical &
Environmental Engineering Laboratory

45001:2018

ISO 9001:2015

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YUGANTAR BHARATI

ANALYTICAL & ENVIRONMENTAL ENGINEERING LABORATORY

Accredited by: - Jharkhand State Pollution Control Board (JSPCB)
Certified by: - ISO 9001:2015 & ISO 45001:2018

TC-4032

Test Certificate

ULR (Unique Lab Report) No.	T C 4 0 3 2 2 3 0 0 0 0 0 0 3 8 2 F				
Discipline	Chemical	Group	Water	Sample Description	Residue & Contaminants in Water
Report Release Date		10th April, 2023		Report ID	YBAEEL-230306-121842-GW02
W. Order / JSPCB App. No.		15747848		Work Order Date	06.03.2023
Type of Industry(if any)		Ferro Alloys Plant		Job code/ Ref. no.	YBAEEL/WA/JR/Apr.-23/01
Report Issue to		M/s Bihar Foundry & Castings Limited (Ferro Alloys Unit) At.+P.O. - Marar, Ramgarh Industrial Area, Dist. - Ramgarh, Jharkhand - 829117			
Sampling Date		05/04/2023		Mode of sample collection	By YBAEEL Team
Sampling Protocol		IS : 3025 (Part-1) 1987, R-2003		Sample Code	230406-GW-W02
Sampling Location		Coal Yard		Sampling Source	Ground Water
Sample pkg. Condition		Sealed Pack in PP Bottle		Sample Quantity	1000 ml
Meteorological Cond. of Field		W.C.– Clear		RH % - 28	Temp. – 33°C
Sample receipt Date	06/04/2023	Analysis Started on	06/04/2023	Analysis completed on	10/04/2023

******Test Results ******

Sl	Parameter	Test Method	Units	MU %	Results	Limits
1.	Arsenic (as As)	APHA 3114 C 23rd edition 2017	mg/l	10.34	BDL (MDL 0.003)	0.01-No relaxation
2.	Copper (as Cu)	APHA 3111 B 23rd edition 2017	mg/l	11.11	BDL (MDL 0.01)	0.05-1.5
3.	Iron (as Fe)	APHA 3111 B 23rd edition 2017	mg/l	2.34	0.36	1.0-No relaxation
4.	Lead (as Pb)	APHA 3111 B 23rd edition 2017	mg/l	10.64	BDL (MDL 0.02)	0.01-No relaxation
5.	Selenium (as Se)	APHA 3111 C 23rd edition 2017	mg/l	5.88	BDL (MDL 0.01)	0.01-No relaxation
6.	Zinc (as Zn)	APHA 3111 B 23rd edition 2017	mg/l	15.35	BDL (MDL 0.1)	5-15
7.	Cadmium (as Cd)	APHA 3111 B 23rd edition 2017	mg/l	5.0	BDL (MDL 0.02)	0.003-No relaxation
8.	Mercury (as Hg)	APHA 3112 B 23rd edition 2017	mg/l	3.47	BDL (MDL 0.003)	0.001-No relaxation
9.	Chromium (as Cr)	APHA 3111 B 23rd edition 2017	mg/l	12.53	0.10	0.05-No relaxation
10.	Cobalt (Co)	APHA 3111 B 23rd edition 2017	mg/l	28.13	BDL (MDL 0.03)	–

******End of Report******

Limit is specified as	IS 10500: 2021
Abbreviation	MDL - Minimum detection limit, BDL - Below detection limit,
Env. Condition of Lab	Laboratory is maintaining, Temperature 27 ± 2°C and Relative Humidity 65 ± 5% in all testing areas as per IS 196:1966 (C)
Specific contractual notes	All values are expressed in as unit and results listed refer only to the tested sample and applicable parameter in Lab's Permanent Facility
	This report in full or in part, shall not be used for advertising or as evidence in any court of law.
	This report cannot be reproduced, except when in full, without the written permission of the CEO.
	The samples collected shall be destroyed after 15 days from the date of issue of the certificate unless specified otherwise.
	The liability of the laboratory is limited to the invoiced amount.
	All disputes are subjected to the Ranchi Jurisdiction.
Remarks	Sample complies with prescribed limits, except Chromium.

Sample Drawn By – Angad Munda

Only CONCERN for
Jharkhand State Pollution Control Board
Application No. 15747848
Alloted Date 06-04-23
Submission Date.....10-4-23

10.4.23	10/4/23
Tested by	Verified & Issued by
Shivani Kumari Singh	Sanjeev Kumar Singh
(Lab Analyst)	(Technical Manager)

Authorized Signatory
Chemical Section
Yugantar Bharati Analytical & Environmental Engineering Laboratory

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YUGANTAR BHARATI

ANALYTICAL & ENVIRONMENTAL ENGINEERING LABORATORY

Accredited by :- Jharkhand State Pollution Control Board (JSPCB)

Certified by :- ISO 9001:2015 & ISO 45001:2018

TC-4032

Test Certificate

ULR (Unique Lab Report) No.	TC403223000003717F				
Discipline: Biological	Group: Water		Sample Description	Ground Water	
Report Release Date	08th April, 2023		Report ID	YBAEEL-230402-113921-GW02	
W. Order / JSPCB App. No.	15747848		Work Order Date	06.03.2023	
Type of Industry(If any)	Ferro Alloys Plant		Job code/ Ref. no.	YBAEEL/WA/L/MApr-23/01	
Report issue to	M/s Bihar Foundry & Castings Limited (Ferro Alloys Unit) At.+P.O. - Marar, Ramgarh Industrial Area, Dist. - Ramgarh, Jharkhand - 829117				
Sampling Date	05/04/2023		Mode of sample collection	By YBAEEL Team	
Sampling Protocol	IS : 1622:1982, R - 2019		Sample Code	230406-GW-W02	
Sampling Location	Coal Yard		Sampling Source	Ground Water	
Sample pkg. Condition	Sealed Pack in PP Bottle		Sample Quantity	250 m	
Meteorological Cond. of Field	W.C.- Clear	RH % - 28		Temp. - 33°C	
Sample receipt Date	06/04/2023	Analysis Started on	06/04/2023	Analysis completed on	08/04/2023

******Test Results ******

Sl	Parameter	Test Method	Units	Results	Limits
1.	Total coliform	APHA 9221 B, 23rd Edition 2017	MPN/100 ml	BDL (MDL 1.1)	Shall not to be Detectable in any 100 ml sample
2	Fecal coliform	APHA 9221 E, 23rd Edition 2017	MPN/100 ml	BDL (MDL 1.1)	

******End of Report******

Limit is specified as	IS 10500: 2012
Abbreviation	MDL : Minimum detection limit, BDL : Below detection limit. <1.8 / < 1.1 MPN/100 ml denotes that the presence probability of bacteria is absent in the tested sample
Env. Condition of Lab	Laboratory is maintaining, Temperature 27 ± 2°C and Relative Humidity 65 ± 5% in all testing areas as per IS 196:1988 (C)
Specific contractual notes	All values are expressed in as unit and results listed refer only to the tested sample and applicable parameter in Lab's Permanent Facility.
	This report, in full or in part, shall not be used for advertising or as evidence in any court of law.
	This report cannot be reproduced, except when in full, without the written permission of the CEO.
	The samples collected shall be destroyed after 7 days from the date of issue of the certificate unless specified otherwise.
	The liability of the laboratory is limited to the invoiced amount.
	All disputes are subjected to the Ranchi Jurisdiction.
Remarks	Sample complies with prescribed limit.

Sample Drawn By – Angad Munda

Only CONCERN for
Jharkhand State Pollution Control Board
Application No. 15747848
Allotted Date 06-03-23
Submission Date 08-04-23

Madhuri Sinha 8.4.23	Mukesh Kumar 8-4-23
Tested by	Verified & Issued by
Madhuri Sinha	Mukesh Kumar
(Lab Analyst)	(Authorized Signatory)

Authorized Signatory
Microbiological Section
Yugantar Bharati Analytical &
Environmental Engineering Laboratory

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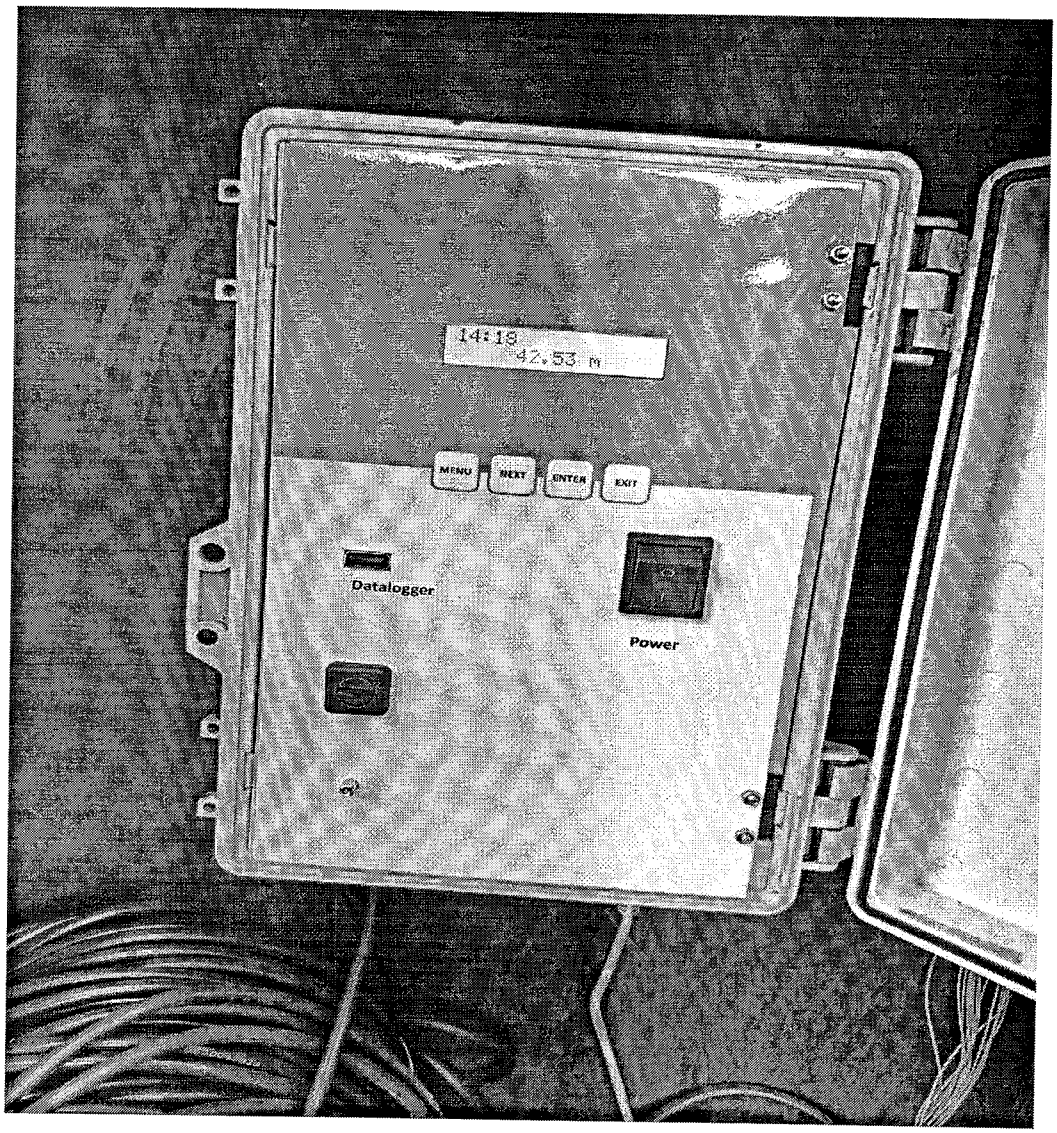
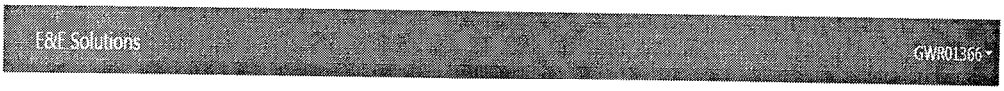
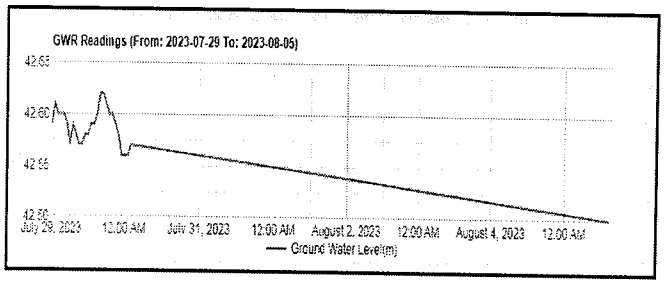
Piezometer







Ground Water Level

42.5 metres

Last Updated on 2023-08-05 15:01:23

Start Date

29-07-2023

End Date

05-08-2023

Download Data

Ground Water abstraction Structure

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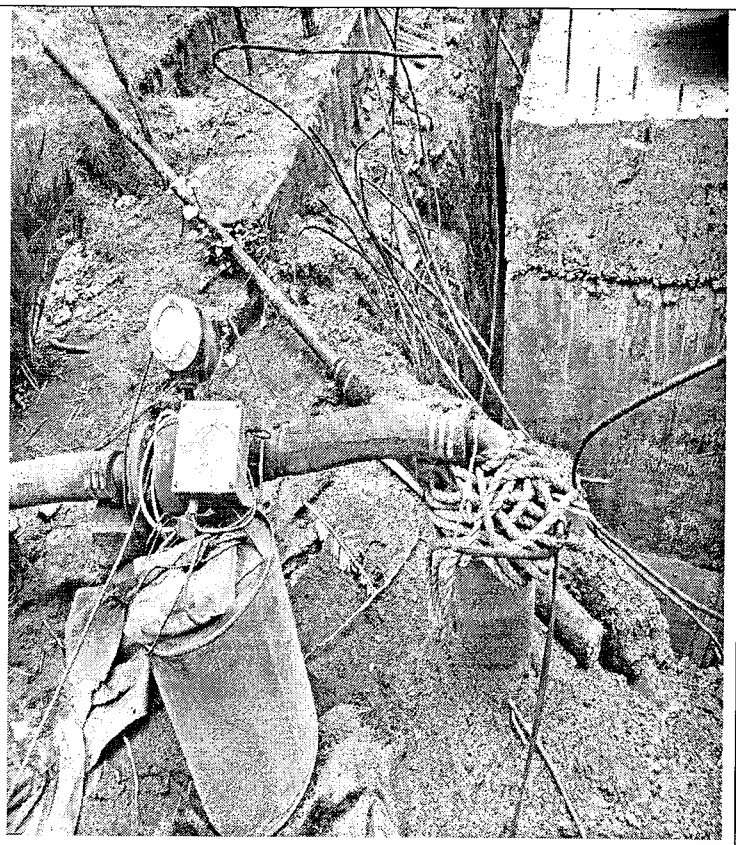
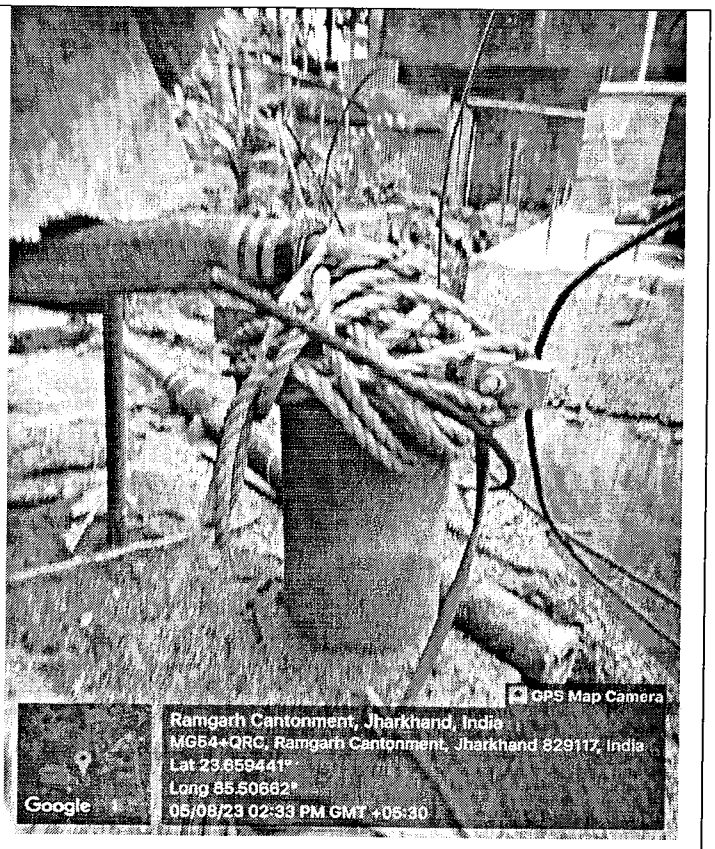
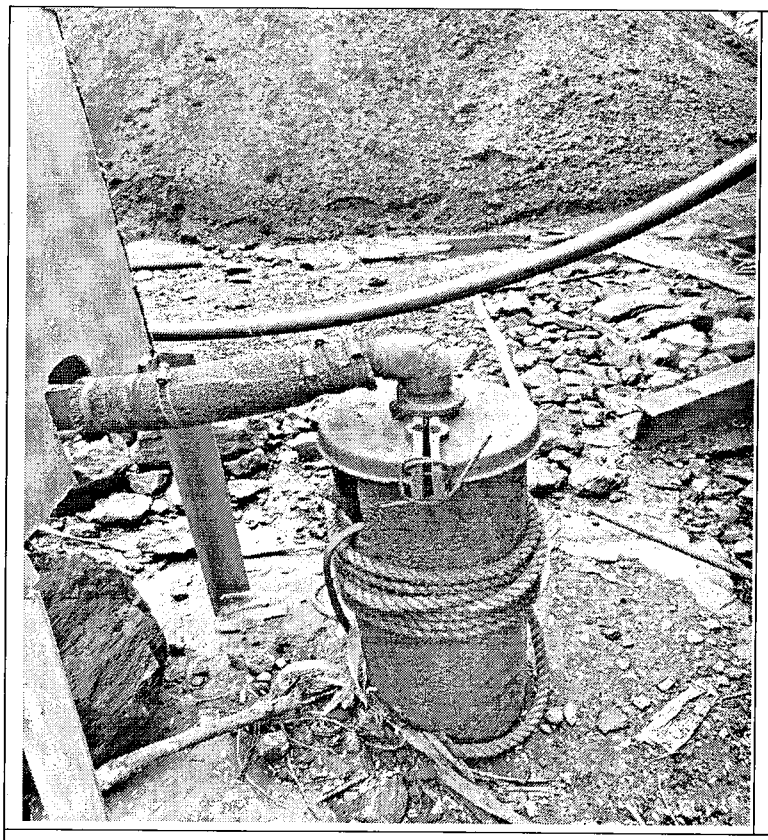
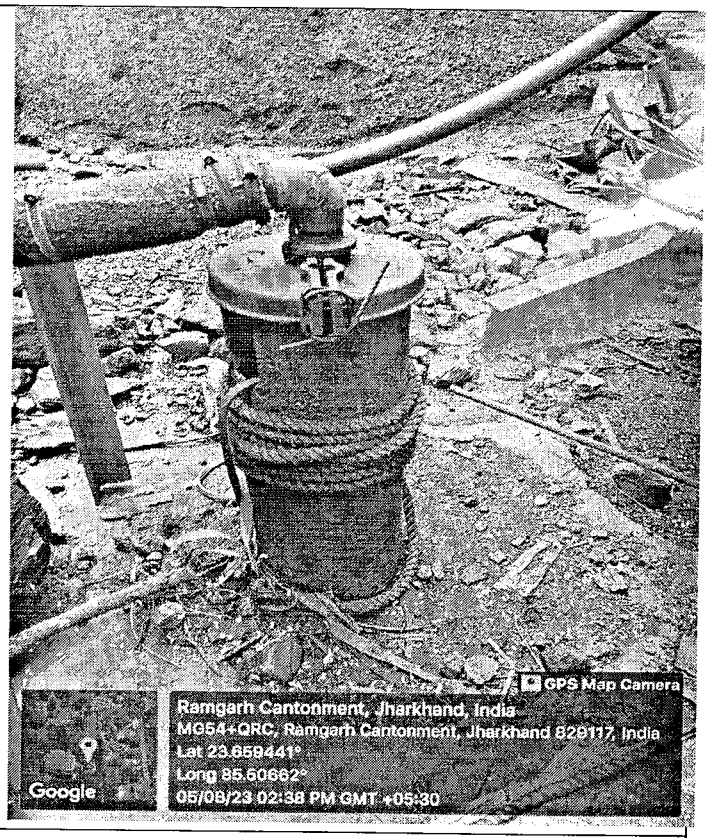




Borewell 1





Borewell 2

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भारत सरकार
जल शक्ति मंत्रालय
जल संसाधन, नदी विकास
और गंगा संरक्षण विभाग
केन्द्रीय भूमि जल प्राधिकरण
Government of India
Ministry of Jal Shakti
Department of Water Resources,
River Development & Ganga Rejuvenation
Central Ground Water Authority

(भूजल निकासी हेतु अनापत्ति प्रमाण पत्र)
NO OBJECTION CERTIFICATE (NOC) FOR GROUND WATER ABSTRACTION

Project Name:	Bfcl- Gautam Ferro Alloys		
Project Address:	Plot1405 (p), Marar Industrial Area, Ps Ramgarh		
Town:	Mandu (ct)	Block:	Mandu
District:	Ramgarh	State:	Jharkhand
Pin Code:			
Communication Address:	Managing Director, M/s Bihar Foundry And Castings Ltd, Main Road, Ranchi-834001, Namkum, Ranchi, Jharkhand - 834001		
Address of CGWB Regional Office :	Central Ground Water Board Mid Eastern Region, 6th & 7th Floor, Lok Nayak Jai Prakash Bhawan, Frazer Road Dak Banglow, Patna, Bihar - 800011		

1.	**NOC No.:**	CGWA/NOC/IND/ORIG/2021/10628			
2.	Application No.:	21-4/590/JH/IND/2019	3.	Category: (GWRE 2017)	Semi Critical
4.	Project Status:	Existing Project	5.	NOC Type:	New
6.	**Valid from:**	02/01/2021	7.	**Valid up to:**	01/01/2024

8. Ground Water Abstraction Permitted:

Fresh Water		Saline Water		Dewatering		Total	
m³/day	m³/year	m³/day	m³/year	m³/day	m³/year	m³/day	m³/year
35.00	12775.00						

9. Details of ground water abstraction /Dewatering structures

	Total Existing No.:2						Total Proposed No.:1					
	DW	DCB	BW	TW	MP	MPu	DW	DCB	BW	TW	MP	MPu
Abstraction Structure*	0	0	2	0	0	0	0	0	1	0	0	0

*DW- Dug Well; DCB-Dug-cum-Bore Well; BW-Bore Well; TW-Tube Well; MP-Mine Pit;MPu-Mine Pumps

10. Ground Water Abstraction/Restoration Charges paid (Rs.): 76650.00

11. Number of Piezometers(Observation wells) to be constructed/ monitored & Monitoring mechanism.	No. of Piezometers	Monitoring Mechanism		
		Manual	DWLR**	DWLR With Telemetry
**DWLR - Digital Water Level Recorder	1	1	0	0

(Compliance Conditions given overleaf)

This is an auto generated document & need not to be signed.

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Validity of this NOC shall be subject to compliance of the following conditions:

Mandatory conditions:

1) Installation of digital water flow meter (conforming to BIS/ IS standards) having telemetry system in the abstraction structure(s) shall be mandatory for all users seeking No Objection Certificate and intimation regarding their installation shall be communicated to the CGWA within 30 days of grant of No Objection Certificate through the web-portal.

2) Proponents shall mandatorily get water flow meter calibrated from an authorized agency once in a year.

3) Construction of purpose-built observation wells (piezometers) for ground water level monitoring shall be mandatory as per Section 14 of Guidelines . Water level data shall be made available to CGWA through web portal. Detailed guidelines for construction of piezometers are given in Annexure-II.

4) Proponents shall monitor quality of ground water from the abstraction structure(s) once in a year. Water samples from bore wells/ tube wells / dug wells shall be collected during April/May every year and analysed in NABL accredited laboratories for basic parameters (cations and anions), heavy metals, pesticides/ organic compounds etc. Water quality data shall be made available to CGWA through the web portal.

5) In case of mining projects, additional key wells shall be established in consultation with the Regional Director, CGWB for ground water level monitoring four (4) times a year (January, May, August and November) in core as well as buffer zones of the mine.

6) In case of mining project the firm shall submit water quality report of mine discharge/ seepage from Govt. approved/ NABL accredited lab.

7) The firm shall report compliance of the NOC conditions online in the website (www.cgwa-noc.gov.in) within one year from the date of issue of this NOC.

8) The firm shall submit the water audit report in case of water requirement is in excess of 100 m3/day through certified auditors within three months of completion of the same to CGWA.

9) Application for renewal can be submitted online from 90 days before the expiry of NOC. Ground water withdrawal, if any, after expiry of NOC shall be illegal & liable for legal action as per provisions of Environment (Protection) Act, 1986.

10) This NOC is subject to prevailing Central/State Government rules/laws/norms or Court orders related to construction of tube well/ground water abstraction structure / recharge or conservation structure/discharge of effluents or any such matter as applicable.

General conditions:

11) No additional ground water abstraction and/or de-watering structures shall be constructed for this purpose without prior approval of the Central Ground Water Authority (CGWA).

12) The proponent shall seek prior permission from CGWA for any increase in quantum of groundwater abstraction (more than that permitted in NOC for specific period).

13) Proponents shall install roof top rain water harvesting in the premise as per the existing building bye laws in the premise.

14) The project proponent shall take all necessary measures to prevent contamination of ground water in the premises failing which the firm shall be responsible for any consequences arising thereupon.

15) In case of industries that are likely to contaminate the ground water, no recharge measures shall be taken up by the firm inside the plant premises. The runoff generated from the rooftop shall be stored and put to beneficial use by the firm.

16) Wherever feasible, requirement of water for greenbelt (horticulture) shall be met from recycled / treated waste water.

17) Wherever the NOC is for abstraction of saline water and the existing wells (s) is /are yielding fresh water, the same shall be sealed and new tubewell(s) tapping saline water zone shall be constructed within 3 months of the issuance of NOC. The firm shall also ensure safe disposal of saline residue, if any.

18) Unexpected variations in inflow of ground water into the mine pit, if any, shall be reported to the concerned Regional Director, Central Ground Water Board.

19) In case of violation of any NOC conditions, the applicant shall be liable to pay the penalties as per Section 16 of Guidelines.

20) This NOC does not absolve the proponents of their obligation / requirement to obtain other statutory and administrative clearances from appropriate authorities.

21) The issue of this NOC does not imply that other statutory / administrative clearances shall be granted to the project by the concerned authorities. Such authorities would consider the project on merits and take decisions independently of the NOC.

22) In case of change of ownership, new owner of the industry will have to apply for incorporation of necessary changes in the No Objection Certificate with documentary proof within 60 days of taking over possession of the premises.

23) This NOC is being issued without any prejudice to the directions of the Hon'ble NGT/court orders in cases related to ground water or any other related matters.

(Non-compliance of the conditions mentioned above is likely to result in the cancellation of NOC and legal action against the proponent.)

RAIN WATER HARVESTING SCHEME FOR

M/s BIHAR FOUNDRY AND CASTING LTD.,
(FERRO ALLOYS UNIT)
INDUSTRIAL AREA, (PLOT NO.-1405),
MARAR – 829117, RAMGARH, JHARKHAND.

SAVE WATER

SAVE EARTH

Prepared by:

CENTER FOR ENVIRONMENTAL MANAGEMENT AND PLANNING

Head Off:	Branch Off:	E-Mail :
M-5, Harmu By Pass Road, Opp: - SBI, Harmu, Ranchi – 834002, Jharkhand.	27, Rain Basera, Manjhi Tola, Adityapur, Jamshedpur, Jharkhand - 831013	cemp2010@yahoo.com shiv_ran123@yahoo.com Contacts: - 9939109596, 9905399785

RAIN WATER HARVESTING SCHEME FOR

M/s BIHAR FOUNDRY AND CASTING LTD., (FERRO ALLOYS UNIT)
INDUSTRIAL AREA, (PLOT NO.-1405),
MARAR – 829117, RAMGARH, JHARKHAND.

List of Maps

List of Annexure

1. CONCEPT OF RAIN WATER HARVESTING

The only permanent source of water that is available to human kind today is conservation. The days of wasteful flow of water are over. Now is the time to reduce, recycle and reuse. Rain Water Harvesting is a simple, economical and eco – friendly technique of preserving every drop of water by guiding the rain water for its storage for further use. Use of rain water, resource of water supply, is probably the only source that will gain more and more importance in the coming years. Rain Water Harvesting is neither a costly process nor a cumbersome constructional scheme. It is neither energy intensive nor labour intensive. It can be cost – effective and alternative to other water accruing methods, such as desalination of sea water and diversion of rivers. Rain Water Harvesting builds inland water tables. Rain Water Harvesting will also increase the soil moisture content which will make the soil fertile and hence, conducive for agriculture, water availability, controls human concentration and growth of industrialization. At the same time excessive withdrawals of ground water result in environmental imbalance. The conjunctive use of surface water, ground water and rain water is the need of hour. As huge quantity of rain water finds its way ultimately to sea through canals and rivers, the only alternative and conserve this precious gift of nature by implementing Rain Water Harvesting Schemes.

Eminent meteorologist, Shri P.R.Pisharoty point out that in most parts of the country, there is a precipitation during not more than 50 days. Even on days when rainfall does occur, it does not fall over the entire period of four hours. Heavy showers of short duration are common. Most of the places of the country therefore receive rainfall for just 100 hours in a year. The remaining 8660 hours in a year, there is no rain. Therefore, if the rain is not harvested in those 100 hours, in a year when it fall in these few hours, when the river and streams swell up, then there is little water to capture to meet human need.

Every time in rainy season only about 5 – 20% of the total rain is recharged into the ground depending upon the terrain, top soil condition, subsurface formation, rainfall pattern etc.

The top soil can hold only a fraction of water that falls on it and the rest gradually percolates down, depending on the type of soil and joins the aquifers. In such case looking to rocky terrain – steep slopes and undulating topography – of Jharkhand – maximum 5 to 10% total rain is recharged in to the ground. When the rain is falling at very slow rate without impact, mostly all water is infiltrated in ground. In case of heavy rains by impact less quantity percolates in ground and more water goes as run – off to the streams. Infiltration directly depends on the porosity of the soil. If the soil is more porous and has more percentage of sand more will be infiltration. On the other hand if the soil is of clayey nature with the fine particles, less will be infiltration. It should be noted that porosity in percent is not as important as the size of pore.

The nature water cycle can be seen in Map No. - 01 and, the concept of the confined and unconfined Aquifers can be seen in Map No. - 02.

2. OBJECTIVES OF RAIN WATER HARVESTING

Ferro alloys unit of M/s Bihar Foundry and Casting Ltd. on very environmental concuss unit in the state. This unit is already having Rain Water Harvesting system in the factory premises. However - this need important as per guidelines of Central Ground Water Authority. Management has decided to conserve every drop of water which falls inside the factory premises for the purpose to utilize or to conserve it for further use. The main objective of Rain Water Harvesting to recharge underground water as far as possible and also utilize Rain Water for sprinkling on road for dust suppression and green belt development during Rainy season.

3. NATURE OF INDUSTRY

The unit comes in the category of Primary ferrous Metallurgical processing industries. Ferro Alloys with different base elements can be manufactured by adopting alternate technologies, which vary primarily with respect to types of furnace used. The generally used furnace types of different Ferro Alloys are:-

I. Submerged electric arc furnace (SAF)
II. Exothermic (metallothermic) reaction furnace
III. Electrolytic cell

As per industry best practices it is noted that SAF is the most suitable route for production of High Carbon Ferro Manganese and Silicon Manganese. The project proponent has selected this route for this project as it is relatively more economical as compared to the other processes.

4. DRAINAGE

Damodar is the Main River of the district and it also forms a major river basin, Comprising a number of tributaries. Important amongst them are: Naikari, Bhervi or Bhera and Bokaro river. Small Rivers are Hurhuri, Gomti, Barki, Kurum, Kochi, Sherbhuki, Dhobdhab etc. Subarnarekha River flow south eastern part of district. The drainage map of Ramgarh district is shown in Map no. - 03.

5. LOCATION

The unit is located in industrial Area, Marar (Plot no.- 1405) industrial area. by the side of main unit of M/s Bihar Foundry and Casting Ltd. and having separate boundary. The unit is nearly 60 km away from Ranchi city and 1.5 km from NH - 20. This unit can be easily seen Goggle Earth Map no. - 04.

6. HYDROMETEROLOGY

6.1 RAINFALL

The average annual rainfall of the district is 1251.2 mm More than 80% of the precipitation is received during the monsoon months.

6.2 CLIMATE

The area lies in the sub-humid region of Chotanagpur Plateau and enjoys semi-extreme type of climate. The day temperature rises around 40°C during the summers and drops down to around 10°C during the winter.

7. GEOMORPHOLOGY AND SOIL TYPES

7.1 GEOMORPHOLOGY

The district is a part of Chotanagpur plateau. Important physiographic regions of the district is Damodar Valley. Major area of the district come under Damodar Valley. Damodar Valley is bounded by Hazaribag Plateau in north and Ranchi Plateau in south. Ranchi and Hazaribag plateau is separated by East-West running Damodar valley. Barka Pahar (Marang Buru) 1049 meters high above sea level located along the Ramgarh - Ranchi border is probably the highest Peak and it also separate both district.

7.2 SOIL

Mainly two type of soil found -Red Soil and Sandy loam. Three soil orders namely Entisols, Inceptisols and Alfisols were observed in the district.

8. GROUND WATER SCENARIO

8.1 HYDROGEOLOGY

The district is having varied hydrogeological characteristics due to which ground water potential differs from one region to another. It is underlain by Chotanagpur granite gneiss of pre-Cambrian age in three-fourth of the district.

Aquifer systems - Two types of aquifers are found. Weathered aquifer and fractured aquifers. Thickness of weathered aquifers varies from 10 - 20 m in granite terrain and 30 - 60 m in lateritic terrain. In weathered aquifer ground water occurs in unconfined condition while in fractured aquifer ground water occurs in semi confined to confined condition. The Hydrogeology of Ramgarh district can be easily seen in Map no.-05.

8.2 DEPTH TO WATER LEVEL

During pre-monsoon season the minimum and maximum water level were observed as 2.25 mbgl at Barwatola and 11.19 mbgl at Bhurkunda respectively. The water level during the post-monsoon season of the district ranges from 1.6 to 5.9 mbgl. The pre-monsoon and post-monsoon depth to water level has been presented. This unit can be easily seen in Map no.- 06 and 07.

8.3 WATER LEVEL TREND

Water level depends upon the storage of ground water development and variation in rainfall over a long period. The long term water level trend is showing declining trend between 0.120 – 0.361, 0.017 – 0.966 and 0.105– 0.236 m/ year for pre monsoon, post monsoon and all period respectively.

9. AREA AVAILABLE FOR RAIN WATER HARVESTING

The areas available for Rain Water Harvesting inside the factory campus are as follows:-

I. Total area of factory campus = 31403.61 i.e. 31404 sq mt.
II. Total built up area including Factory shed = 23682.09 i.e. 23682 sq mt.
III. Area covered in paved roads inside factory premises = 257.10 i.e. 257 sq mt.
IV. Open space inside factory campus = 5411 sq mt.

10. POTENTIAL OF RAIN WATER HARVESTING FOR GROUND WATTER RECHARGE

To workout Rain Water Harvesting system inside the factory premises of Ferro Alloys unit of M/s Bihar Foundry & Casting Ltd., the average Rainfall in the area has been considered as 1251.2 mm for rain water potential calculation, it is considered as 1250 mm.

I. Total built up area including factory shed = 23682 sq mt.
Av. Annual Rainfall = 1250 mm
Considering runoff coefficient = 0.8
Rain water potential = 0.80 x 23682 x 1.25 = 23682 m^3

II. Area covered in paved road = 257 sq mt.
Av. Annual Rainfall = 1250 mm
Considering runoff coefficient = 0.50
Rain Water potential = 0.50 x 257 x 1.25 = 160.625 i.e. 161 m^3

III. Open space inside factory campus = 5411 sq mt.
Av. Annual Rainfall = 1250 mm
Considering runoff coefficient = 0.20
Rain water potential = 0.20 x 5411 x 1.25 = 1352.75 i.e. 1353 m^3

Therefore total Rain water potential of factory premises will be 23682+161+1353 = **25,196 m^3.**

11. DESIGN CONSIDERATIONS FOR DESIGNING RAIN WATER HARVISTING STRUCTURE

Design Considerations

Three most important components, which need to be evaluated for designing the rain water harvesting structure, are:-

1. Hydrogeology of the area including nature and extent of aquifer, soil cover, topography, depth to water levels and chemical quality of ground water.
2. Area contributing for runoff i.e. how much area and land use pattern, whether industrial, residential or green belts and general built up pattern of the area.
3. Hydro – meteorological characters like rainfall duration, general pattern and intensity of rainfall.

Design Criteria of Recharge Structures

Recharge structures should be designed based on availability of space, availability of runoff, depth to water table & lithology of the area.

Assessment of Runoff

The runoff should be assessed accurately for designing the recharge structure and may be assessed by following formula.

Runoff = Catchment area* Runoff Coefficient * Rainfall

Runoff Coefficients

Runoff coefficient plays an important role in assessing the runoff availability and it depends upon catchment of the area to be considered for designing Recharge structure. Some rainfall will be lost from the catchment by evaporation and retention on the surface itself.
General values are tabulated below which may be utilized for assessing the runoff availability.

TYPE OF CATCHMENT	RUNOFF COEFFICIENT
Roof Catchments	
Tiles	0.8 – 0.9
Corrugated Metal Sheets	0.7 – 0.9
Ground Surface Coverings	
Concrete	0.6 – 0.8
Brick pavement	0.5 – 0.6
Untreated Ground Catchments	
Soil on slopes less than 10 percent	0.0-0.3
Rocky natural catchments	0.2 – 0.5
Green area	0.05 – 0.10

In addition to above – Rain water Harvesting System for Industrial unit – also depends on following factors:-

- Nature of Industry.
- Quality of water required for Industrial process and other purposes.
- Water requirement.
- Sources of water supply.
- Potential of Rain water – covering Roof area + open space inside the factory campus.
- Sub – soil water level in the surrounding areas.
- Types of soil and its porosity and other characteristics of soil.
- Abandoned source of water supply inside the factory Campus – such as Bore wells – Open wells – ponds etc.
- Rainfall in the area.
- Surrounding water resources etc.

Water Management plan for the factory considering recycling of waste water – Reduction in water consumption, Recharging ground water – and also Harvesting Rain water for its future use.

12. METHODS OF GROUND WATER RECHAREGE

1. **Storage tank** –

For harvesting the roof top rain water, the storage tank may be used. These tanks may be constructed on the surface as well as underground by utilizing local material. The size of tank depends upon availability of runoff and water demand. After proper chlorination, the stored water may be used for drinking purpose.

2. **Recharge pits** –

Recharge pits are constructed for recharging the shallow aquifers. These are constructed 1 to 2 m. wide and 2m to 3m deep which are back filled with boulders, gravels & coarse sand.

3. **Trenches** –

These are constructed when the permeable strata is available at shallow depths. Trench may be 0.5 to 1m wide, 1 to 1.5m deep and 10 to 20m long depending upon availability of water. These are back filled with filter materials. In case of clay layer encountered at shallow depth, the number of auger holes may be constructed and back filled with fine gravels.

4. **Abandoned Dug wells** –

Existing abandoned dug wells may be utilized as recharge structure after cleaning and desilting the same. For removing the silt contents, the runoff water should either pass through a desilting chamber or filter chamber.

5. **Abandoned Hand pumps** –

The existing abandoned hand pumps may be used for recharge the shallow / deep aquifers, if the availability of water is limited. Water should pass through filter media before diverting it into hand pumps.

6. **Abandoned tube well** –

Abandoned tube well may be used for recharging the shallow / deep aquifers. These tube wells should be redeveloped before use as recharge structure. Water should pass through filter media before diverting it into recharge tube well.

7. **Recharge wells** –

Recharge wells of 100 to 300mm diameter are generally constructed for recharging the deeper aquifers and roof top rain water is diverted to recharge well for recharge to ground water. The runoff water may be passed through filter media to avoid choking of recharge wells.

8. **Vertical Recharge shafts** –

For recharging the shallow aquifers which are located below clayey surface at a depth of about 10 to 15m, recharge shafts of 0.5 to 3m diameter and 10 to 15m deep are constructed depending upon availability of runoff. These are back filled with boulders, gravels and coarse sand.

9. **Shaft with recharge well** –

If the aquifer is available at greater depth say 20 or 30m, in that case a shallow shaft of 2 to 5 m diameter and 5 to 6m deep may be constructed depending upon availability of runoff. Inside the shaft, a recharge well of 100 to 300mm diameter is constructed for recharging the available water to deeper aquifer. At the bottom of the shaft, a filter media is provided to avoid choking of the recharge well.

10. **Lateral trench with bore wells** –

For recharge the upper a swell a deeper aquifers, lateral trench of 1.5 to 3m wide and 10 to 30m long depending upon availability of water with one or more bore wells may be constructed. The lateral trench is back filled with boulders, gravels and coarse sand.

13. EXISTING RAIN WATER HARVESTING STRUTURES

There are 3 nos of Rain Water Harvesting Recharge pits exist in the factory premises of Ferro Alloys unit. Out of 3 pits 2 pits are abandoned and one is operational - which needs improvement as per guidelines of Center Ground Water Authority.

14. IMPROVEMENT TO EXISTING RAIN WATER HARVESTING STRUTURES

The Rain Water recharge pit which is operational needs improvement. This recharge pit is in two parts. 1st part is Settling Chamber and 2nd part is Recharge pit. The rain water comes through covered drain - which collects rain water surface runoff of factory premises. The size of Recharge pit and Settling Chamber combined is 4m x 3m x3 m. This recharge pit is located in the corner of Factory premises and in front of work shop. The overflow of this recharge pit goes to out side of factory premises in the open drain. Provision is to be made to collect rain water from roof top of office building also. This Recharge pit can be seen in Map no.- 08.

15. PROPOSED ADITIONAL RAIN WATER HARVESTING STRUTURES

1 No. Rain water recharge pit with Settling Chamber and rain water intake chamber is proposed near main gate and cooling tower. The constriction details of this Recharge pit can be seen in Map no.- 09.

2 Nos. of Recharge Trenches have been proposed along boundary wall of Factory premises. These Recharge Trenches can be seen in Map no.- 10.

The location of Recharge pit and Recharge Trenches can be also seen on Factory layout Plan Map no.- 11.

16. RAIN WATER HARVESTING AND POLLUTION ABATMENT THROUGH GREEN BELT

Trees or Green Belt play a very important role in Rain Water Harvesting as well as for abetment of pollution. It is observed that one hectare of vegetation transpires 17,000 lits water on a sunny day. This quantity of water must be harvested through rain for the ground water recharge. Rain water harvesting must be combined with waste water recycling. Roots of trees make the soil porous – which helps in percolation of rain – water to recharge ground water.

POLLUTION MITGATION THROUGH TREES

- Trees can arrest dust circulation and deposition by slowing wind speed.
- Plant tissues absorb Gaseous pollutants primarily within leaves, and are adsorbed at leaf surfaces.
- The particles suspended per liter of air in areas without tree cover are 4 times that of tree covered areas.
- Trees can funnel air out to protect from cyclonic winds.
- Trees also remove heavy metals from air, such as cadmium, chromium, Nickel and lead.
- Houses insulated with green cover can have rooms with temperature 10°C lower than outside.
- Light intensity under trees with dense canopy can be reduced by 75%.
- Houses insulated with green cover can have rooms with temperature 10°C lower than outside.
- Trees canopy can guide the wind up wards decreasing the speed and lowering the temperature, this minimizing the loss of moisture from the soil through evaporation.
- Noise Pollution – Comfortable, natural and acceptable sound level of 30 decibels is exceeded to a level of 120 decibels near airport and to 80 decibels by noisy trucks and motorcycles. Trees are endowed with the capability to mitigated and reduce this noise level by their leaf area.

The following species are suitable for abetment of pollution and Environmental improvement – Considering the Climate Pattern, Soil Suitability and also aesthetic point of view:-.

1. Azadirachtaindica
2. Albizialebbeck
3. Ficusebengalensis
4. Ficusbengalensis
5. Hibiscus tiliaceus
6. Lanneacoromandalica
7. Peltophorumferrugineu
8. Pungamiapinnata
9. Samaneasaman
10. Terminaliaarjuna
11. Meliaazedarachta

17. ADVANTAGES OF RAIN WATER HARVESTING

1. To meet the ever increasing demand for water. Water harvesting to recharge the ground water enhances the availability of groundwater at specific place and thus assures a continuous and reliable access to ground water.
2. To reduce the runoff which chokes storm drains and to avoid flooding of roads.
3. To reduce ground water pollution and to improve the quality of ground water through dilution when recharged to ground water thereby providing the quality of ground water through dilution when recharged to ground water thereby providing high quality water, soft and low in minerals.
4. Provides self – sufficiency to water supply and to supplement domestic water requirement during summer and drought conditions.
5. It reduces the rate of power consumption for pumping of ground water. For every 1 m rise in water level, there is a saving of 0.4 KWH of electricity.
6. Reduces soil erosion in urban areas
7. The rooftop rain water harvesting is less expensive, easy to construct, operate and maintain.
8. In saline or coastal areas, rain water provides good quality water and when recharge to ground water, it reduces salinity and helps in maintaining balance between the fresh – saline water interfaces.
9. In islands, due to limited extent of fresh water aquifers, rain water harvesting is the most preferred source of water for domestic use.
10. In desert, where rainfall is low, rain water harvesting has been providing relief to people.

18. WATER REQUIRMENT

This unit is going for expansion. The water requirement considering expansion of unit is as follows:-

Sr. No.	Unit	Existing plant	Proposed expansion	Total after expansion
1.	Ferro Alloy Plant	30 KLD	40 KLD	70 KLD
2.	CLU	-	80 KLD	80 KLD
3.	Domestic	5 KLD	28 KLD	33 KLD
Total		**35 KLD**	**148 KLD**	**183 KLD**

The unit is having No Objection Certificate (NOC) for abstraction of ground water i.e. 35 m^3/day from Central Ground Water Authority. The same is furnished in Annexure - 01.

19. SOURCE OF WATER SUPPLY

The main sources of water supply for its is domestic and Industrial uses in Ferro Alloys unit is Bore wells. The details of Bore wells are as follows:-
1 no. of Bore well 150 mm dia and 160 mt deep.
1 no. of Bore well 150 mm dia and160 mt deep.
For expansion project surface water of River Damodar. Intake of water will be from up stream of Tenughat Reservoir. The water allotment letter is furnished in Annexure – 02.

20. MONITORING OF GROUND WATER LEVEL THROUGH PIEZOMETER

The unit has installed Piezometer and flow meter. Piezometer is an instrument for measuring - the pressure of liquid or some thing related to pressure (such as compressibility of liquid). Piezometer is placed in bore hole to monitor the pressure or depth of ground water level. This is Digital water level recorder. The model of Piezometer is GRW – 01, Make E&E sections .The calibration certificate of Piezometer in furnished in Annexure – 03.

21. WATER MANAGEMENT

The water requirement considering future expansion also in Ferro Alloys unit of M/s Bihar Foundry and Casting Ltd., unit is 183 KLD. Considering 365 days working - the total water requirement in the year will be 183 x 365 = 66,795 KL or m^3/year.
The Rain water potential of factory premises has been worked out as 25,196 m^3/year.
Considering 60% effective recharge of 25,196 x 0.6 = 15117.6 m^3 – which is nearly 22% of water requirement.
Rain water will be mainly used in recharging the ground water aquifer. In the plant water will be mainly used for the following purposes:-

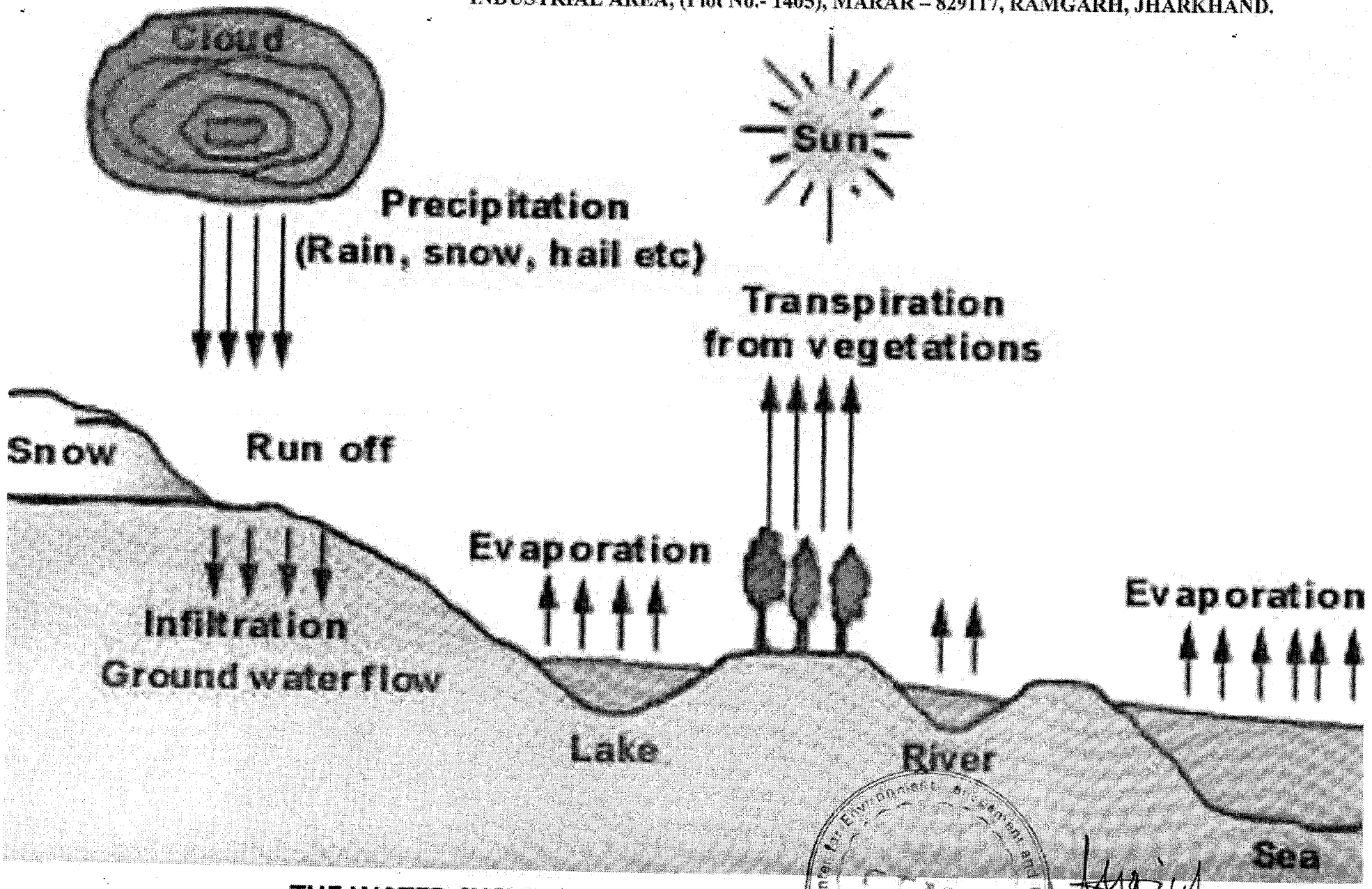
I. Industrial use
II. Domestic use
III. For dust supersession on road inside the factory premises
IV. Green belt Development

The bore well water will be used only for Industrial use and domestic use. Treated waste water and surface water (in future) will be used for dust suppression on roads and green belt development inside the factory premises. Rain Water Recharge pits and Rain water recharge trenches will be used for recharging the ground water aquifer.

Er. S.K.Singh
CEO
Centre for Environmental Management and Planning
Ranchi.

C.E.M.P.

NAME OF UNIT: - M/s BIHAR FOUNDRY AND CASTING LTD., (FERRO ALLOYS UNIT)
INDUSTRIAL AREA, (Plot No.- 1405), MARAR – 829117, RAMGARH, JHARKHAND.



THE WATER CYCLE

MAP NO.- 01

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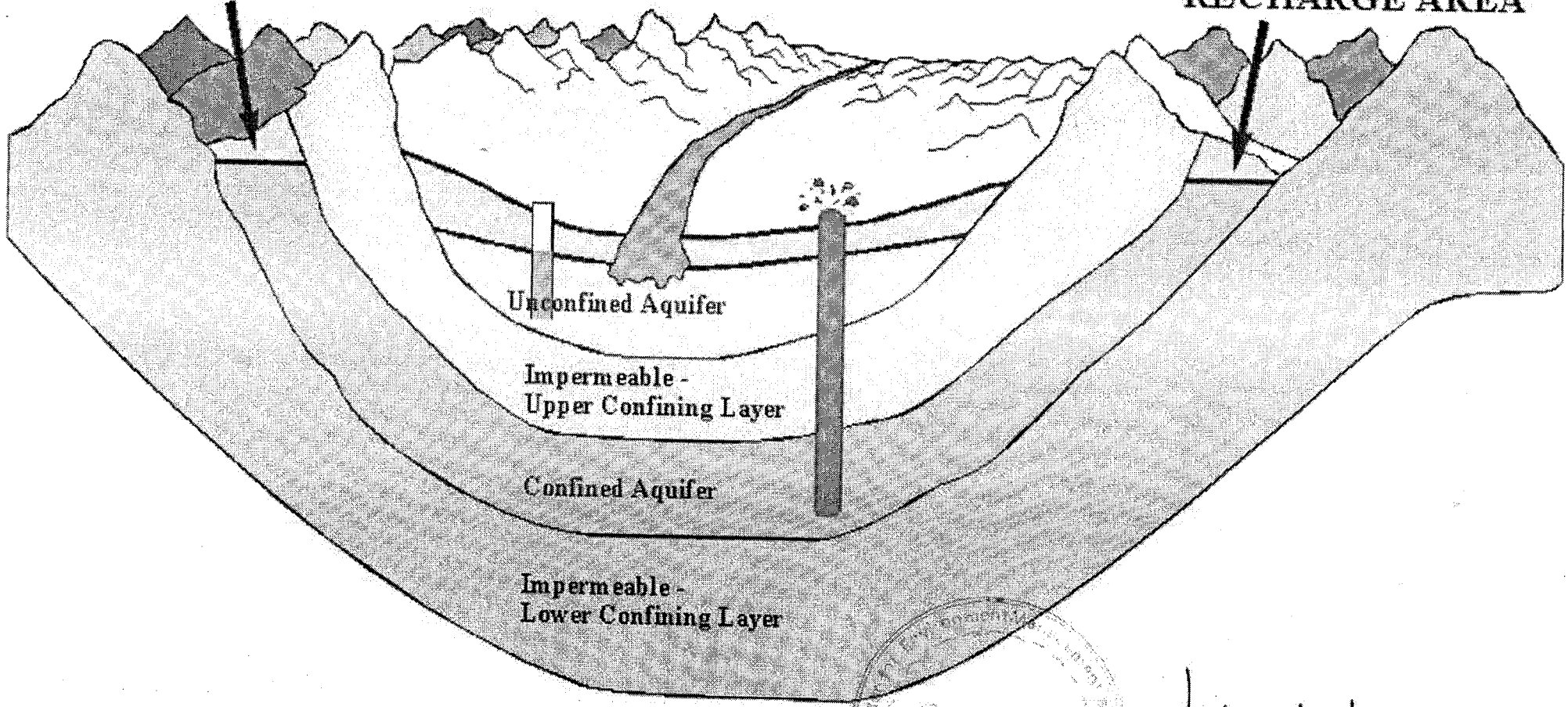
(FERRO ALLOYS UNIT), INDUSTRIAL AREA, (Plot No.- 1405),
MARAR – 829117, RAMGARH, JHARKHAND.



THE CONFINED AND UNCONFINED AQUIFERS

MAP NO.- 02

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630

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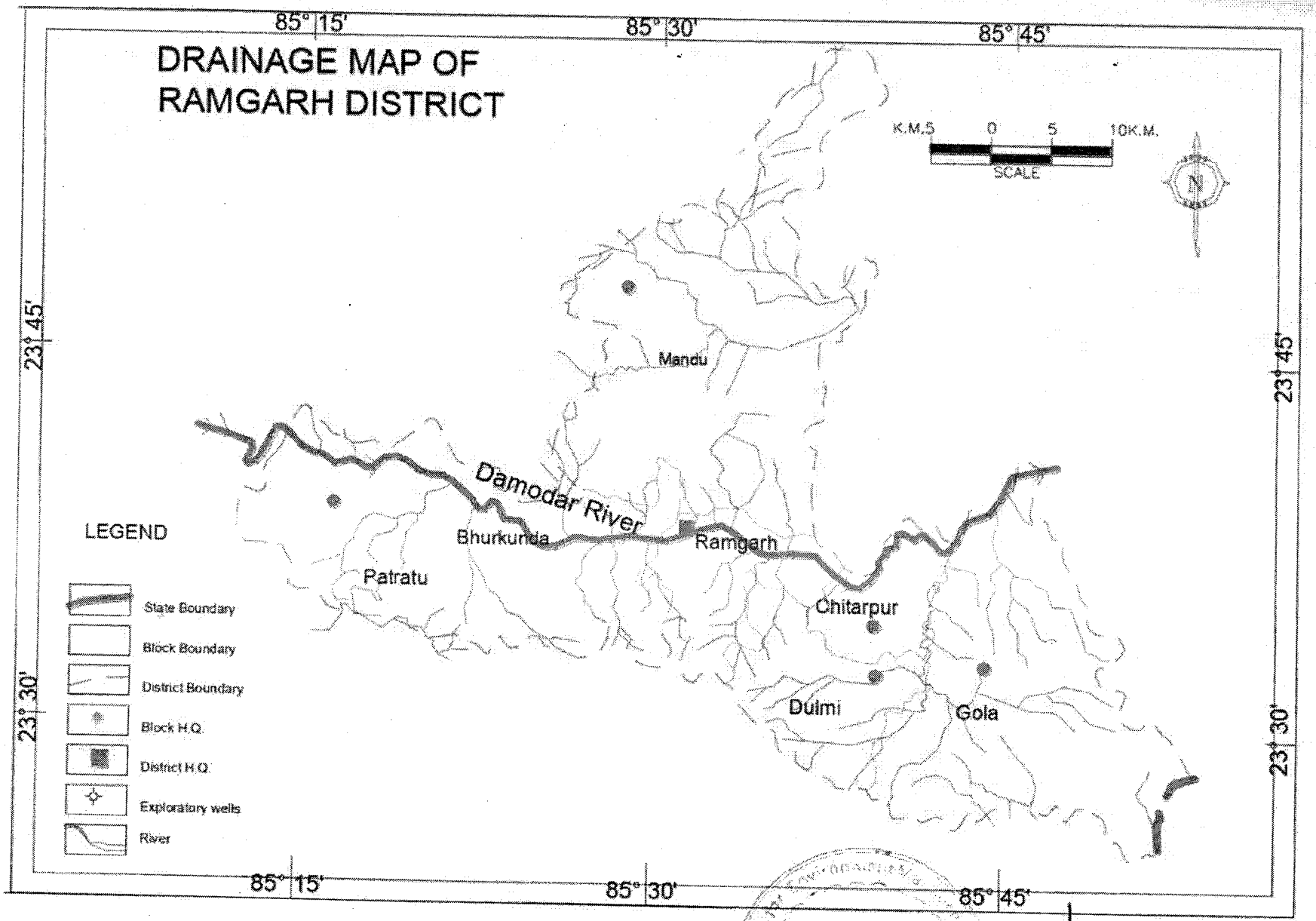

MAP NO.- 03

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M – 5, Harmu By Pass Road, Ranchi – 834002.

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GOOGLE MAP OF

M/s BIHAR FOUNDRY
AND CASTING LTD.,
(FERRO ALLOYS UNIT)
Industrial Area,
(Plot no.- 1405), Marar –
829117, Ramgarh, Jharkhand.

MAP NO.- 04

C.E.M.P.

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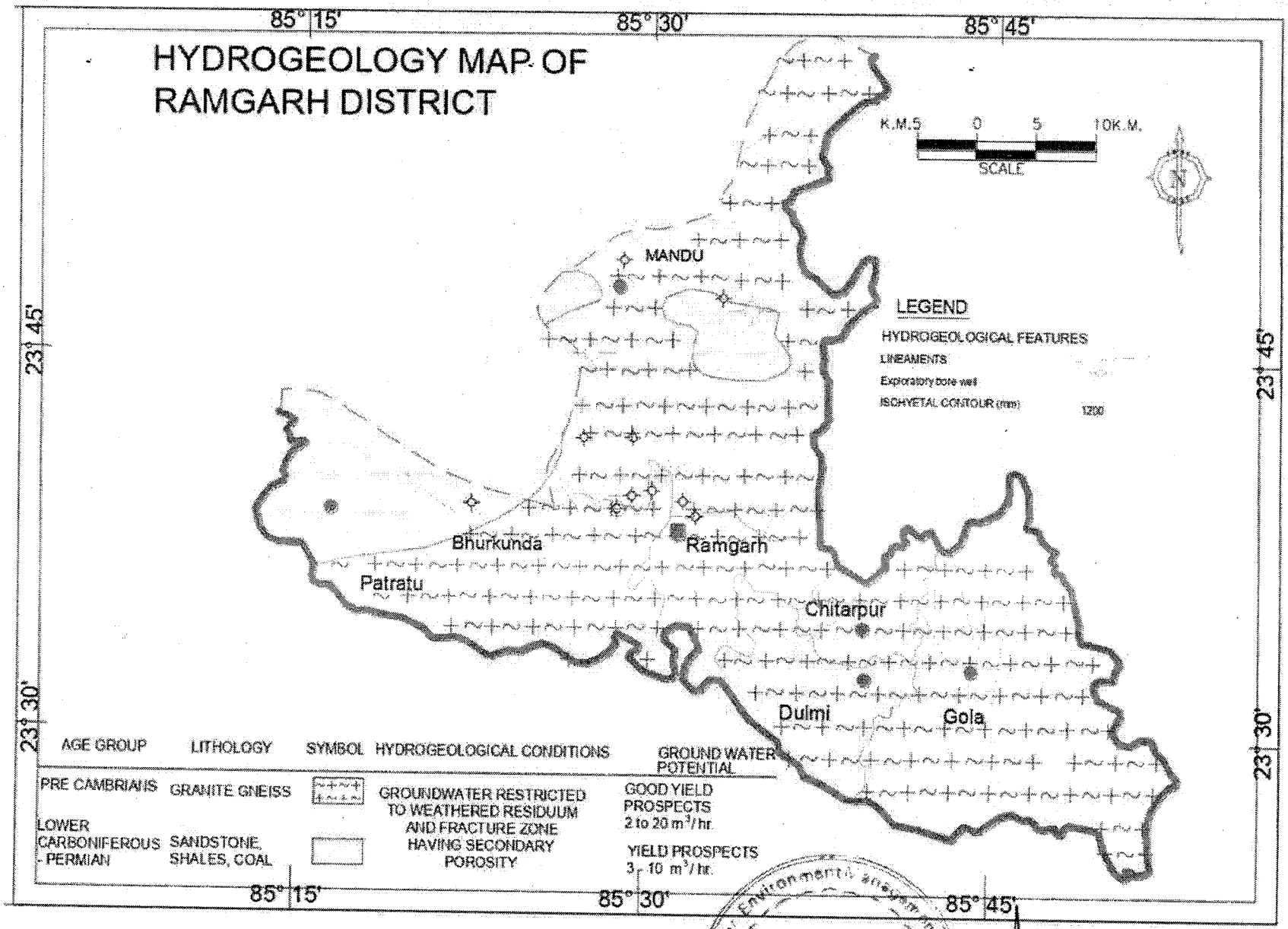
HYDROGEOLOGY MAP OF RAMGARH DISTRICT



AGE GROUP	LITHOLOGY	SYMBOL	HYDROGEOLOGICAL CONDITIONS	GROUND WATER POTENTIAL
PRE CAMBRIANS	GRANITE GNEISS		GROUNDWATER RESTRICTED TO WEATHERED RESIDUUM AND FRACTURE ZONE HAVING SECONDARY POROSITY	GOOD YIELD PROSPECTS 2 to 20 m^3/hr.
LOWER CARBONIFEROUS - PERMIAN	SANDSTONE, SHALES, COAL			YIELD PROSPECTS 3 - 10 m^3/hr.

MAP NO.- 05

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633

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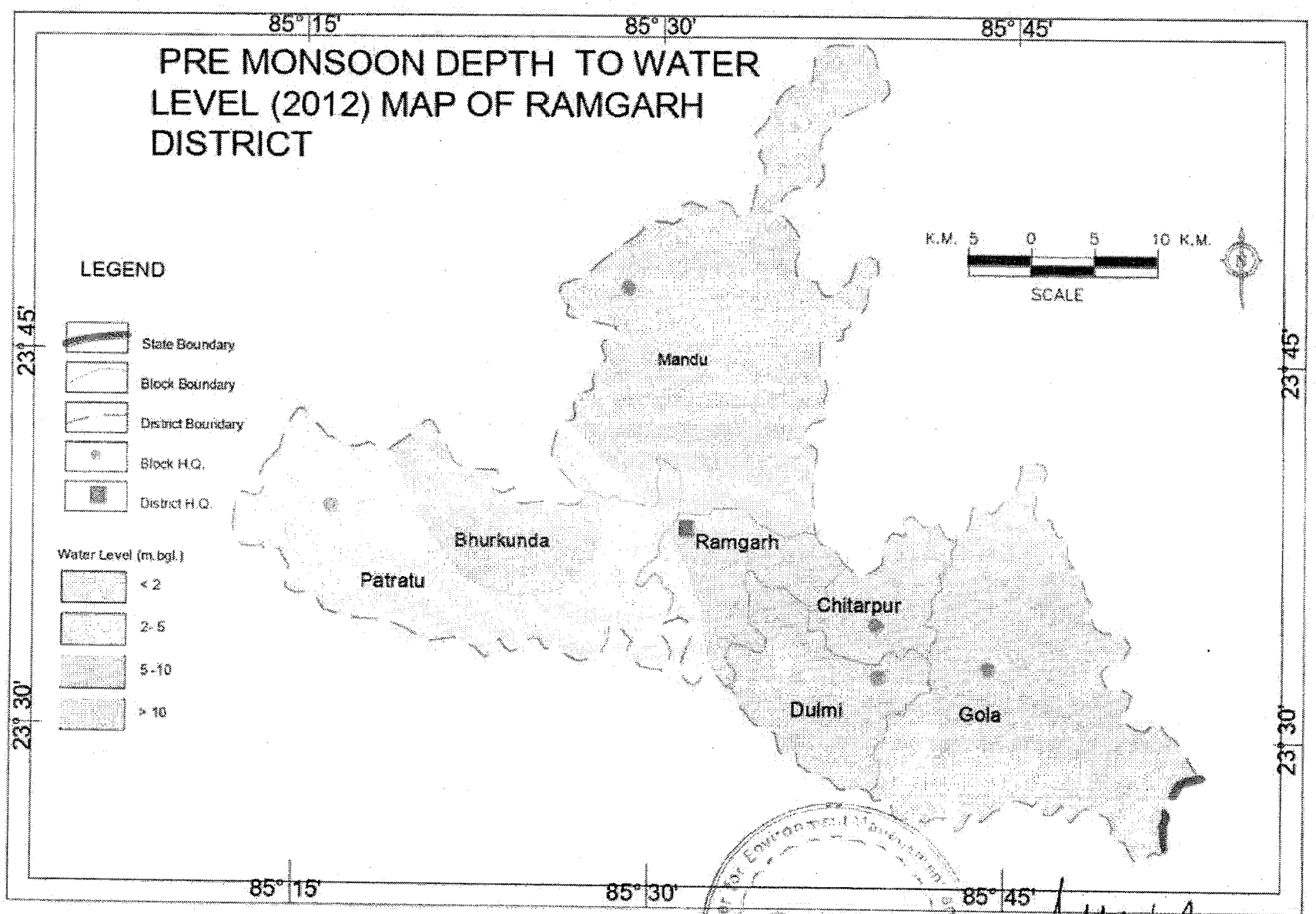

MAP NO.- 06

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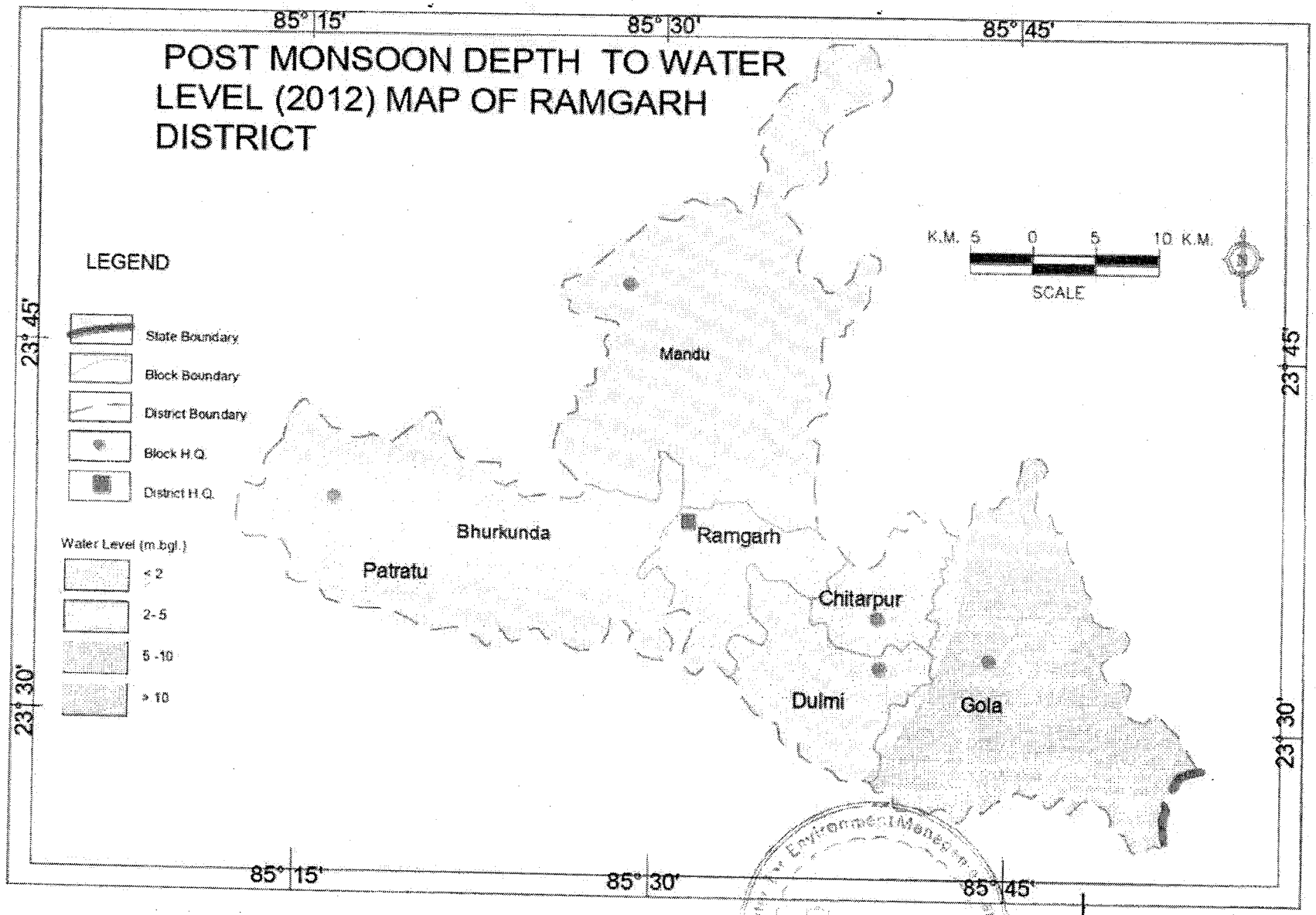

MAP NO.- 07

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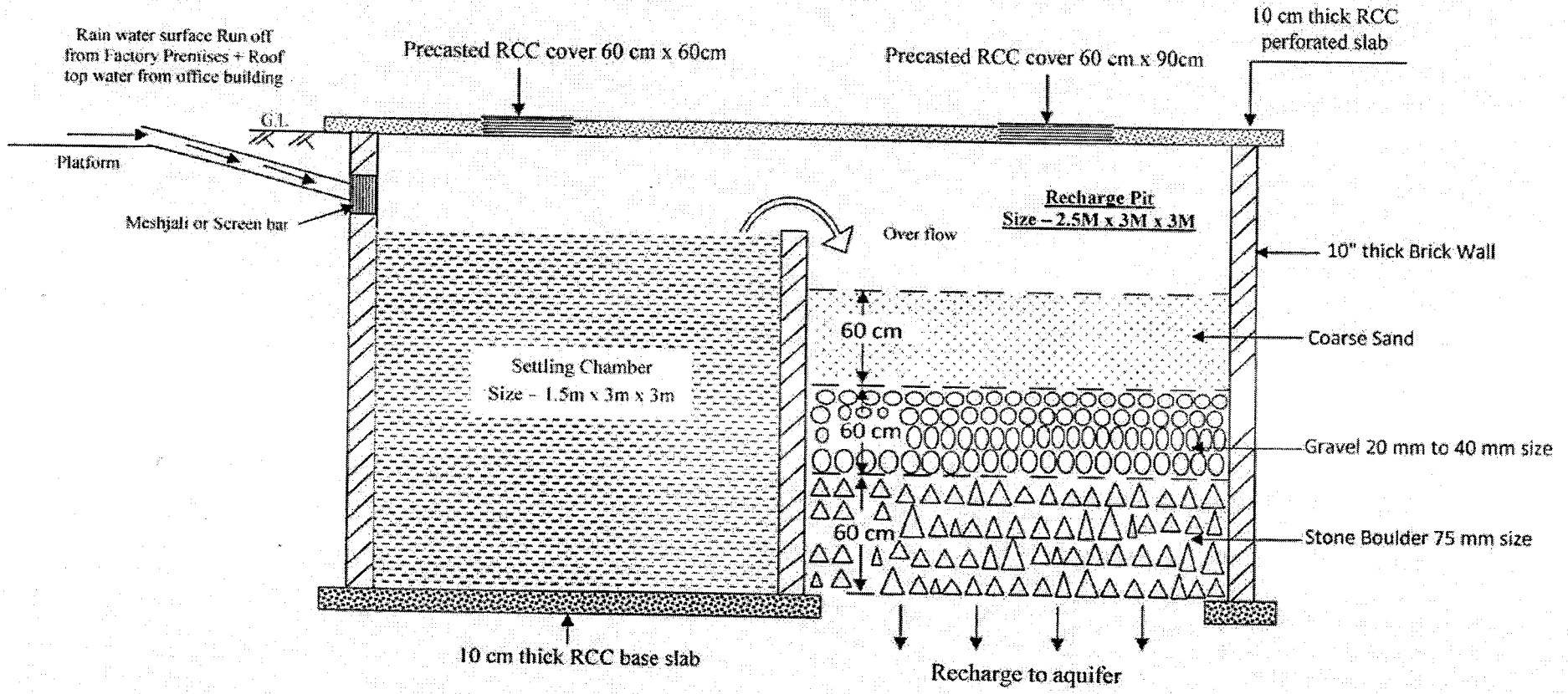
INDUSTRIAL AREA, (Plot No.- 1405), MARAR – 829117, RAMGARH, JHARKHAND.

RECHARGE PIT WITH SETTLING CHAMBER

(Location: At Corner, Near Work shop)



Note:

(i) Filtering Media of Recharge Pit should be of Standard specification and it should be replaced at every alternate year before onset of monsoon.

(ii) It is advisable to provide flowering ports on the top of the perforated slab for aesthetic view.

MAP NOT TO SCALE

MAP NO.- 08

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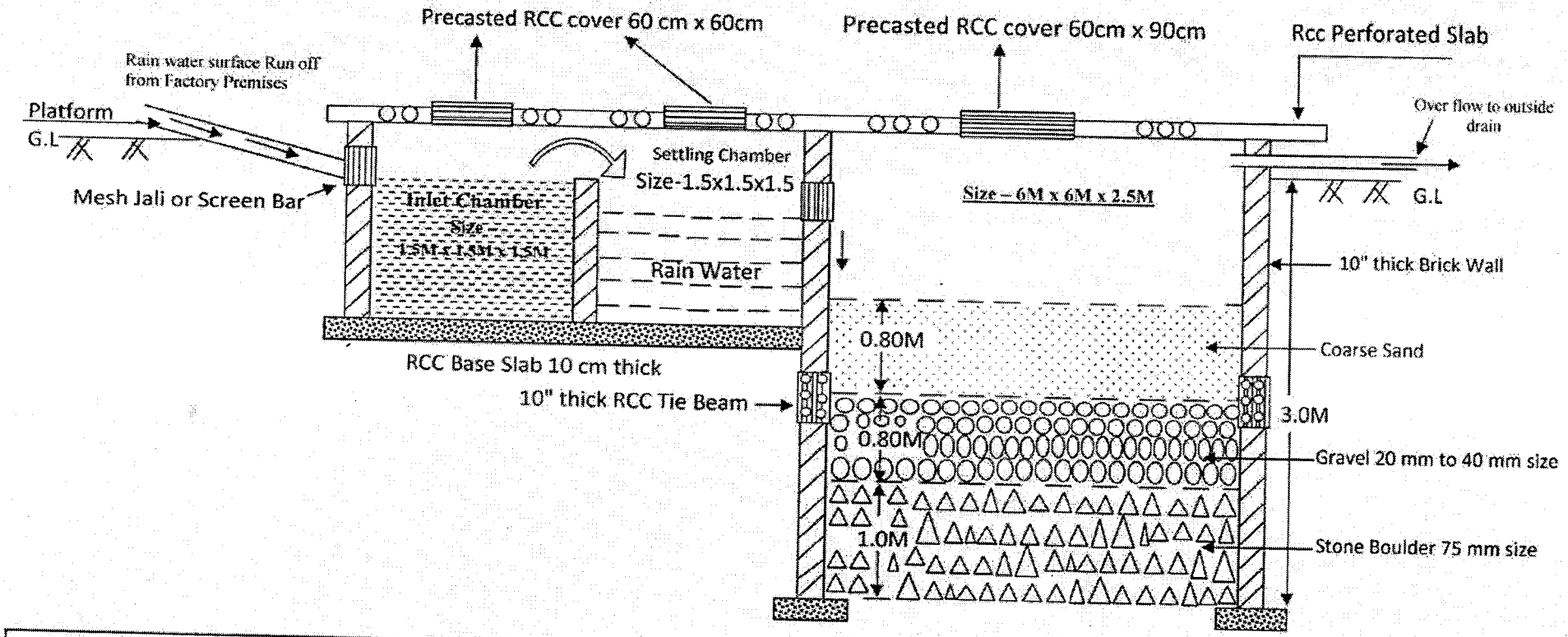
RECHARGE PIT WITH SETTLING CHAMBER AND INLET CHAMBER

(Location: Near Main gate)



Note:

(i) Filtering Media of Recharge Pit should be of Standard specification and it should be replaced at every alternate year before onset of monsoon.

(ii) It is advisable to provide flowering ports on the top of the perforated slab for aesthetic view.

MAP NOT TO SCALE
MAP NO.- 09

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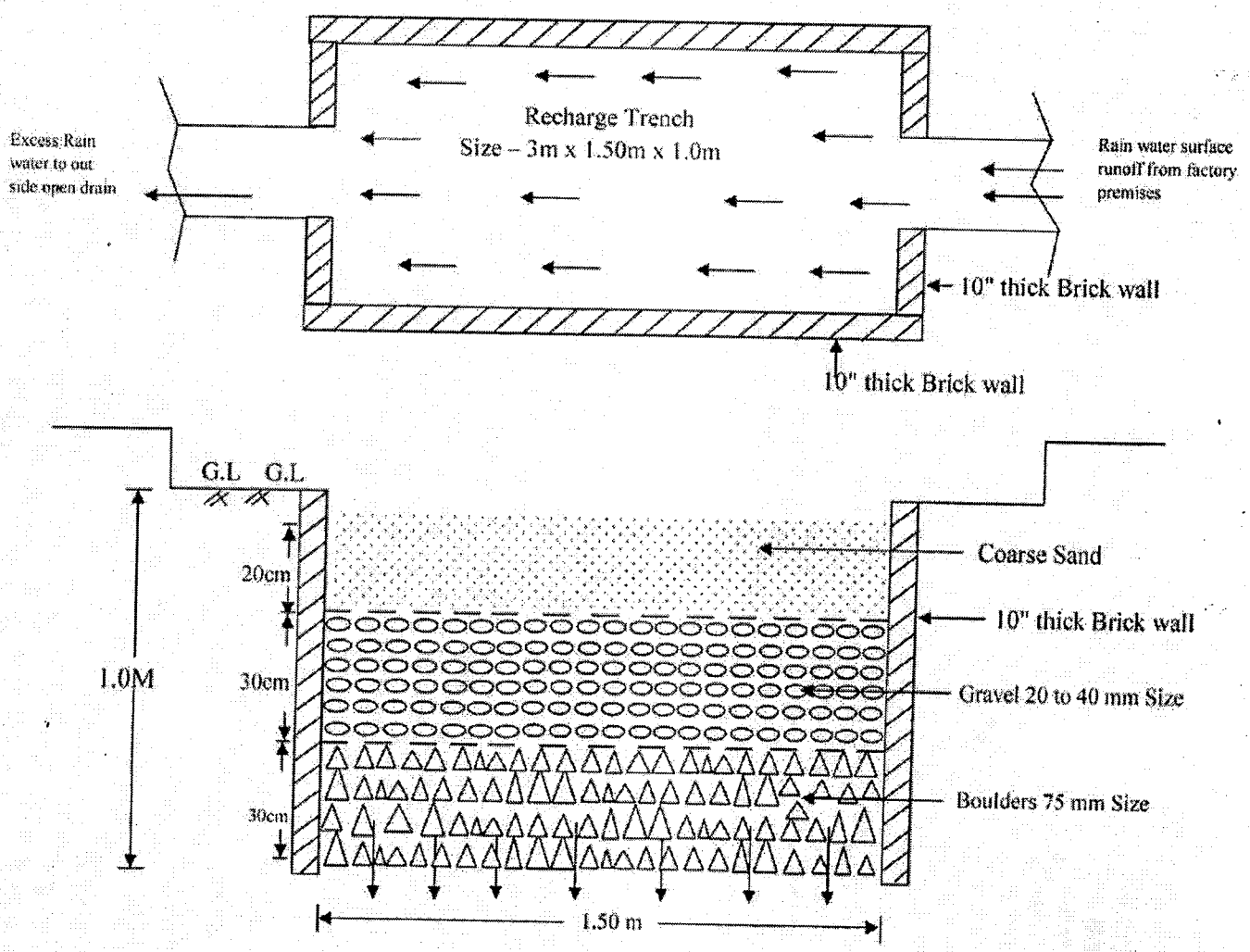


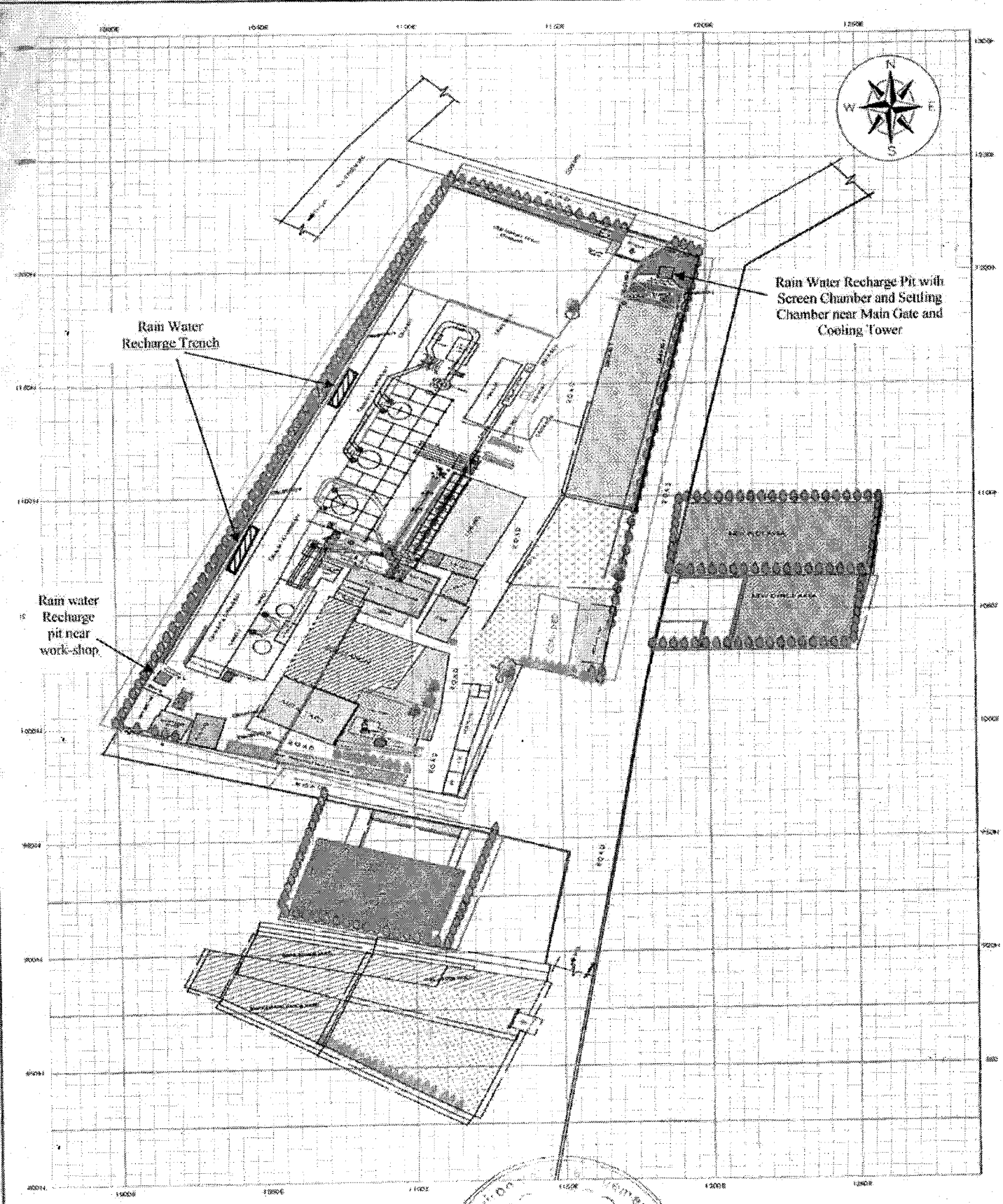
PLAN AND SECTIONAL ELEVATION OF RECHARGE TRENCH.

Note:-

1. Recharge Trenches shall be provided by the sides of Boundary wall – as shown in Layout Plan of Factory Premises. Such type of trenches will be also useful to recharge the ground water up to some extent. These are constructed at shallow depth for increasing the soil moisture also.
2. The filtering media in Recharge trench shall be of standard specification.
3. Filtering media of Recharge trench shall be replaced at every alternate year before onset of monsoon.
4. Recharge trench shall be maintained throughout the year.

MAP NOT TO SCALE
MAP NO. - 10

Prepared by
M/s CENTER FOR ENVIRONMENTAL MANAGEMENT AND PLANNING
M – 5, Harmu By Pass Road,
Ranchi – 834002.



MAP NO.- 11

M/s Bihar Foundry and Casting Ltd., (Ferro Alloys Unit)
Industrial Area, (Plot no.- 1405), Marar, Ramgarh, Jharkhand

FACTORY LAYOUT PLAN SHOWING
Rain Water Harvesting Recharge Pit & Recharge Trenches

C.E.M.S.

Mg Singh

Annexure -01

भारत सरकार
जल शक्ति मंत्रालय
जल संसाधन, नदी विकास
और गंगा संरक्षण विभाग
केन्द्रीय भूमि जल प्राधिकरण
Government of India
Ministry of Jal Shakti
Department of Water Resources,
River Development & Ganga Rejuvenation
Central Ground Water Authority

(भूजल निकासी हेतु अनापत्ति प्रमाण पत्र)
NO OBJECTION CERTIFICATE (NOC) FOR GROUND WATER ABSTRACTION

Project Name:	Bfcl- Gautam Ferro Alloys		
Project Address:	Plot1405 (p), Marar Industrial Area, Ps Ramgarh		
Town:	Mandu (ct)	Block:	Mandu
District:	Ramgarh	State:	Jharkhand
Pin Code:			
Communication Address:	Managing Director, M/s Bihar Foundry And Castings Ltd, Main Road, Ranchi-834001, Namkum, Ranchi, Jharkhand - 834001		
Address of CGWB Regional Office :	Central Ground Water Board Mid Eastern Region, 6th & 7th Floor, Lok Nayak Jai Prakash Bhawan, Frazer Road Dak Banglow, Patna, Bihar - 800011		

1. **NOC No.:** CGWA/NOC/IND/ORIG/2021/10628
2. Application No.: 21-4/590/JH/IND/2019
3. Category: (GWRE 2017) Semi Critical
4. Project Status: Existing Project
5. NOC Type: New
6. **Valid from:** 02/01/2021
7. **Valid up to:** 01/01/2024
8. Ground Water Abstraction Permitted:

Fresh Water		Saline Water		Dewatering		Total	
m³/day	m³/year	m³/day	m³/year	m³/day	m³/year	m³/day	m³/year
35.00	12775.00						

9. Details of ground water abstraction /Dewatering structures

	Total Existing No.:2						Total Proposed No.:1					
	DW	DCB	BW	TW	MP	MPu	DW	DCB	BW	TW	MP	MPu
Abstraction Structure*	0	0	2	0	0	0	0	0	1	0	0	0

*DW- Dug Well, DCB-Dug-cum-Bore Well, BW-Bore Well, TW-Tube Well, MP-Mine Pit,MPu-Mine Pumps

10. Ground Water Abstraction/Restoration Charges paid (Rs.): 76650.00
11. Number of Piezometers(Observation wells) to be constructed/ monitored & Monitoring mechanism.

	No. of Piezometers	Monitoring Mechanism		
		Manual	DWLR**	DWLR With Telemetry
**DWLR - Digital Water Level Recorder	1	1	0	0

(Compliance Conditions given overleaf)

This is an auto generated document & need not to be signed.

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Validity of this NOC shall be subject to compliance of the following conditions:

Mandatory conditions:

1) Installation of digital water flow meter (conforming to BIS/ IS standards) having telemetry system in the abstraction structure(s) shall be mandatory for all users seeking No Objection Certificate and intimation regarding their installation shall be communicated to the CGWA within 30 days of grant of No Objection Certificate through the web-portal.

2) Proponents shall mandatorily get water flow meter calibrated from an authorized agency once in a year.

3) Construction of purpose-built observation wells (piezometers) for ground water level monitoring shall be mandatory as per Section 14 of Guidelines. Water level data shall be made available to CGWA through web portal. Detailed guidelines for construction of piezometers are given in Annexure-II.

4) Proponents shall monitor quality of ground water from the abstraction structure(s) once in a year. Water samples from bore wells/ tube wells / dug wells shall be collected during April/May every year and analysed in NABL accredited laboratories for basic parameters (cations and anions), heavy metals, pesticides/ organic compounds etc. Water quality data shall be made available to CGWA through the web portal.

5) In case of mining projects, additional key wells shall be established in consultation with the Regional Director, CGWB for ground water level monitoring four (4) times a year (January, May, August and November) in core as well as buffer zones of the mine.

6) In case of mining project the firm shall submit water quality report of mine discharge/ seepage from Govt. approved/ NABL accredited lab.

7) The firm shall report compliance of the NOC conditions online in the website (www.cgwa-noc.gov.in) within one year from the date of issue of this NOC.

8) The firm shall submit the water audit report in case of water requirement is in excess of 100 m3/day through certified auditors within three months of completion of the same to CGWA.

9) Application for renewal can be submitted online from 90 days before the expiry of NOC. Ground water withdrawal, if any, after expiry of NOC shall be illegal & liable for legal action as per provisions of Environment (Protection) Act, 1986.

10) This NOC is subject to prevailing Central/State Government rules/laws/norms or Court orders related to construction of tube well/ground water abstraction structure / recharge or conservation structure/discharge of effluents or any such matter as applicable.

General conditions:

11) No additional ground water abstraction and/or de-watering structures shall be constructed for this purpose without prior approval of the Central Ground Water Authority (CGWA).

12) The proponent shall seek prior permission from CGWA for any increase in quantum of groundwater abstraction (more than that permitted in NOC for specific period).

13) Proponents shall install roof top rain water harvesting in the premise as per the existing building bye laws in the premise.

14) The project proponent shall take all necessary measures to prevent contamination of ground water in the premises failing which the firm shall be responsible for any consequences arising thereupon.

15) In case of industries that are likely to contaminate the ground water, no recharge measures shall be taken up by the firm inside the plant premises. The runoff generated from the rooftop shall be stored and put to beneficial use by the firm.

16) Wherever feasible, requirement of water for greenbelt (horticulture) shall be met from recycled / treated waste water.

17) Wherever the NOC is for abstraction of saline water and the existing wells (s) is /are yielding fresh water, the same shall be sealed and new tubewell(s) tapping saline water zone shall be constructed within 3 months of the issuance of NOC. The firm shall also ensure safe disposal of saline residue, if any.

18) Unexpected variations in inflow of ground water into the mine pit, if any, shall be reported to the concerned Regional Director, Central Ground Water Board.

19) In case of violation of any NOC conditions, the applicant shall be liable to pay the penalties as per Section 16 of Guidelines.

20) This NOC does not absolve the proponents of their obligation / requirement to obtain other statutory and administrative clearances from appropriate authorities.

21) The issue of this NOC does not imply that other statutory / administrative clearances shall be granted to the project by the concerned authorities. Such authorities would consider the project on merits and take decisions independently of the NOC.

22) In case of change of ownership, new owner of the industry will have to apply for incorporation of necessary changes in the No Objection Certificate with documentary proof within 60 days of taking over possession of the premises.

23) This NOC is being issued without any prejudice to the directions of the Hon'ble NGT/court orders in cases related to ground water or any other related matters.

(Non-compliance of the conditions mentioned above is likely to result in the cancellation of NOC and legal action against the proponent.)

180 **Annexure -2**

झारखण्ड सरकार
जल संसाधन विभाग

पत्रांक :– 1/PMC/विविध /958/2020..... /राँची, दिनांक.....

प्रेषक,

ई० नागेश मिश्र,
अभियंता प्रमुख–1

सेवा में,

Member Secretary,
DVRRC,
Central Water Commission,
Maithon, Dhanbad, Jharkhand.

विषय :– **Allocation of 0.598 MCM (0.36MGD) of Raw Water from River Damodar to M/S Bihar Foundry and casting Limited (BFCL), Ramgarh Industrial Area, P.O- Morar, Ramgarh- 829117.**

प्रसंग :– (i) DVRRU का पत्रांक :MD/DVRRC/W-6/(BFCL)/2019/1758-63, दिनांक–27.09.2021
(ii) Water Allocation Committee की कार्यवाही, दिनांक–27.11.2020

महाशय,

उपर्युक्त विषयक आपके प्रासंगिक पत्र के क्रम में जलावंटन समिति के अनुशंसा के आलोक में M/S Bihar Foundry & Casting Limited, Ramgarh Industries Area को दामोदर नदी (U/S of Tenughat Reservoir, Lat-23^0 38'31'' N एवं Long -58^0 30'19''E) से 0.598 MCM (0.36MGD) जलावंटन हेतु अनुशंसा की जाती है।

प्रस्ताव पर माननीय विभागीय (मुख्य) मंत्री का अनुमोदन प्राप्त है।

विश्वासभाजन

ह०/–
(नागेश मिश्र)
अभियंता प्रमुख–1

पत्रांक :– 1/PMC/विविध /958/2020 174 /राँची, दिनांक 09.03.2022
प्रतिलिपिः– M/S Bihar Foundry & Casting Limited, Ramgarh Industrial Area, P.O Morar, Ramgarh, Jharkhand - 829117 को सूचनार्थ प्रेषित।

09/03/2022
(नागेश मिश्र)
अभियंता प्रमुख–1

Annexure -03

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ENGINEERING AND ENVIRONMENTAL SOLUTIONS

Add: 4/1301, New Sir Syed Nagar, Aligarh - 202002, UP
Web: www.enggenv.com, E-mail: enggenvsolution@gmail.com
Contact: [illegible]

Calibration Certificate

Page No.1 of 1

Customer Name & Address		
Ashish kataria Bihar foundry & castings ltd Industrial area marar Ramgarh - 829117	Certificate No.	EES/GWLR/357
	Date of issue	26.10.2021
	Date of calibration	25.10.2021
	Calibration Valid Upto	24.10.2022
	Service request no. & Date	

Instrument Detail			
Name	Ground Water Level Recorder	Least Count	---
Make	E&E Solutions	Accuracy/Acceptacne	---
Model	GWR - 01	Visual Inspection	OK
Sr. No	2108001101971	Zero Error	Not Found
ID No	GWR01366	Location	In Lab
Range/Size	---	DUC Location	---

Standard Instruments used for Calibration

Sl	Instrument Name	Calibrated By	Calibration Certificate No.	Calibration Validity
1	Pressure Transmitter	Jupiter Electronics	JI/DK/20-21/014465	02.03.2022

Environmental Condition

Temperature (°C)	25 ± 3	Humidity (%RH)	35 to 70

Calibration Result

S.No	Applied Pressure (BAR)	DUC Reading (m)	Standard Reading (m)
1	0.50	4.02	5.00
2	1.30	12.31	13.00
3	2.70	26.12	27.00

[illegible]

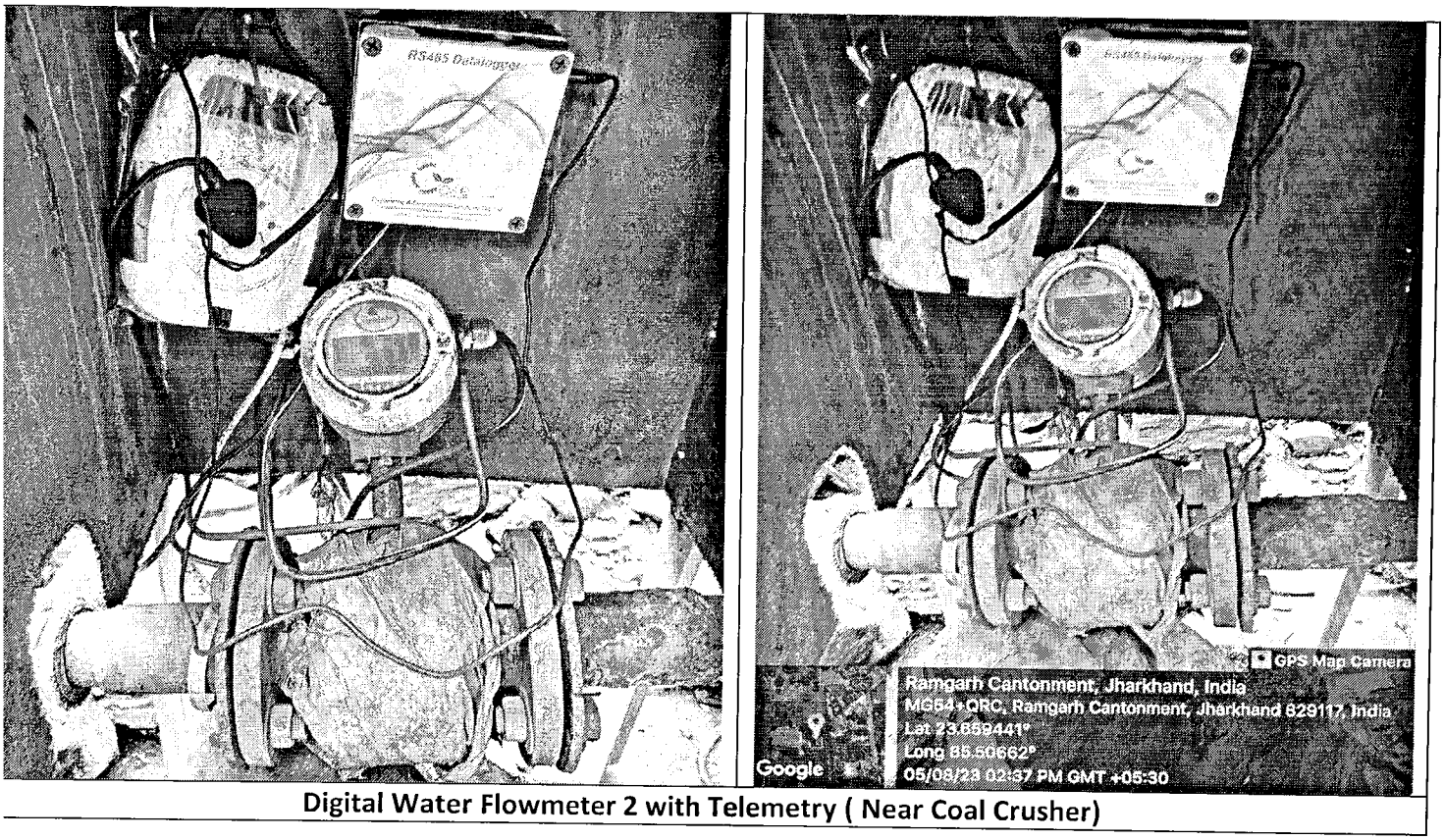
Calibrated by

[illegible] by

Approved by

182

Digital Water Flowmeter 1 with Telemetry (Near Time Office)



Digital Water Flowmeter 2 with Telemetry (Near Coal Crusher)

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Government of Jharkhand

Receipt of Online Payment of Stamp Duty

NON JUDICIAL

Receipt Number : f3c10b22009e85cc7a64
Receipt Date : 08-Aug-2023 10:52:49 am
Receipt Amount : 100/-
Amount In Words : One Hundred Rupees Only
Document Type : Affidavit
District Name : Ranchi
Stamp Duty Paid By : BIHAR FOUNDRY AND CASTINGS LTD
Purpose of stamp duty paid : AFFIDAVIT
First Party Name : BIHAR FOUNDRY AND CASTINGS LTD
Second Party Name : NA
GRN Number : 2318655187

- This stamp paper can be verified in the jharnibandhan site through receipt number :-

ADVOCATES CLERK WELFARE FUND ₹5 FIVE RUPEES

RANCHI DISTRICT BAR ASSOCIATION RANCHI (Jharkhand) India 07419

No. 23-24/B1

This Receipt is to be used as proof of payment of stamp duty only for one document.The use of the same receipt as proof of payment of stamp duty in another document through reprint,photo copy or other means is penal offence under section-62 of Indian Stamp Act,1899

इस रसीद का उपयोग केवल एक ही दस्तावेज पर मुद्रांक शुल्क का भुगतान के प्रमाण हेतु ही किया जा सकता है। पुन: प्रिन्ट कर अथवा फोटो कॉपी आदि द्वारा इसी रसीद का दुसरे दस्तावेज पर मुद्रांक शुल्क का भुगतान के प्रमाण हेतु उपयोग भारतीय मुद्रांक अधिनियम, 1899 की धारा 62 अन्तर्गत दण्डनीय अपराध है।

For BIHAR FOUNDRY & CASTINGS LTD.

DIRECTOR

BIHAR MAHTO RANCHI (Jharkhand) India

BEFORE THE CENTRAL GROUND WATER AUTHORITY, NEW DELHI
(TO BE PRODUCED ON NOTARIZED AFFIDAVIT ON STAMP PAPER OF RS.100)
(Applicable for proponents withdrawing groundwater upto 100 KLD)

AFFIDAVIT

I, Gaurav Budhia, Son of Sri Hari Krishna Budhia, aged about 35 years, working as Director (Designation) in M/s Bihar Foundry & Castings Ltd. - Ferro Alloys unit (previously BFCL-Gautam Ferro Alloys). Plot No. 1405, Ramgarh Industrial Area, Village & PO – Marar, Dist. Ramgarh, Jharkhand–829117, Registered office at Main Road, Ranchi- 834001 (Jharkhand) (address of company/Project/Firm) hereby solemnly affirm and declare as under that firm is complying with the conditions mentioned in the NOC issued by CGWA vide No- CGWA/NOC/IND/ORIG/2021/10628 dated 02/01/2021 as under:

1. The firm has not abstracted more than **12775 m3/Year** (Quantum of groundwater mentioned in the NOC) for the period from 02/01/2021 to 01/01/2024 (NOC validity period).
2. The firm has constructed **02** (Nos.) ground water abstraction structures/dewatering structures as per NOC). The firm has not constructed any additional groundwater abstraction/ dewatering structure/ structure(s) for this purpose as per the NOC condition.
3. The firm has installed digital water flow meters in all the groundwater abstraction structure/ structure(s) as mentioned in the NOC. All the flow meter /meter(s) are functional.
4. The firm has constructed **01** (No. of piezometer as per NOC) and installed digital water level recorder **01** (No. of piezometer as per NOC) and telemetry system on **01** (No. of piezometer as per NOC).
5. The firm has implemented rain water harvesting/ recharge measures within the premises and outside plant premises and submitted photographs as per the condition mentioned in the NOC. The firm also carries out periodic maintenance of recharge structure/ structure(s).
6. The firm has carried out water level monitoring and water quality monitoring as per the NOC condition.
7. The firm has submitted groundwater abstraction data, water level data and water quality data periodically as per the NOC condition.
8. The firm has established additional Key wells in core and buffer zone area, in case of mining project as per the NOC condition.
9. In case of saline groundwater abstraction, the firm has sealed existing tube-well yielding freshwater and new well has been constructed tapping saline water zone as per NOC condition.
10. The firm has installed ETP/STP to treat waste water and reuse and recycle the treated water after adequate treatment.
11. The firm has taken all preventive measures to prevent contamination of groundwater within the premises.

12. The firm has submitted the self compliance report online through NOCAP portal regularly as per the NOC condition.

I hereby undertake that all the information furnished above is true to the best of my knowledge and belief. I am fully aware that if any information submitted by me is found to be false or violation of NOC conditions is observed at any stage, the firm shall be liable to pay Environmental Compensation for illegal withdrawal of ground water /Penalty, under Section 15 of EPA 1986 as and when decided by the Statutory Authorities.

For BIHAR FOUNDRY & CASTINGS LTD.

Place: Ranchi

DEPONENT DIRECTOR

(Signature with Date, Place and Seal)

08/8/2023

Signature is Identified by the Advocate

NOTARY

(Signature with Date, Place and Seal)

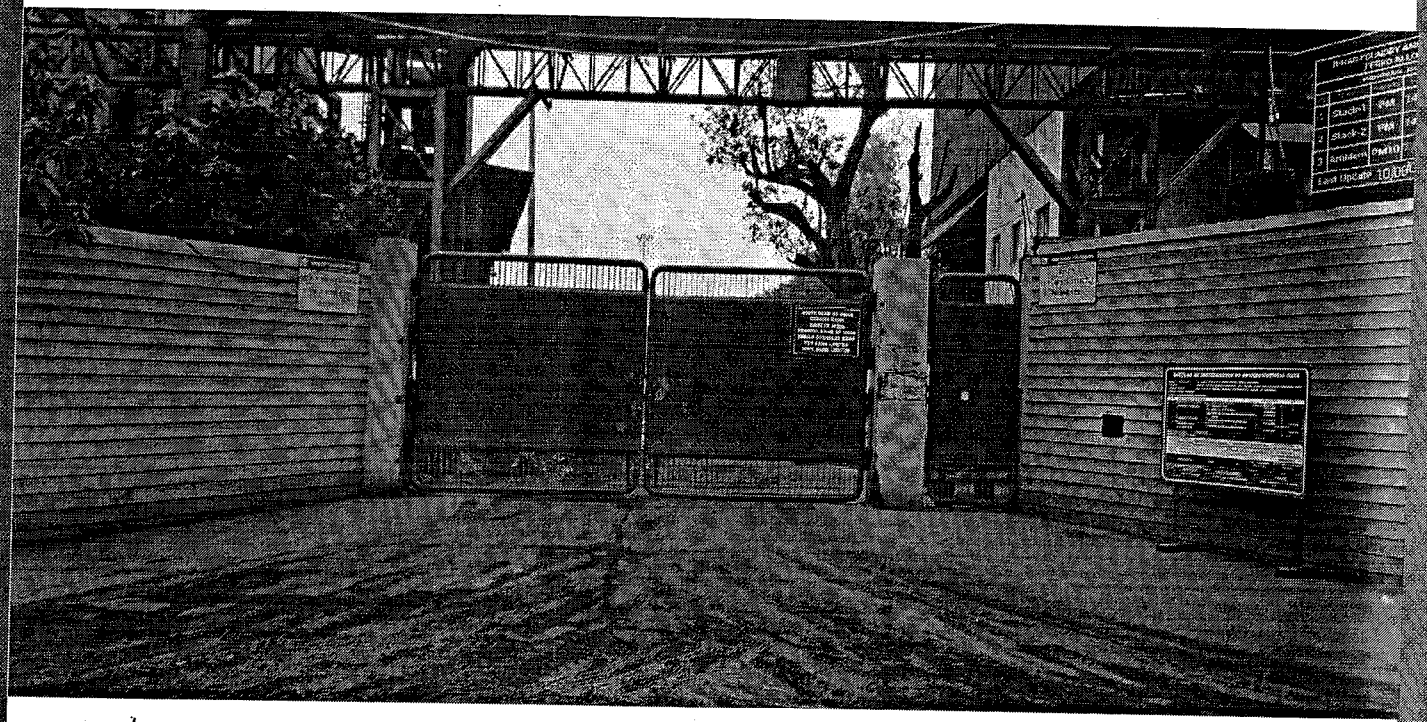
BHIM MAHTO NOTARY PUBLIC R.No.-25 Ranchi (Jharkhand) India

NOTARY PUBLIC RANCHI

WATER AUDIT REPORT

As per the guidelines of CGWA, Ministry of JAL SHAKTI

At
M/s Bihar Foundry & Castings Ltd,
Ferro Alloys Unit Plot No 1405,
Ramgarh Industrial Area,
PO: Marar, Dist: Ramgarh-829117,
Jharkhand



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LIST OF FIGURES

This report is an attempt to provide an overview of the dewatering of ground water system and water usage at Bihar Foundry & Castings Ltd.- Ferro Alloys Unit, Ramgarh. The report also highlights the major water sources, consumption area, wastewater treatment facilities and available water saving opportunities in the facility. A set of recommendations which will assist in improving water efficiency has also been highlighted in this report. This report has emerged after a detailed water audit conducted in Plant from June, 2023.

Project Title:	
Water Audit at Bihar Foundry & Castings Ltd., Ferro Alloys Unit , Plot No.- 1405, Ramgarh Industrial Area, P.O- Marar, Dist- Ramgarh-829117, Jharkhand	
Client:	
M/s. Bihar Foundry & Castings Ltd., Ferro Alloys Unit	
Contact Person:	
Mr. B.K. Gupta (GM-Environment)	
Date of Audit:	**Source of Water:**
23/06/2023 to 25/06/2023	Ground Water & Water Tanker

EXECUTIVE SUMMARY

Bihar Foundry & Castings Ltd has been granted NOC/permission to withdraw 35 m3/day (not exceeding 12775 m3/year) of groundwater through 2 no. of Existing Borewells from CGWA vide Letter No.- CGWA/NOC/IND/ORIG/2021/10628 Dated 02.01.2021 which is valid upto 01/01/2024. Thus, plant is in under compliance for yearly & daily water withdrawal as per CGWA.

During Audit, Team noticed Fresh water intake to plant for process and domestic activities are about 1 m3/day. Out of total freshwater intake, about 35 m3 is meet through Bore well water,

As per CGWA NOC, M/s Bihar Foundry & Castings Ltd, has to install Tamper proof digital water flow meter (DWFM) on all abstraction structure(s) with Telemetry system. It was noticed during the audit that the plant has installed digital water flow meters with telemetry system on 2 Nos. of borewells on discharge line of Pump. It was also noticed plant has maintained ground water abstracted data on daily & monthly basis in a logbook.

BFCL Management has to calibrate the digital water flow meter of all abstraction structures once in a year from NABL/Govt. Approved Laboratory. In view of above, plant has done the calibration of flow meters and record of same has been maintained. (Calibration certificate of DWFM are attached separately in annexure in **Chapter 11**)

As per CGWA NOC, M/s Bihar Foundry & Castings Ltd – Ferro Alloys Unit has to monitor quality of ground water from the abstraction structure(s) once in a year during April/May through NABL accredited laboratories. In view of above, Audit team has checked and verified the water quality test reports of Bore well 1 (Near time office) & Bore well 2 (Near Coal Crusher) having sampling date on 11/04/2023.All of the reports related to ground water sample found in accordance to the environmental factors related to water uses. (The ground water test reports are attached separately in annexure in chapter 11). Thus, the plant is under compliance for monitoring the quality of ground water. However, Team recommends monitoring of ground water has to be done during April/May month through NABL accredited laboratories as per CGWA guidelines.

As per CGWA NOC, M/s Bihar Foundry & Castings Ltd – Ferro Alloys Unit, has installed one (1) No. of observation well (piezometer) near Office building for ground water level monitoring in project area along with digital water level recorder (DWLR) and Water level data is available to CGWA through web portal. As per suggestion, the piezometer is installed as per guidelines of CGWA NOC). In addition, Plant has also done calibration of Piezometer. (Piezometer Calibration Certificate is attached in annexure chapter 11)

As per CGWA NOC, M/s Bihar Foundry & Castings Ltd – Ferro Alloys Unit has installed Rooftop Rain water harvesting structures in the premises. The runoff generated from the rooftop is stored and put to beneficial use by the plant; for the industries which are likely to pollute the ground water e.g. Tanning, Slaughter House, Dye, Chemical/Petrochemical, coal washeries, pharmaceuticals, other hazardous units etc. In the Ferro Alloys Unit 2 Nos. of RWH structures are located within plant premises

There is one pond in the main Unit of this group i.e., DRI plant at plot No.-1364 adjacent to this Ferro Alloys plant having capacity of 54600m3 (70m x60m x13m) having intake from Plant and Other areas. Maintenance of Recharge structure has been constructed.

M/s Bihar Foundry & Castings Ltd – Ferro Alloys Unit, has been granted Consent to Operate (CTO) issued by Jharkhand State Pollution Control Board vide Letter No. JSPCB/HO/RNC/CTO 4412165/2020/1819 dated 10/11/2020 with validity up to 31.12.2025 for Industrial use (Ferro Alloys Silico/ Manganese - 96 TPD)

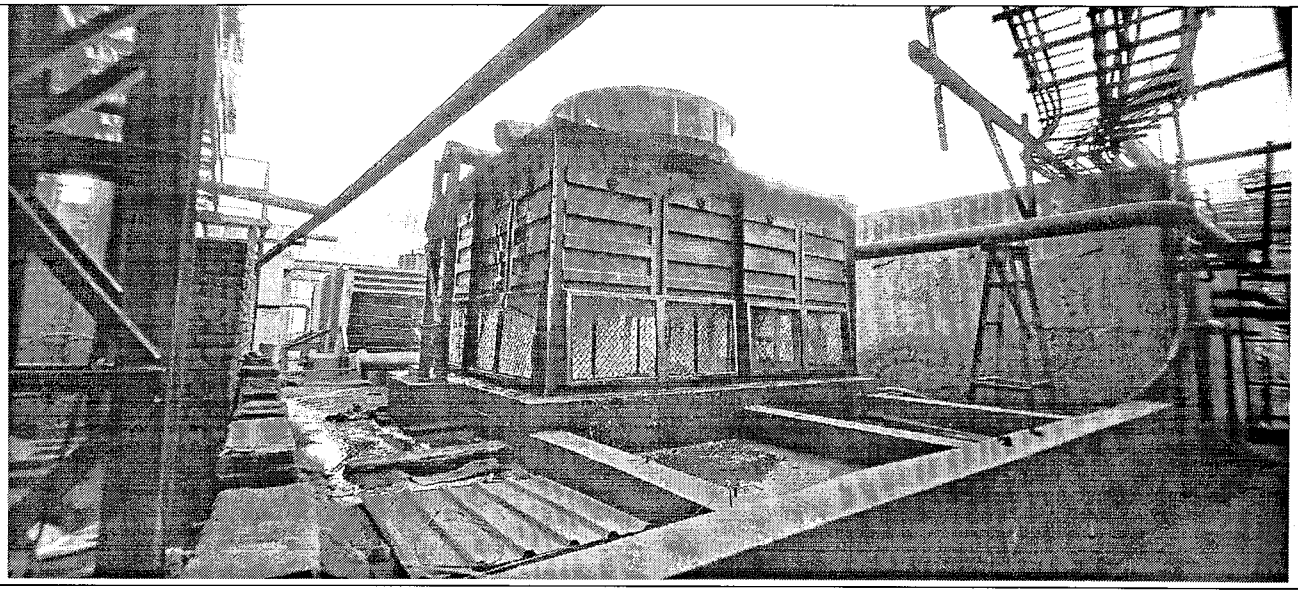
As per conditions stipulated in CTO, Plant has made water sprinkling arrangement in areas around Coal Crusher, Raw material feeding bunkers heavy vehicle movement areas, roads and waste dump sites etc. Sprinkling system has been arranged at specific location to maintain air and water pollution and improve the housekeeping in these areas.

Given the above scenario of prevailing resource challenge, accelerating over time Progressive management of M/s. Bihar Foundry & Castings Ltd – Ferro Alloys unit is very keen to do water audit of premises for getting benefit of water saving.

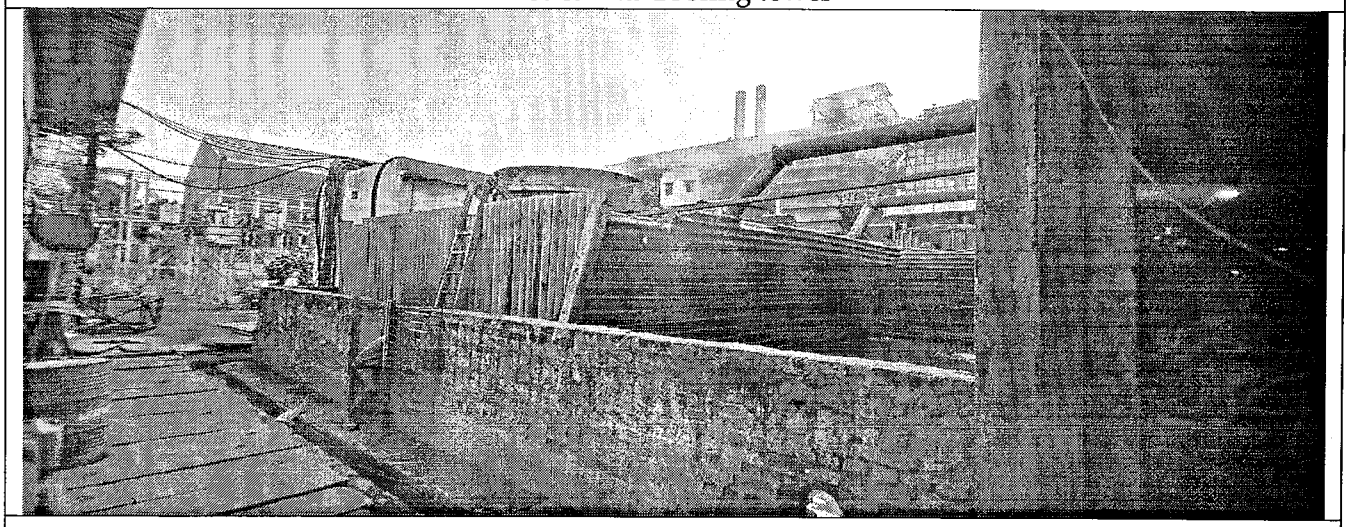
The Audit is focused on improving water usage efficiency and identifying water Conservation opportunities This report discusses the water balance and various water saving options derived on the basis of observation made, data collected and their analysis. Here the the general conditions of NOC. Summary of general NOC is reviewed & Water Audit findings are presented below.

STORAGE CAPACITY OF RAW WATER STORAGE & SOFT WATERTANK INSTALLED AT FERRO ALLOYS PLANT

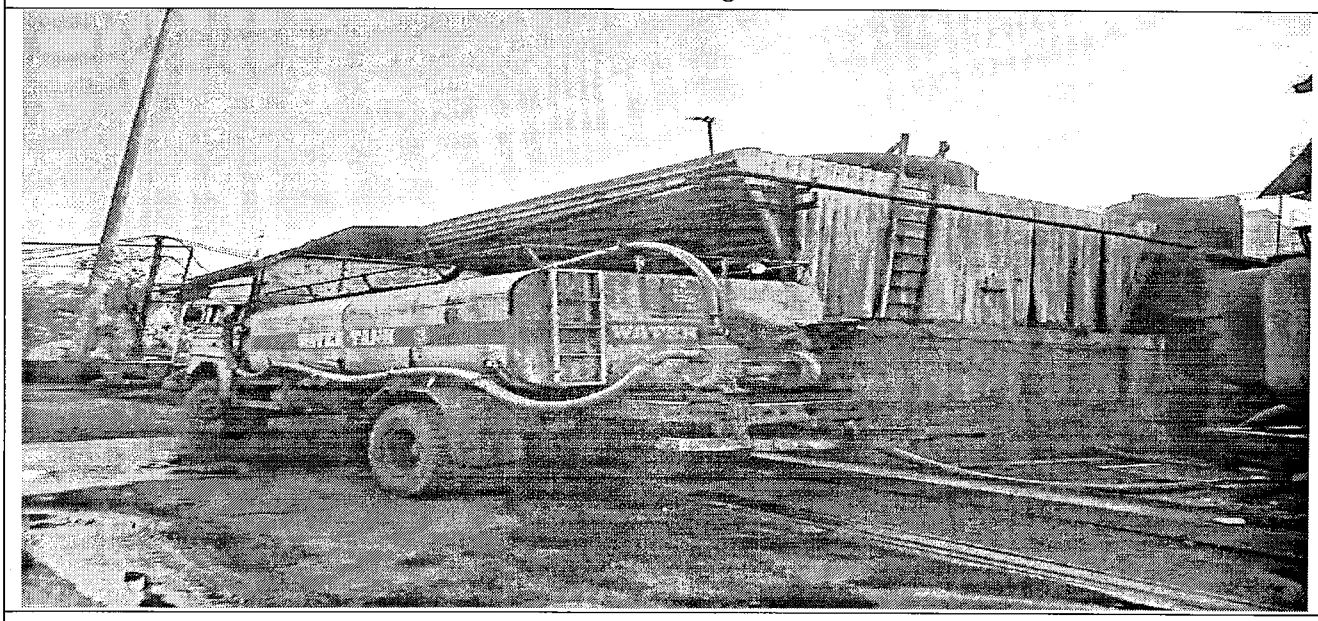
Presently, Ferro Alloys plant is having raw water intake from Borewell 1, Borewell 2 & Water Tanker to Raw Water Storage Tank. Further raw water is being treated through Media Filter. Thus, treated water (Soft water) is being stored in 3 Nos. of CT as makeup water and in storage tank.



1st & 2nd Cooling tower



3rd & 4th Cooling tower



5th Cooling tower

1. UNMETERED USE WITHOUT KNOWING PER CAPITA CONSUMPTION AS A RESULT OF WHICH EXCEEDING THE LIMIT OF CONSUMPTION

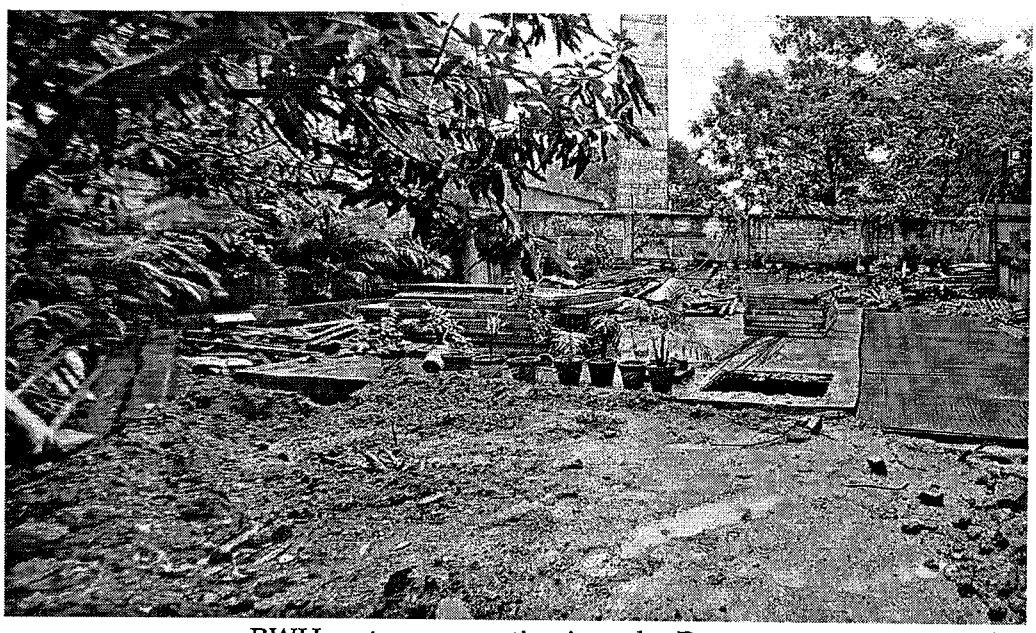
Present scenario, Plant management has installed digital water flowmeter at discharge line of 2 Nos. of Borewell to know the quantum of abstracted water. Team recommends to Plant management to install Flow meters at some distribution end to know the quantum of fresh/treated water withdrawal/consumed.

- CT makeup for Ferro Alloys Plant.
- Backwash & RO reject line
- Water used for dust suppression, Metal Cooling & Slag Cooling.
- Intake from RWH line
- Water used in Jigging Plant & Bunker hopper.

2. EFFECTIVE UTILIZATION OF RWH POTENTIAL & CLEANING OF STORM WATER LINE

In order to effectively utilize road/paved RWH potential, it is recommended that storm water line has to be cleaned regularly before pre-monsoon season and collected sludges shall be disposed properly. Also, provide pre settling tank/filter before RWH Reservoir to avoid contamination of ground water during transportation and from RWH reservoir. In view of above, Plant drains have been Cleaned & Settling Pit is under construction.

Team also noticed Rooftop RWH utilizing structure available for plant. However, tank capacity to utilize the RWH potential not adequate will result in loss of Rooftop water as a runoff through storm water line. Thus, RWH system renovation is under Progress.



RWH system renovation is under Progress.

Total Runoff available for the Plant is shown below;

S. No.	Particulars	Area (Sqm)	Rain fall (m)	Runoff Coefficient	Quantum of Run off available (Cum/Year)
	1	2	3	4	5 (2*3*4)
1	Roof top area (60% of the total Built-up area & Storage Area)	14,468	1.251	0.85	15384.57
2	Internal roads	2,024	1.251	0.65	1645.41
3	Greenbelt	6,131		0.15	1150.52
4	Parking area & Misc. Area	607	1.251	0.20	151.88
5	Water Reservoir	0	1.251	1.00	0.00
	Total (sqm)	**23,230**		**Total Quantum of available runoff (cum/y)**	**18332.39**

3. REGULARLY CALIBRATE & MAINTAIN EXISTING WATER FLOWMETER

The Plant Management has installed water meters at borewells and input line dedicated to Ferro plant process manufacturing from Borewell 1 & Borewell 2. Plant management has done calibration of both Borewells and maintain record of same.

4. TRAINING AND AWARENESS PROGRAMS WOULD BE DONE REGULARLY AT ALL LEVELS I.E., FROM MANAGEMENT TO OPERATOR LEVEL. POSTERS/SLOGANS SHOULD BE PASTED WHEREVER POSSIBLE

The plant has a workforce of around 750 includes (employees + contractual staff) and major water usage in domestic, washing & cleaning activities. It is suggested that the plant employees at all levels should be made aware and trained on 'Water Saving & Conservation' and 'Good Housekeeping Practices'. Therefore, it is recommended to periodically organize Awareness Programs for office employees including shop floor workers on Water Conservation. It is also suggested that prominent water saving labels/posters should be placed/located in the plant at noticeable locations like process area; near hand washing taps; washrooms, reception office etc. This will create awareness & sense of responsibility among staff/employees/visitors.

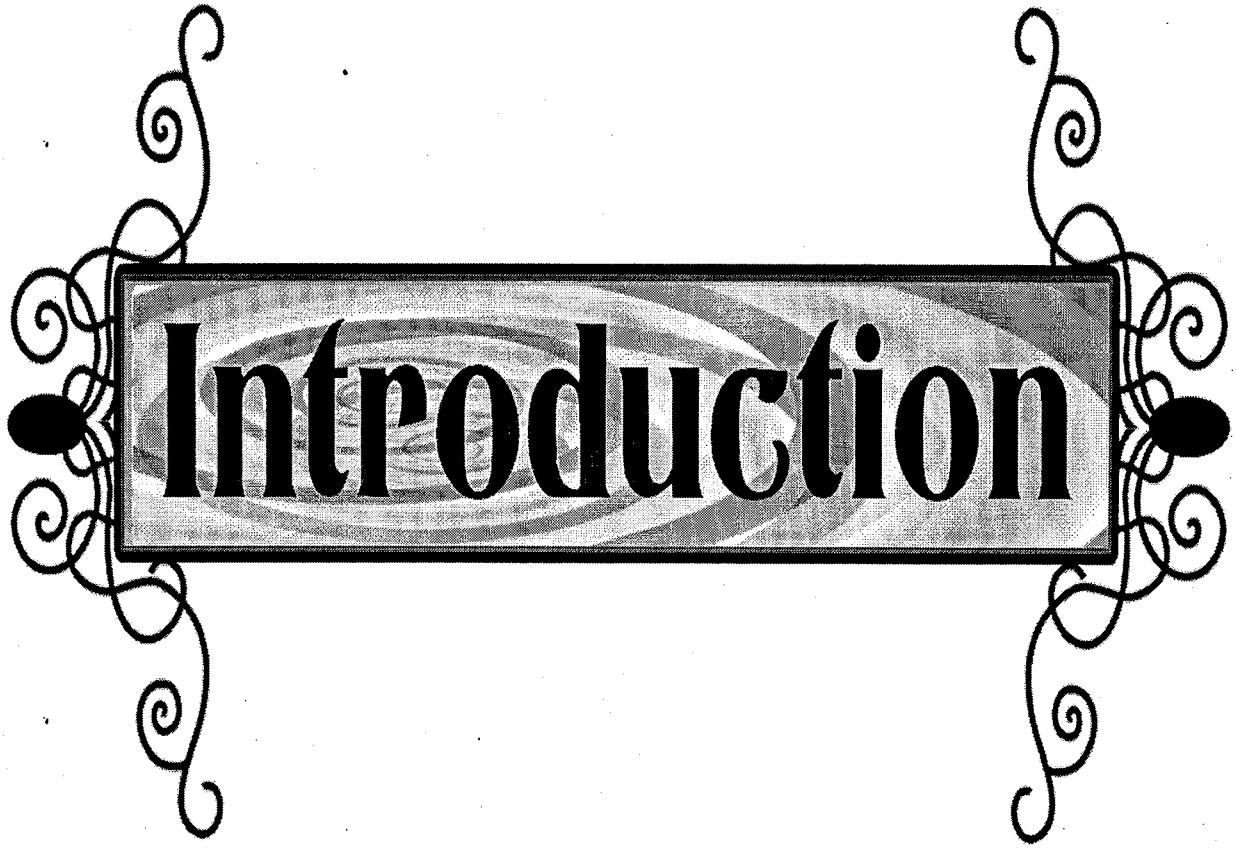
5. MAINTAIN LOGBOOK OF DAILY FRESH WATER INTAKE TO PLANT.

The Plant Management has maintained the record of Ground Water Abstraction on daily basis. However, Team also recommends for maintenance of Total Fresh Water intake to Plant including Ground water abstraction through individual borewells, Water Tanker & reuse from RWH reservoir. Also suggested to maintain the data of distribution system.

6. OPTIMIZATION OF FLOW RATE OF TAPS

The Average flowrate of the wash basin (Hand wash) Taps was observed to be around 6-8LPM. About 750 employees (Semiskilled & Un-skilled) including contractual staff is available in plant. It is suggested to install Nozzle system with Sensor based in washbasin Taps in the plant area to save domestic water consumption. About 54% domestic water consumption will be reduced through wash basin by installing and maintaining suggested fixtures from handwash taps.

Description	UOM	Value
Measured flow rate of manual operation wash basin tap	LPM	6.5
Average No. of employees including contractual staff	No.	750
Avg. hand wash duration by employees in a day	min/day	1
Avg. water consumed through wash basin tap	m3/day	5.1
Recommended water flow rate of sensor-based washbasin tap with Nozzle system	LPM	3
Estimated freshwater saving	%	54%
Average fresh water savings by optimizing the flow rate of the taps	m3/day	2.7



CHAPTER 1

1. INTRODUCTION

Human activities consume and pollute lot of water. At a global scale, most of the water use occurs in agricultural production, but there are also substantial water volumes consumed and polluted in the industrial and domestic sectors (WWAP, 2009).

Global changes like population growth, climate variability, ever-expanding industrialization and urbanization — often combined with pollution — severely affect water availability and lead to chronic water shortages in a growing number of regions. India has been successful in the past to meet such water requirements for different usages with a phenomenal development of water resources. However, preserving the quality and availability of fresh water resources has now become a pressing environment challenge.

Water is an essential precondition for life, and according to the UN it is a human right to have access to clean water. However, in India millions of people are living without direct access to safe water and based on the rapid population growth coupled with the fact that the water reserve is finite, it will be a very valuable and scarce resource within only a few years. In this light, there is an urgent need for decision makers to act in order to improve the conditions for effective use and supply of water to the Indian people now and in the future.

Under the Indian Constitution and in our federal democratic set up drinking water comes within the domain of the State Governments (Provincial Governments). In fact, the 73rd Constitutional Amendment has gone a step forward. It mandates that responsibility for drinking water and sanitation services should be with Local Governments. Various States in India are at different stages of giving effect to this Constitutional mandate.

The Ministry of Urban Development has formulated Service Level Benchmarks (SLBs) in 2008 and circulated the same to the States for adoption. The SLBs include water conservation and management practices such as continuous water supply, 100% metering of water supply, sustainable tariffs and reduction in leakages to a level of 15% to 20%.

The National Water Policy – 2012 focuses on the need for publishing water accounts and water audit reports indicating leakages and pilferages. The policy recommends systems to evolve benchmarks for water uses for different purposes, i.e., water footprints, and water auditing to ensure efficient use of water.

National Water Mission (NWM) has been established by the Government of India with the objective of "conservation of water, minimizing wastage and ensuring its more equitable distribution both across and within States through integrated water resources development and management".
The Government of India has also launched a Centrally Sponsored Scheme for Repair, Renovation and Restoration (RRR) of water bodies, which has multiple objectives like comprehensive improvement and restoration of water bodies thereby increasing tank storage capacity, improved water use efficiency and increased availability of drinking water.

With its continuously declining per capita water availability (from about 5,177 m3 in 1951 to 1,654 m3 in 2007), India stands water stressed and is close to being categorized 'water scarce'. Water demand in India is expected to grow annually by 2.8 per cent to reach 1,500 bcm (by 2030) while the current supply is only about half (viz., 744 bcm). The Government of India, in its Intended Nationally Determined Contribution (INDC) submitted to UN Framework Convention on Climate Change (UNFCCC) in October, 2015, has committed to improve the water use efficiency by 20%, through regulatory mechanisms with differential entitlements and pricing. It further emphasizes the need to focus on integrated water resource management through water conservation, wastewater minimization, etc.

The notification dated 24/09/2020 from CGWA All industries abstracting ground water in excess of 100 m3/day shall be required to undertake annual water audit through CII/FICCI/NPC/AUDIT TEAM certified auditors and submit water audit reports within three months of completion of the same to CGWA. But in this Ferro Alloys unit abstracting ground water is only 35 m3/day.

Water audit is an effective management tool for minimizing losses, optimizing various uses and thus enabling considerable conservation of water.

This report discusses the existing dewatering and domestic water scenario at BFCL, Ferro Alloys Unit and its potential water savings and how the basic water audit approach has been applied to water conservation in line with the guidelines of CGWA.

RATIONALE FOR WATER AUDIT

Water audit determines the amount of water lost from the water network/distribution system due to seepage, evaporation/leakage and other reasons such as theft, unauthorized or illegal withdrawals from the systems. Water audit improves the knowledge and documentation of the distribution system, and better understanding of what is happening to the water after it leaves the source point. Comprehensive water audit gives a detailed profile of the distribution system and water users, thereby facilitating easier and effective management of the resources with improved reliability. It helps in correct diagnosis of the problems faced in order to suggest optimum solutions. This leads to reduced water losses; improved financial performance; improved reliability of supply system; enhanced knowledge of the distribution; efficient use of existing supplies; better safeguard to public health and property; improved public relations; reduced legal liability and reduced disruption etc. thereby improving level of service to customers. It is thus an effective tool for realistic understanding and assessment of the present performance level and efficiency of the service and the adaptability of the system for future expansion & rectification of faults during modernization.

STEPS OF WATER AUDIT

Water Audit includes water supply and usage study, process study, system audit, discharge analysis and preparation of water audit report.

Water Supply and Usage Study

Water audit comprises preparation of layout of water sources, distribution network, and service/delivery points to water users and return flow of waste or excess water. The layout should contain locations and capacities of flow measurement devices installed at key points, sizes of different channels, and fittings in the water supply system, locations and particulars of flow control devices and history sheets of all measuring and control devices including pipes and fittings etc.

Audit team has carried out the water supply and usage study at BFCL, Ferro Alloys Unit. to understand the present dewatering water utilization & domestic water consumption pattern and projecting future requirement. Audit team also carried out a review of sustainable sources of water through rainwater harvesting and possible wastewater recycling at BFCL-Ferro Alloys Unit.

Process Study

Flow measurement device is installed at bore well to calculate the water consumption at BFCL-Ferro Alloys Unit in various activities such as supply to the process, utility, WTP etc.

Water quality of the distribution system needs to be monitored regularly at strategic points to find out the level and nature of contaminants present in the supplied water. The BFCL- Ferro Alloys Unit has conducted the water quality test reports for raw water. Audit team reviewed all test reports and found acceptable as the results are in compliance to various standards as required by SPCB.

Audit Team has carried out flow, pressure and power measurement of borewell, WTP plants, cooling towers to calculate the total water supplied to the different areas of the plant to understand the quantity of water received from ground and feed to the plant area. Accordingly, discharge from various manufacturing units, buildings and estimation of losses was also assessed.

System Audit

The current water usages and systems for water use under various sectors such as Process & domestic water supply need to be studied to check their operational efficiency and level of maintenance. The scope for any modification or up-gradation will depend on the status of existing systems. Measurement methodology from the intake point of the system through various sub-systems to the ultimate user points needs to be verified periodically for its suitability, efficiency and accuracy. Metering should be done at various locations like water supplied to Ferro Alloys unit and domestic use. The domestic wastewater return need to be studied for conformity to environment standards, possibility of recovery of valuable by-products and the opportunity for recycling of waste water.

Audit team has carried out physical inspection of water distribution network/system of pump house, supply to various areas like process, makeup to CT, sprinkling system etc. to get their per day drinking and sanitary water consumption to arrive at per capita water consumption in BFCL- Ferro Alloys Unit.

Water Audit Report

A water audit can be accomplished on the basis of water allotted for a service and water actually utilized for that service. After assessing the loss of water and the efficiency of the system, steps needed for utilization of recoverable water loss and reuse may be listed.

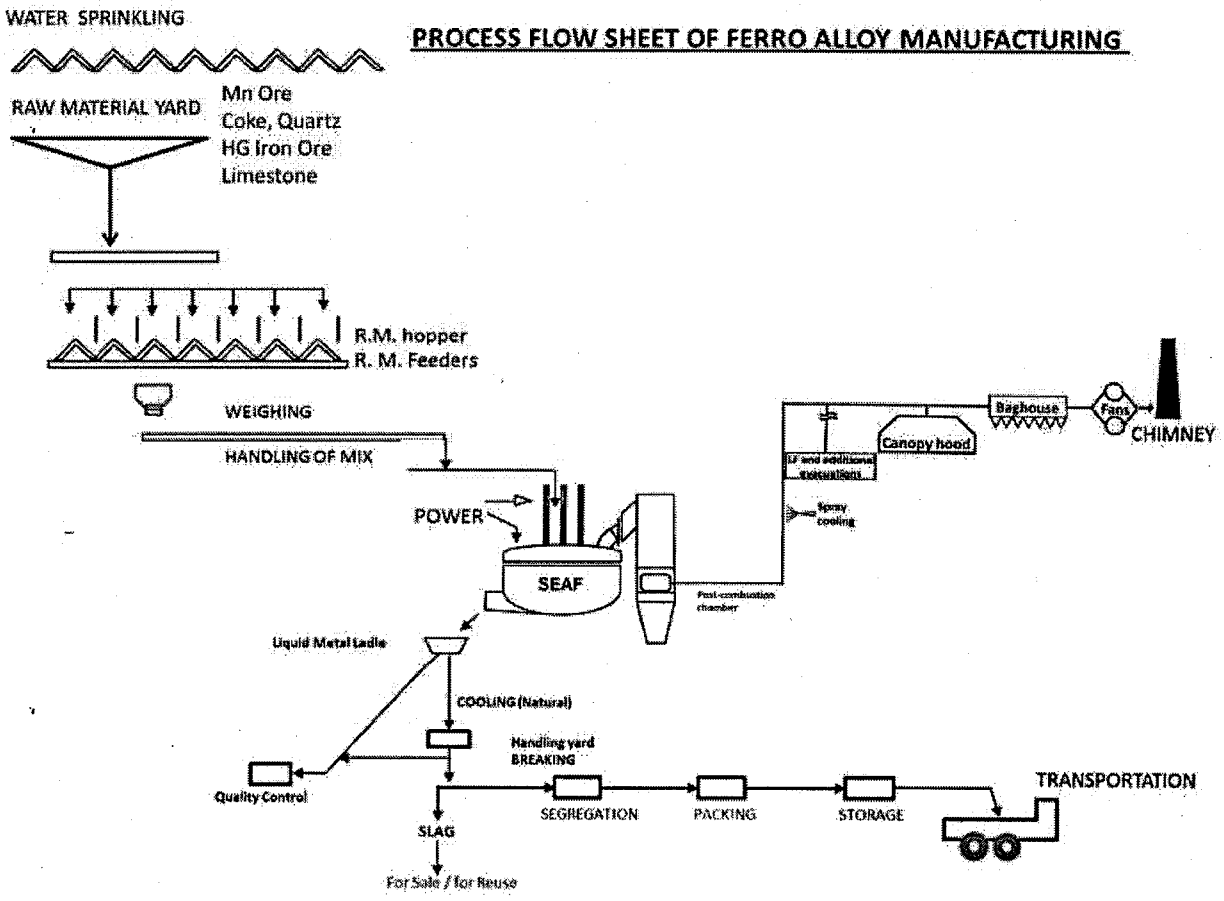
An effective water audit report may be purposeful in detection of water losses and improve efficiency of the system. Water audit of the system should be undertaken at regular intervals, at least on an annual basis.

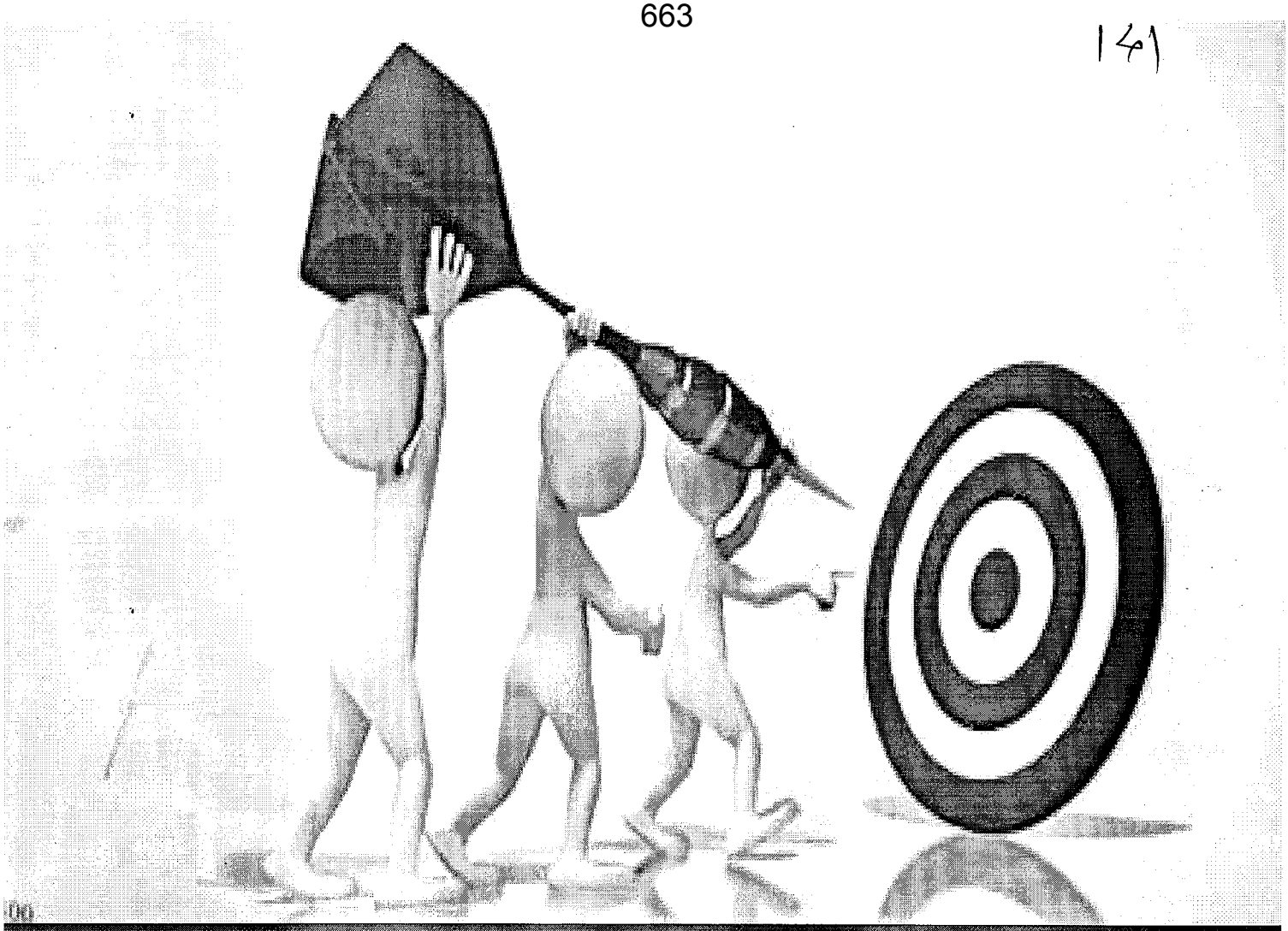
Audit team water audit report explains the losses of water in system and various management approaches for BFCL -Ferro Alloys Unit

Brief Description about the plant:

Bihar Foundry & Casting Limited -Ferro Alloys Unit is incorporated in the year 1971-72 having unit at Ramgarh Cantt (Approximately 48 km from Ranchi) in Ramgarh Industrial Area, Ramgarh.

Figure 1. Plant Process Flow Chart of Ferro Alloys Plant





CHAPTER 2

SCOPE OF WORK

2. SCOPE OF WORK

The main objective of the study was to identify the dewatering of ground water, its distribution and domestic water consumption & water saving opportunities and to demonstrate water conservation at Bihar Foundry & Castings Ltd.- Ferro Alloys unit. Scope of work of the study includes the following:

- Water system analysis
- Quantification of baseline water map
- Monitoring and measurements using pressure and flow meters and various other devices
- Quantification of inefficiencies and leaks
- Quantification of water quality loads and discharges
- Quantification of variability in flows and quality parameters
- Strategies for water treatment and reuse or direct use
- Water balance of the whole System
- Mapping of Water quality requirement at various user areas

The detailed water audit report contains the following:

- Water consumption and wastewater generation pattern
- Specific water use and conservation
- Complete water balance of the facility
- Water saving opportunities
- Method of implementing the proposals
- Full description and figures
- Investment required
- Assessment of existing water sources and actual water consumption of the Plant.
- Identify the loss of water if any during transit and water distribution network and provide suggestion to eliminate these water losses.
- Identify the opportunities to reduce the water consumption by various activities and to establish specific water consumption in the premises.
- To study the performance of existing water circulating pumps/motors and recommends energy and water fixtures.
- Assessment of adequacy and efficacy of existing treatment system and recommend feasible technological option for treatment of water and waste water.
- Identify the loss of water if any during transit and to provide suggestions to eliminate the losses.
- To analyze areas of water conservation, waste water generation and recycle.
- Preparation of detailed water balance schematic diagram.
- Evolve techno-economic feasible solutions for recommended measure for implementation along with annual financial savings/payback periods.

Audit team has been entrusted to conduct internal Water Audit. In determining the water audit scope, Audit team has considered the extent and boundaries of the Installations. This report aims at portraying the water audit details and the outcome along with recommendations for the Company.

APPROACH & METHODOLOGY

CHAPTER 3

METHODOLOGY OF STUDY

3. METHODOLOGY OF THE STUDY

The following step by step methodology and approach were adopted while carrying out the Water Audit at BFCL- Ferro Alloys Unit. Team visited Plant on from 23/06/2023 to 25/06/2023 for the field measurement and conducting the audit. The broad methodology adopted for the Water Audit at BFCL-Ferro Alloys Unit is furnished below.

- Preliminary discussions with Plant personnel and observations in all water consuming areas.
- Data collection through discussions, past records, specifications.
- Field studies in each of the areas involving:
  - Performance trials.
  - Measurement of flow parameters, pressure, power wherever possible using portable instruments such as ultrasonic flow meter, pressure gauge and power analyser.
- Identification of water conservation options on short, medium & long terms.
- Identification of Investment grade projects in the plant for detailed analysis towards implementation
- Preparation, discussion and submission of report to the management.

The study focused on improving water use efficiency and identifying water saving opportunities. The analysis included simple payback calculations where investments are required to be made to implement recommendations, to establish their economic viability.

The audit study made use of various portable instruments for carrying out various measurements and analyses. Team has a wide array of latest, sophisticated, portable, diagnostic and measuring instruments to support our energy audit investigations and analyses. The specialized instruments that were used during the water audit include:

- Ultrasonic water flow meter
- Thermo couples & Indicators
- Pressure Gauge
- Load Manager

During the audit, there was continuous interaction between the audit team and facility personnel, to ensure that the suggestions made are realistic, practical and implementable to allow for possible concurrent implementation.

The broad methodology adopted for the Water Audit at BFCL-Ferro Alloys Unit is furnished below.

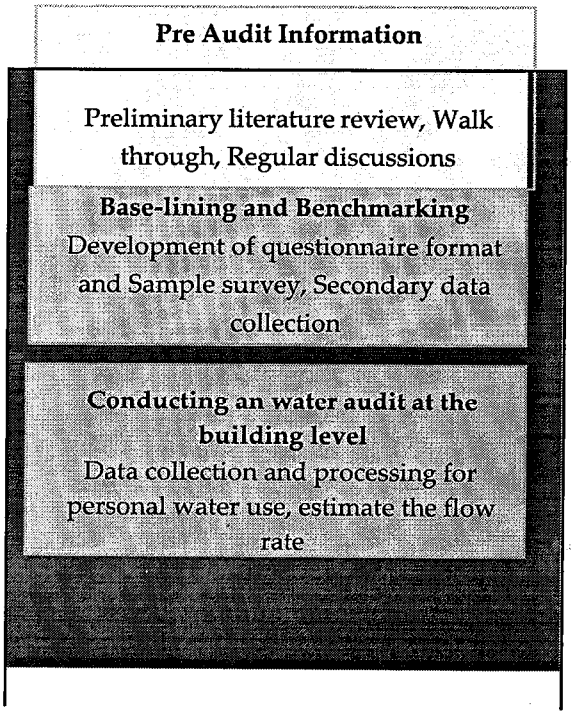
Pre-Audit Information

- Preliminary literature review of concepts and methodologies related to water audit for utility, facilities and households.
- Walk through the entire mine, water receiving pump stations, building to understand the nature of water uses and the systems installed in the building.
- Discussion with the administrative officers, pump operators, housekeeping and kitchen employees on the various water uses during the day and the source of water.

Establishing baseline and benchmarking

The water audit included both primary and secondary data collection for variousidentified water uses. Primary data collection included the following components:

- Development of questionnaire format for individual water use, gardening etc.
- Sample survey of Plant office staff to estimate individual water consumption on sanitary and drinking purposes based on questionnaire format.
- Flow rate calculation from the taps flow rates and number of all water using fixtures/ equipment was also undertaken.
- Secondary data collection included compilation of number of staff along with their duration of stay.
- Collecting records of water pumped to the overhead and underground tanks and average running hours of all pumps etc. to estimate actual supply.



Conducting a water audit at the Plant/Mine Level

- The data collection and processing for personal water use including drinking, supply to the Security guard area, staff colony, main view point area, etc. was done on the basis of actual consumption.
- The data for all the above uses was calculated for varying time period to calculate per capita use.

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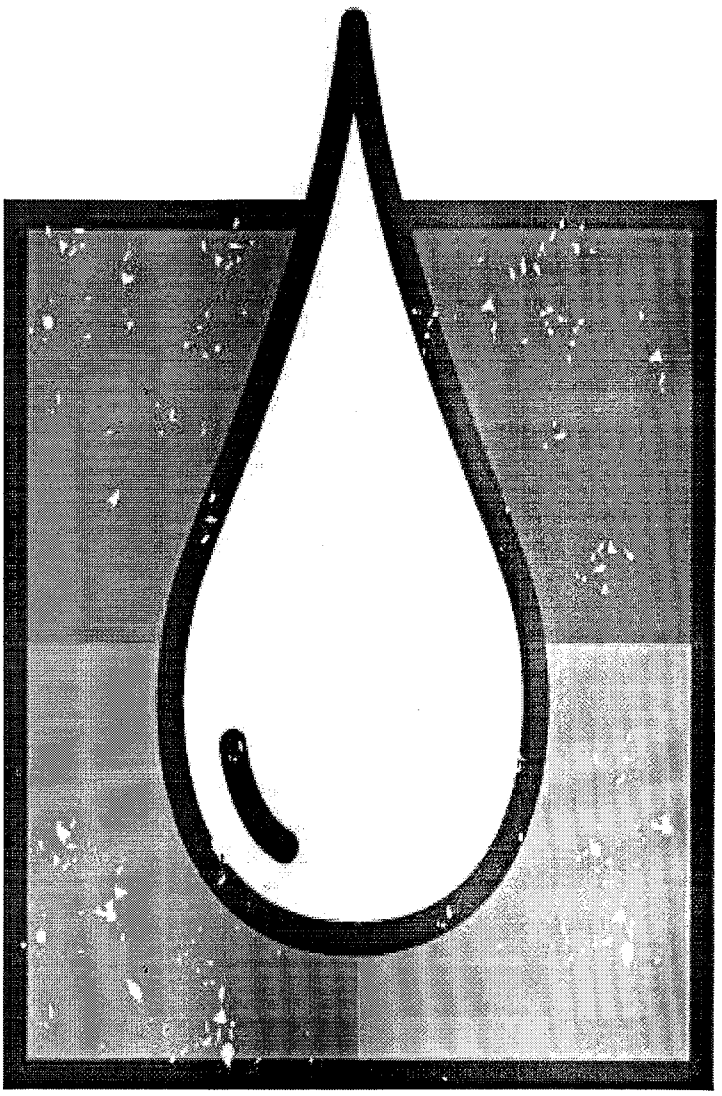

WATER
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CHAPTER 4

ASSESSMENT OF WATER USAGE

4. ASSESSMENT OF PRESENT WATER USAGE

PLANT GROUNDWATER WATER CONSUMPTION (LAST 3 YEARS)

Bihar Foundry & Castings Ltd.-Ferro Alloys Unit (Previously Gautam Ferro Alloys) has been granted NOC/permission to withdraw 35 m3/day (not exceeding 12775.00 m3/year) of groundwater through 2No. of Existing Borewells from CGWA vide Letter No.CGWA/NOC/IND/ORIG/2021/10628 and it is valid up to 01/01/2024.

The,source of water to the plant is meet through Ground Water supplied from 2 Nos. of Existing Borewell, Water Tanker & RWH Pond. Abstracted ground water from Borewell 1 and Borewell 2 is stored in surface storage tank for further use in Ferro Alloys Plant process activities after treatment and water from Borewell 2 is also supplied to Gardening, Admin Building & Dispensary and also for domestic uses.

The water consumption to the plant is provided in below table:

Table 1: Water Withdrawal & Production details

FY Year (2020-21)					
Month	Borewell- 1 (m3/month)	Borewell- 2 (m3/month)	From Nala	Total Ground water abstraction	Production (MT)
April	22	13	215	250	3390.500
May	18	17	215	250	4401.00
June	20	15	205	240	4585.500
July	20	15	205	240	4711.000
August	19	16	205	240	4345.500
September	20	15	205	240	3358.900
October	15	20	205	240	5301.500
November	20	15	205	240	5740.275
December	17	18	205	240	5994.000
January	15	20	205	240	5955.475
February	15	20	205	240	5368.000
March	20	15	205	240	5946.205
Total	**221**	**199**	**2480**	**2900**	**59097.855**

Project Name: Water Audit at Bihar Foundry & Castings Ltd. – Ferro Alloys Unit

FY Year (2021-22)					
Month	Borewell- 1 (m3/month)	Borewell- 2 (m3/month)	From Nala	Total Ground water abstraction	Production (MT)
April	18	17	215	250	5910.500
May	18	17	215	250	5922.000
June	17	18	205	240	5722.180
July	18	17	205	240	5797.000
August	15	20	205	240	6010.000
September	18	17	205	240	5850.700
October	15	20	205	240	6033.950
November	22	13	205	240	6404.650
December	15	20	205	240	6458.500
January	14	21	195	230	7109.00
February	15	20	295	330	7994.900
March	19	16	295	330	9319.535
Total	**204**	**216**	**2750**	**3170**	**78532.915**

FY Year (2022-23)					
Month	Borewell- 1 (m3/month)	Borewell- 2 (m3/month)	From Nala	Total Ground water abstraction	Production (MT)
April	12	23	295	330	8659.940
May	18	17	295	330	7358.040
June	15	20	295	330	7206.660
July	15	20	295	330	8317.875
August	17	18	295	330	7432.730
September	18	17	295	330	7241.220
October	17	18	295	330	7470.725
November	19	16	295	330	7571.845
December	16	19	295	330	7894.500
January	15	20	295	330	7136.500
February	18	17	295	330	7493.500
March	16	19	295	330	8788.315
Total	**196**	**224**	**3540**	**3960**	**92571.850**

FY Year (2023-24)					
Month	Borewell- 1 (m3/month)	Borewell- 2 (m3/month)	From Nala	Total Ground water abstraction	Production (MT)
April	15	20	305	340	8254.180
May	16	19	305	340	8472.130
June	16	19	295	330	8433.500
July	15	20	295	330	8539.000
Total	**62**	**78**	**1200**	**1340**	**33698.810**

It is noticed from Historical data, Ground water withdrawal for FY 2020-21, 2021-22, 2022-23 & 2023-24 (April-July) (sourced from plant official); is about 2900 m3/year (8m3/day), 3170 m3/year (9m3/day), 3960 m3/year (11 m3/day) & 1340 m3/year (11 m3/day). **Thus, plant is in under compliance for yearly & daily water withdrawal as per CGWA.**

Graphical representation of Ground water consumption pattern for last three financial years is shown below: -

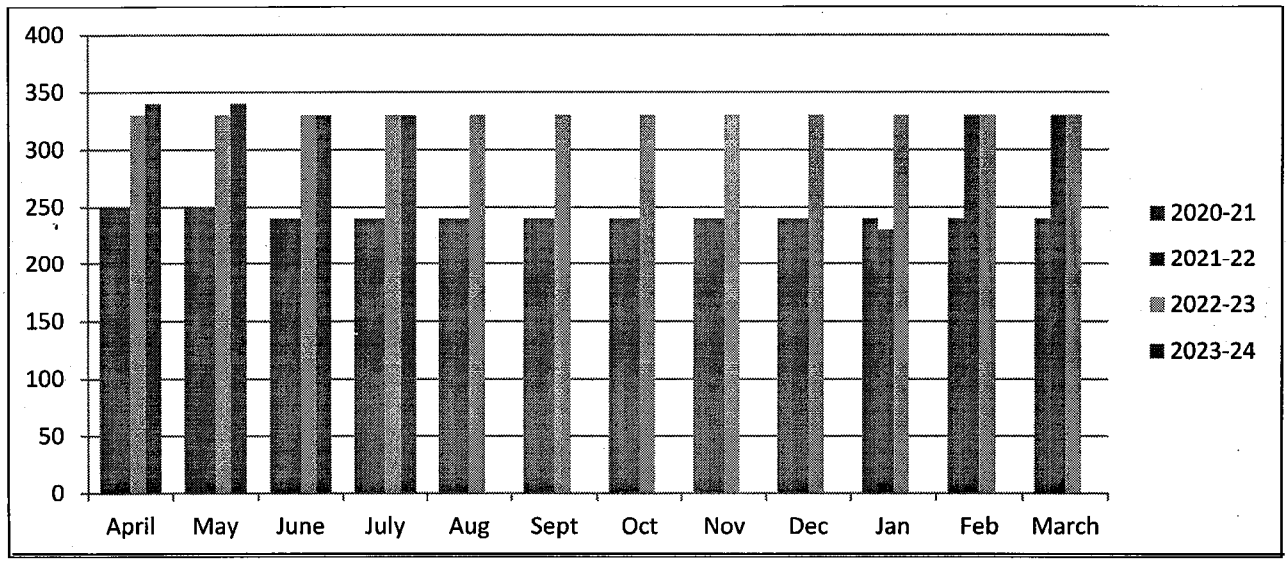


Figure 4 Ground Water Consumption (m3/year) Pattern for Last 3 FY

Plant has provided the Production & ground water abstraction data for last 3 FY. Thus, Audit team calculated specific water consumption per MT of production.

Table 2: Specific Water Consumption Pattern for last 3 FY

Sr. No.	Particulars	2020-21	2021-22	2022-23	2023-24 (April-July)
1	Production (MT)	59097.855	78532.915	92571.850	33698.810
2	Ground Consumption (KL)	2900	3170	3960	1340
3	Specific Water Consumption (KL/MT)	0.05	0.04	0.043	0.04

*Water Tanker & RWH water intake not included for SWC

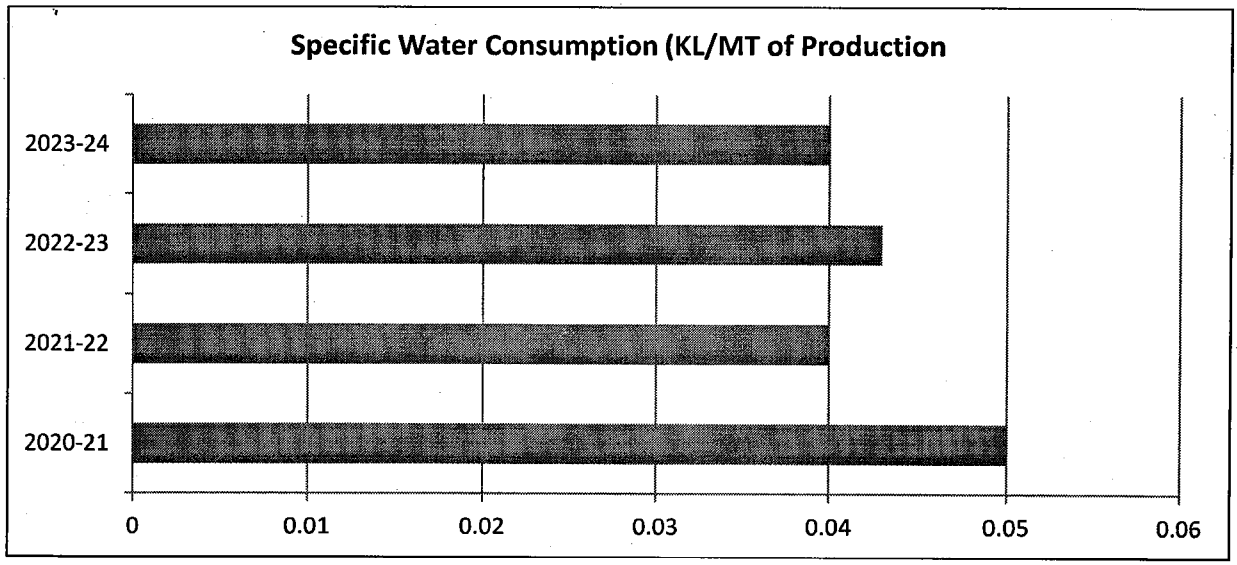


Figure 5. Specific Water Consumption

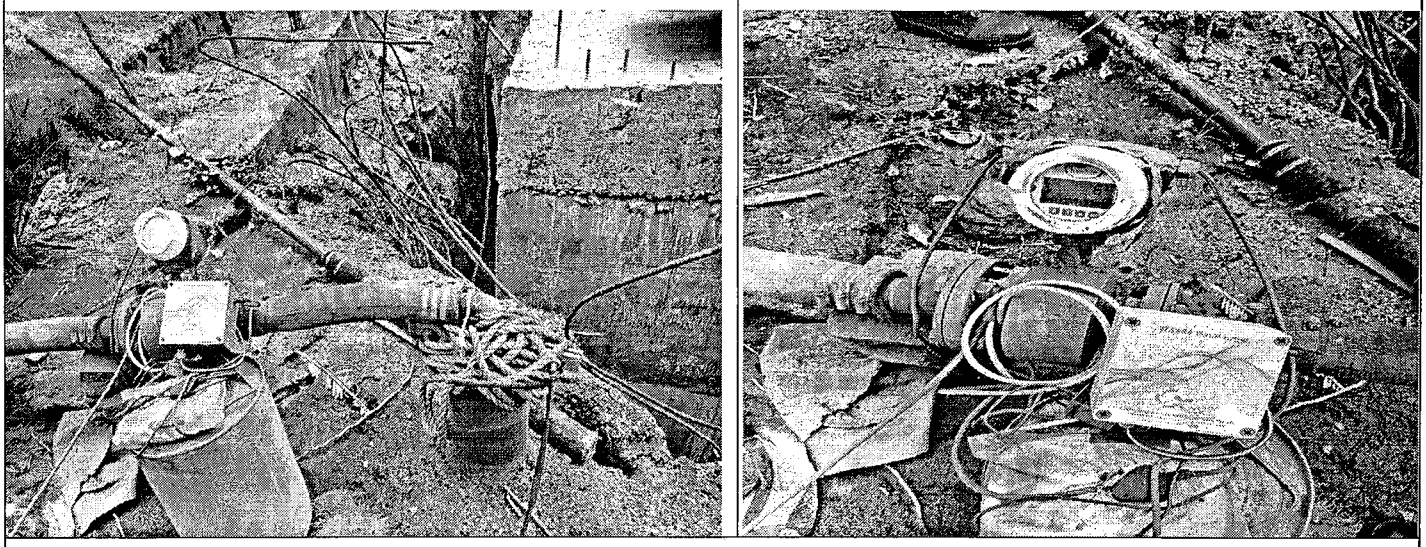
WATER SOURCES

The main source of process & domestic activities in plant is meet through ground water supplied from 2 Nos. of existing borewell, Water Tanker & RWH Pond. Abstracted ground water through Borewell 1 & Borewell 2 is stored in underground water storage tank. Further It has been supplied to various area sections of the plant for process & domestic use activities after treatment. The details of pumps, their location is mentioned below:

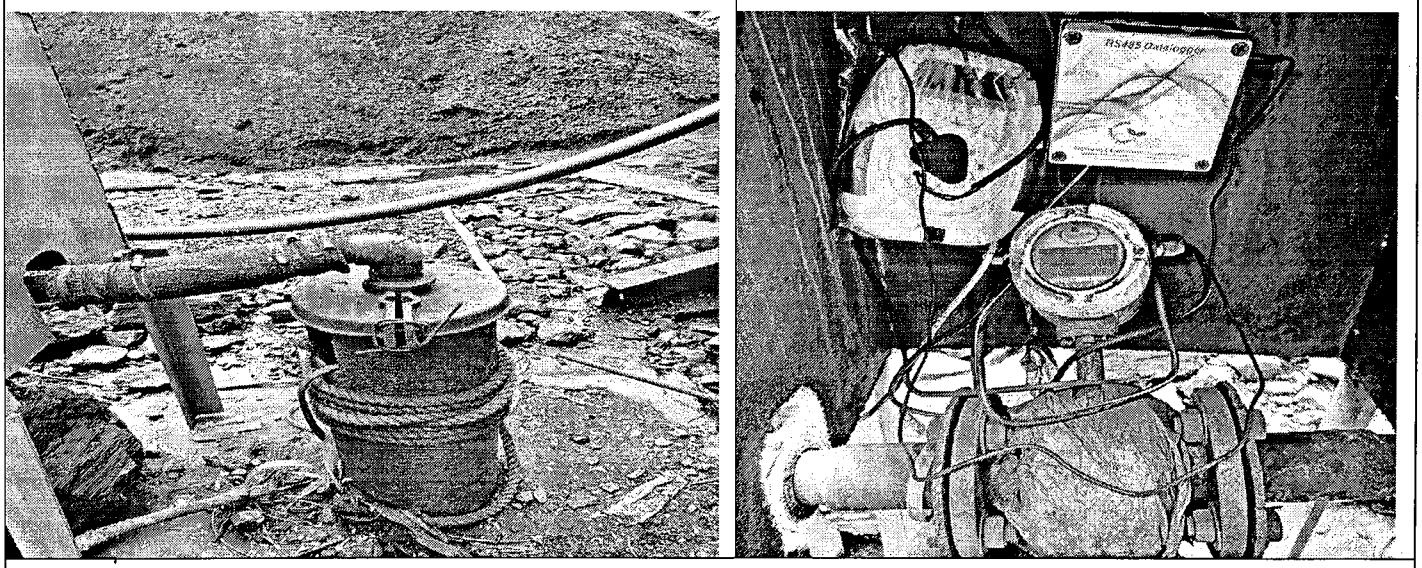
Table 3: Details of Borewell

Sr. No.	Type of Structure/ Year of Construction	Location	Operation Pattern	Mode of lift	Discharge (m3/hr)	HP ofPump
1	Borewell 1	Near Time Office	Working	Submersible Pump	5.52	1.50 HP
2	Borewell 2	Near Coal Crusher	Working	Submersible Pump	4.71	1.50 HP

Figure 6. Photos of Borewells with Electromagnetic flowmeter with telemetry system



Borewell 1 (Near Time Office)



Borewell 2 (Near Coal Crusher)

WATER SUPPLY & DISTRIBUTION DETAILS

A water network diagram provides a schematic (simplified) representation of facility's water distribution system from the water or point of entry (to the facility) to points of water consumption. In Bihar Foundry & Castings Ltd, the source of water to the plant is meet through Ground Water supplied from 2 Nos. of Existing Borewell, Water Tanker & RWH Pond. The Water Network diagram of BFCL is illustrated below:

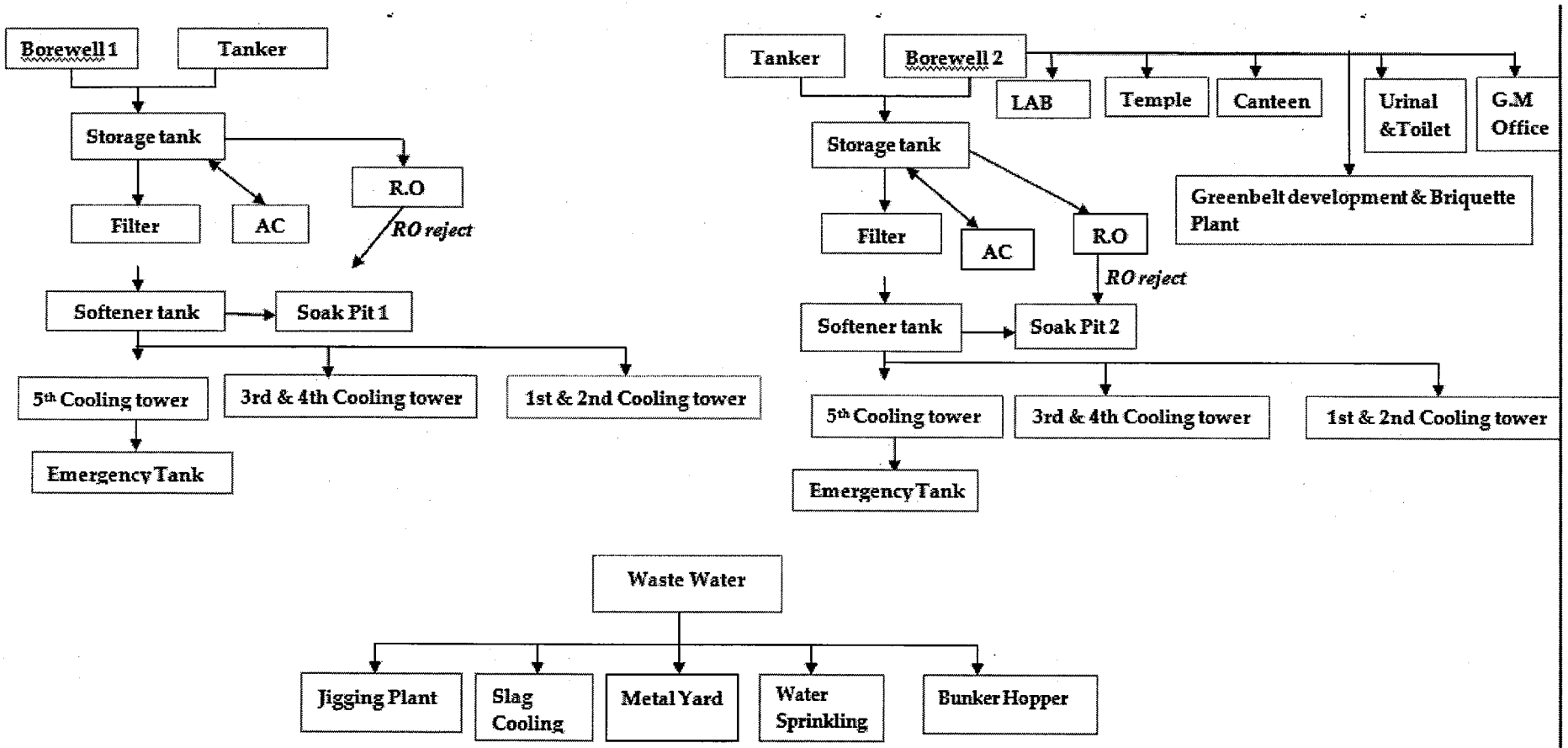
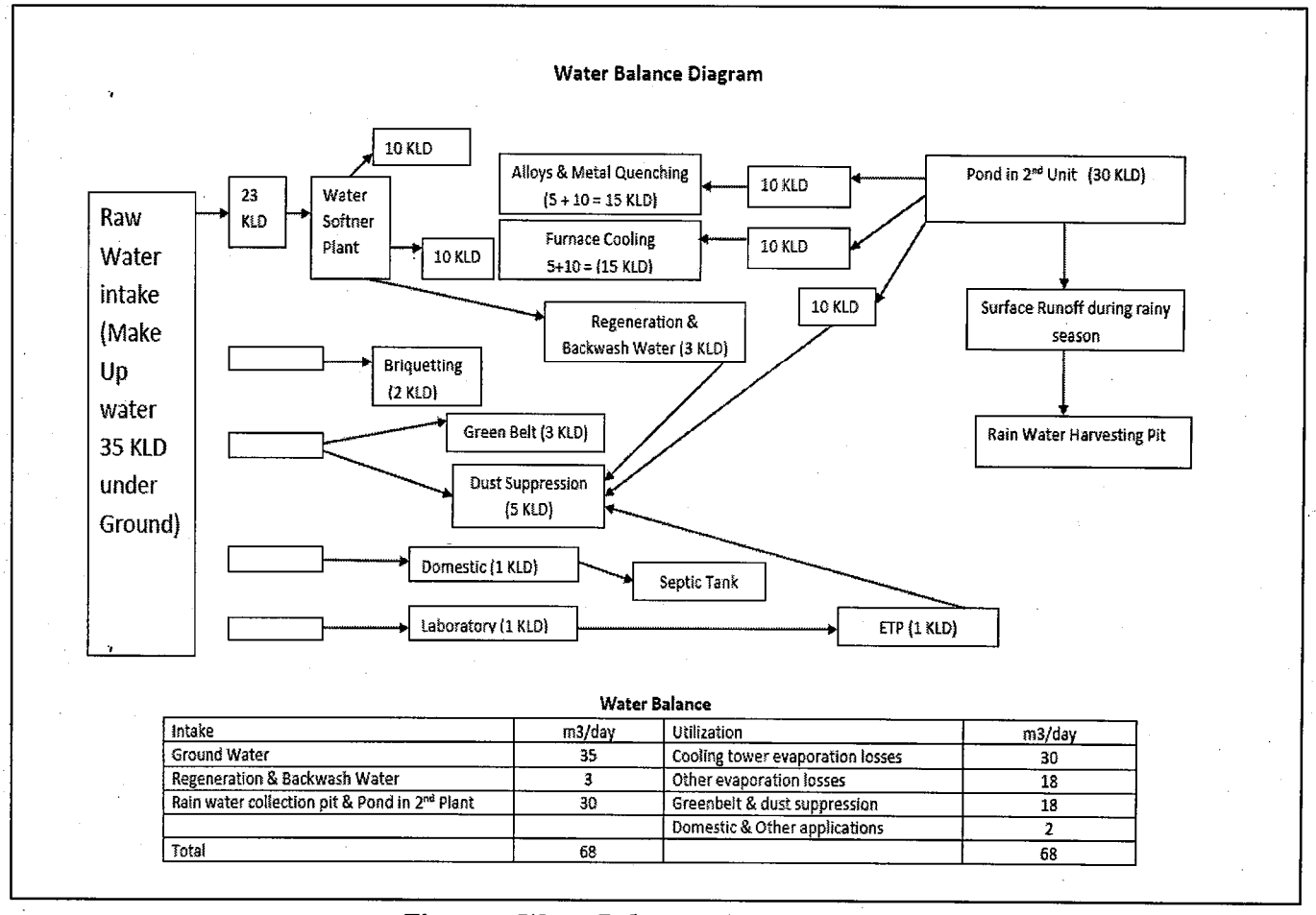


Figure 7 Water Distribution Network of BFCL- Ferro Alloys Unit

WATER BALANCE

The assessment team has reviewed the dewatering water supply and domestic consumption in the water distribution network at plant. The water balance diagram of the plant based on the site visit measurements is given below:



Water Balance

Intake	m3/day	Utilization	m3/day
Ground Water	35	Cooling tower evaporation losses	30
Regeneration & Backwash Water	3	Other evaporation losses	18
Rain water collection pit & Pond in 2nd Plant	30	Greenbelt & dust suppression	18
		Domestic & Other applications	2
Total	68		68

Figure 8: Water Balance Diagram BFCL

WATER METERING & MONITORING SYSTEM

Monitoring is the most important prerequisite for efficient water management. Thus, in the water supply network, it is necessary to have a robust system of monitoring. During the audit, the available flow meters were identified, and their working conditions were checked.

Table 4: Measurement at source through Ultrasonic Flowmeter

Sr. No.	Type of Structure	Location	Metered (Yes/No)	Metered Condition	HP of Pump	Flow	Running Hrs	Total water extracted (KL/day)
1	Borewell 1	Near Time Office	Yes	Digital Water Flow Meter	1.50 HP	5.52	4	15
2	Borewell 2	Near Coal Crusher	Yes	Digital Water Flow Meter	1.50 HP	4.71	4	20
3	Water Tanker (Ferro Alloys)							144
4	RWH Pond		No	--	7.5HP	30	3.2	97
	Total GroundWater							276

***Running hrs. as per information sourced from plant official**

Total Fresh water intake to plant is about 276 m3/day, below figure represents sources of fresh waterintake to plant.

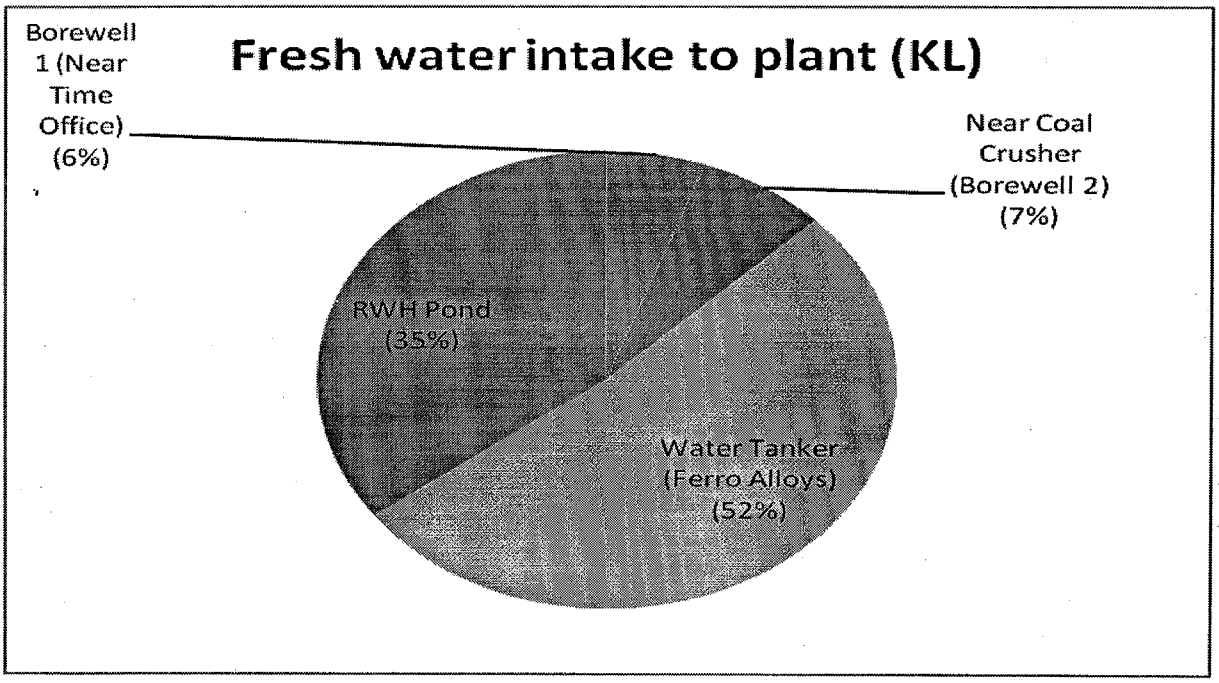


Figure 9: Source of Fresh Water intake to Plant

From above it is observed that the total Fresh Water Abstraction is of 35 KL/Day which complieswith the total daily limit of 35 KL/Day as per CGWA notifications.

The break up for water consumption in different area is provided in below tables and pie chart:

Table 5: Area Wise Water Consumption in the plant

Sr. No	Water Consuming Areas	Quantity (KL)	Percentage Utilization(%)
1	Industrial Activity	34	85%
2	Residential /Domestic	1	2%
3	Greenbelt Development /Environment Maintenance	5	13%
4	Other Use	0	0
	Total	**40**	**100%**

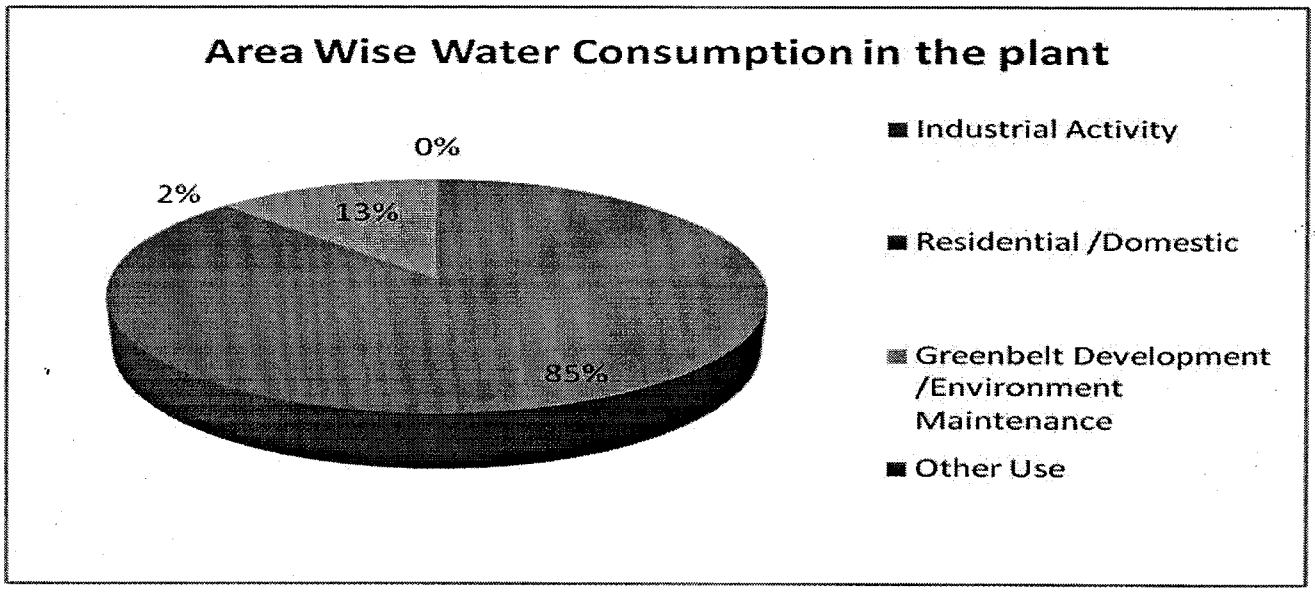


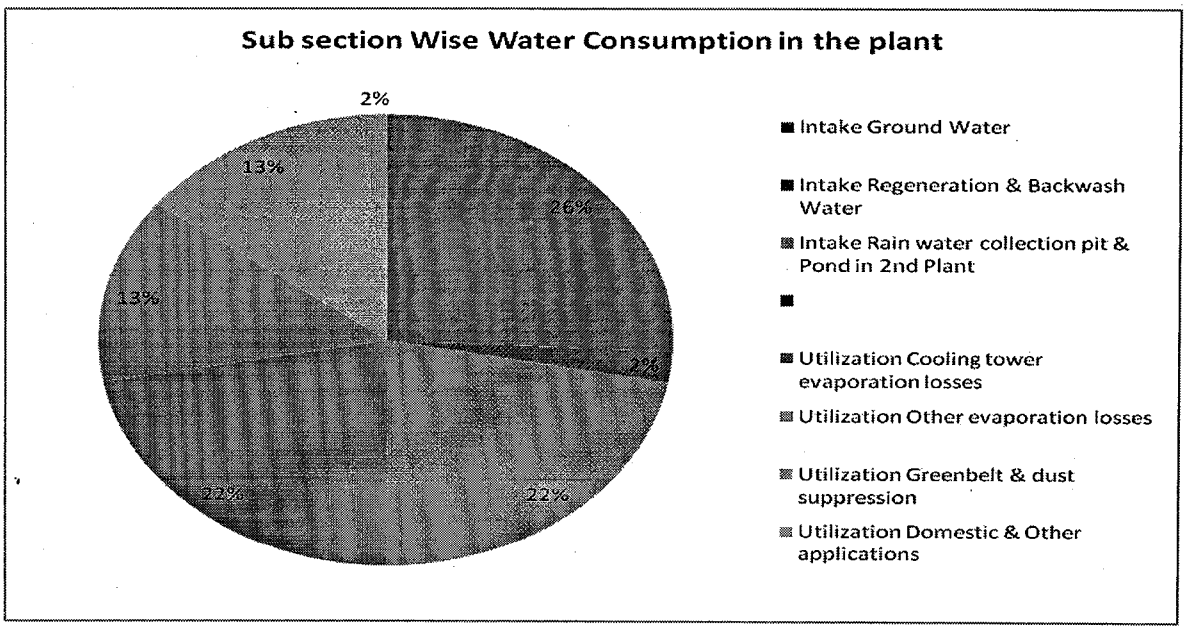
Figure 10. Area Wise Water Consumption in the Ferro Alloys Plant

Further Sub section Wise Water Consumption in the plant of Ferro Alloys Plant is shown below tables and pie chart:

Table 6: Sub section Wise Water Consumption in the plant

Sr. No	Water Consuming Areas	Quantity (KL)	Percentage Utilization(%)
1	**Ferro Alloys Plant**		
Intake			
1.1	Ground Water	35	26%
1.2	Regeneration & Backwash Water	3	2%
1.3	Rain water collection pit & Pond in 2nd Plant	30	22%
Utilization			
1.4	Cooling tower evaporation losses	30	22%
1.5	Other evaporation losses	18	13%
1.6	Greenbelt & dust suppression	18	13%
1.7	Domestic & Other applications	2	2%

***Note**- The Sub- Section wise water consumption in the plant is collected from water balance diagram of BFCL- Ferro Alloys Unit.



WATER COSTING:

Data pertaining for evaluation of per KL cost of Raw water is awaited from plant end like expenses towards energy consumption at borewell, Manpower cost, and maintenance cost; are to be considered for calculating Fresh water cost. Thus, Team recommends to maintain the records for evaluation of Per KL cost of Ground Water & WTP Plant.

RECOMMENDATIONS:

- Avoid and arrest leakages from the line.
- Calibrate each flow meter with Sr. No. at each location every year.

PUMP MEASUREMENT SHEET:

As per site condition, Borewell Pump has been measured and calculated values are shown in below table.

Table 7: Pump measurement details

		Rated Parameter	Measured Parameter				
Sr. No.	Type of Structure/Location	Power	Volt	Current	PF	Power	Average Flow
	Unit	HP	V	A		kW	m3/hr
1	Borewell 1- Near Time Office	1.50 HP	412	3.6	0.81	2.1	5.52
2	Borewell 2- Near Coal Crusher	1.50 HP	409	6.1	0.78	3.4	4.71

***Pump has been provided with Digital water flowmeter on discharge side of the borewell**

CALIBRATION CERTIFICATES:

The Bihar Foundry & Castings Ltd. has installed digital water meters on borewell in line with CGWA NOC. The audit team has found that water flowmeter is in working conditions and verify the meter reading of water meters with portable ultrasonic meter readings during measurement. It was noticed that Plant Management has also done calibration of Digital Water Flowmeter (DWFM) of Borewells and Piezometer. Thus, it is suggested to maintain the system.

Table 8: Calibration Details of Flow Meter & Piezometer

Meter Sr No.	Certificate Number	Date of Calibration	Due date of Calibration
Digital Water Flowmeter			
2204500414	EES/EMF/376	29.08.2023	28.08.2024
2204500415	EES/EMF/377	29.08.2023	28.08.2024
Piezometer			
2108001101971	EES/GWLR/357	25/10/2021	24/10/2022

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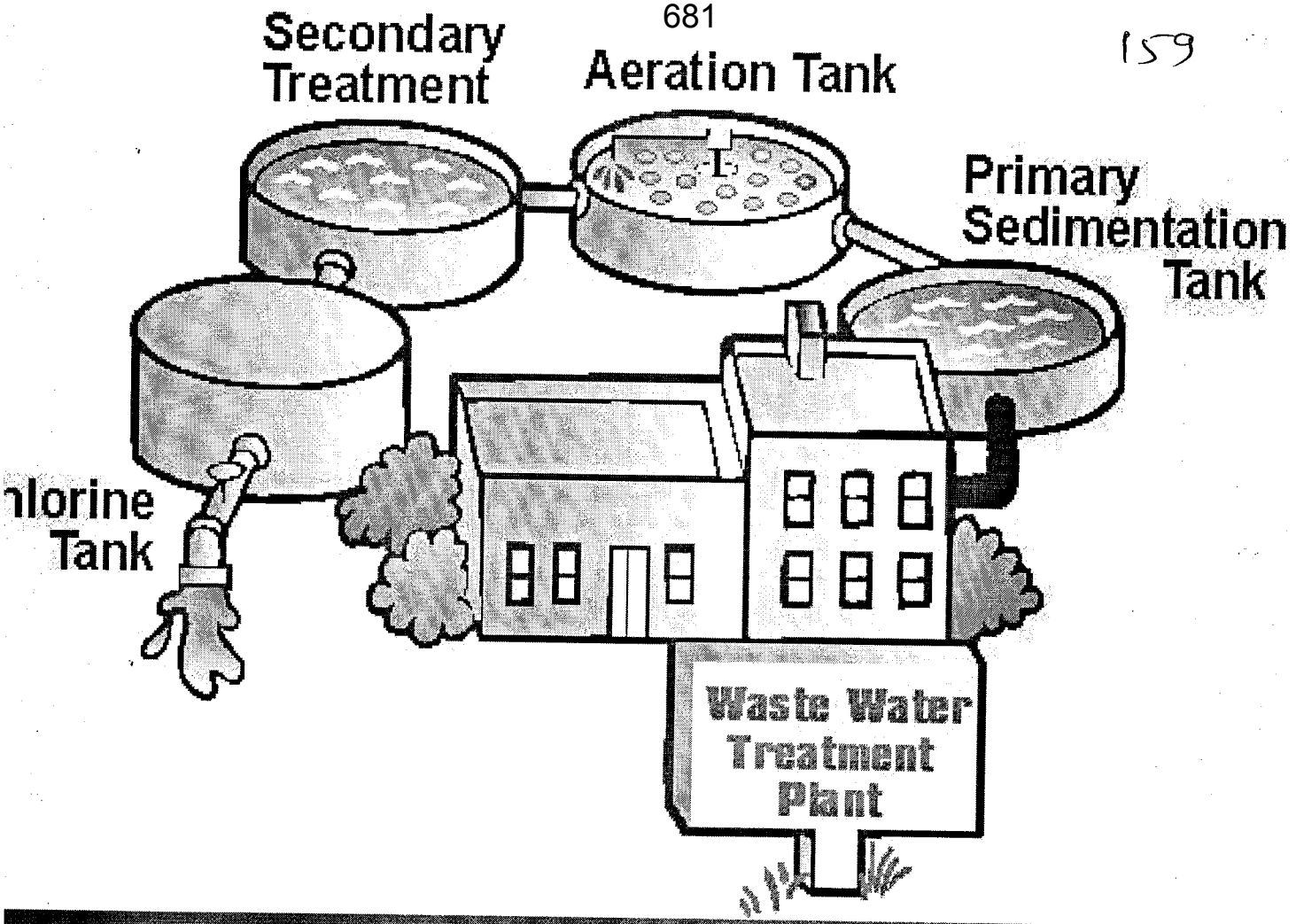


CHAPTER 5

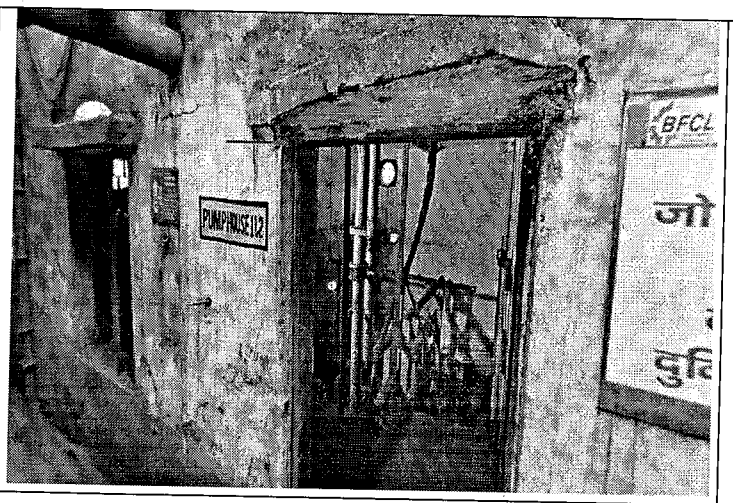
WATER TREATMENT PRACTICES

5 WATER TREATMENT PRACTICES

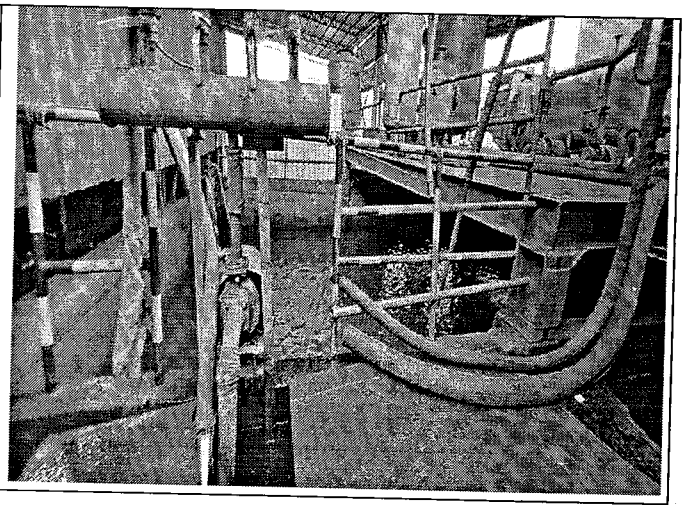
The main source of Process & domestic usage at BFCL-Ferro Alloys Unit is meet through 2 No. of existing Borewell, Water tankers & RWH pond. Abstracted ground water from Borewell is stored in ground water storage tank.

RAW/FRESH WATER TREATMENT:

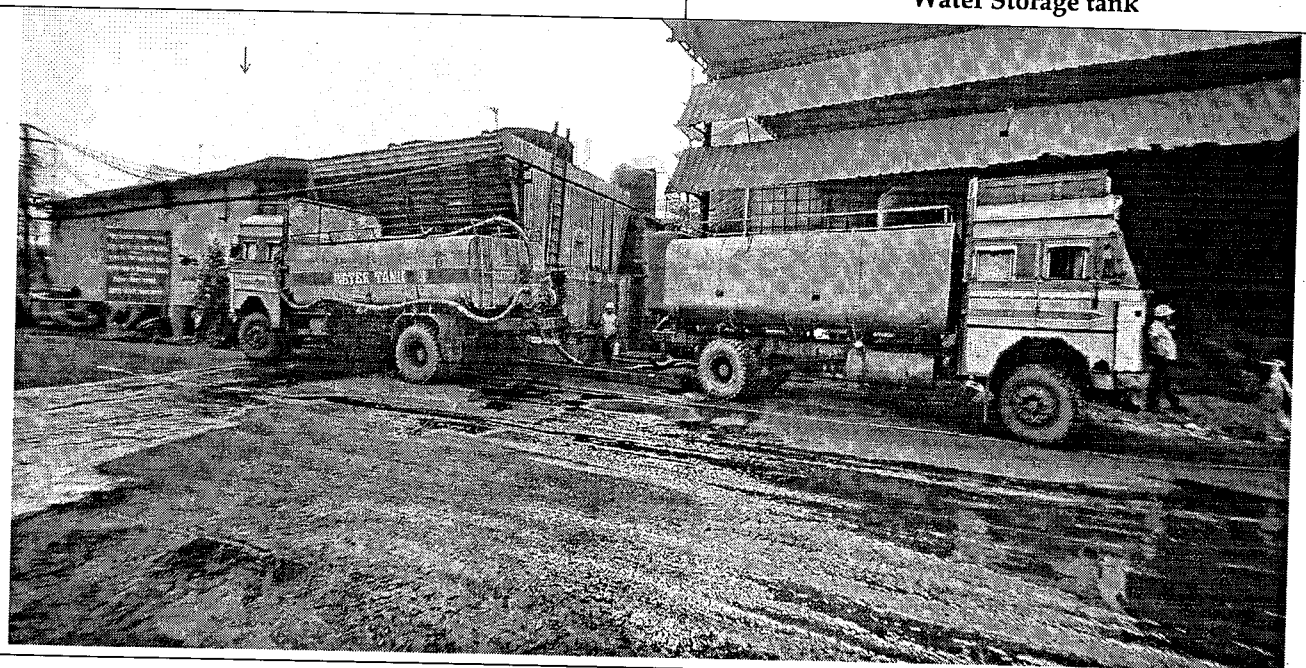
BFCL- Ferro Alloys Unit is having Water Treatment Plant for treatment of ground water. Ground water is being passed through Softener process further to RO. RO Permeate is stored in RO permeate tank further used in process. RO reject & Backwash water has been collected in Soak Pit & further used for dust suppression, metal cooling, slag cooling, Jigging plant.
The schematic of the Water Treatment Plant is shown below.



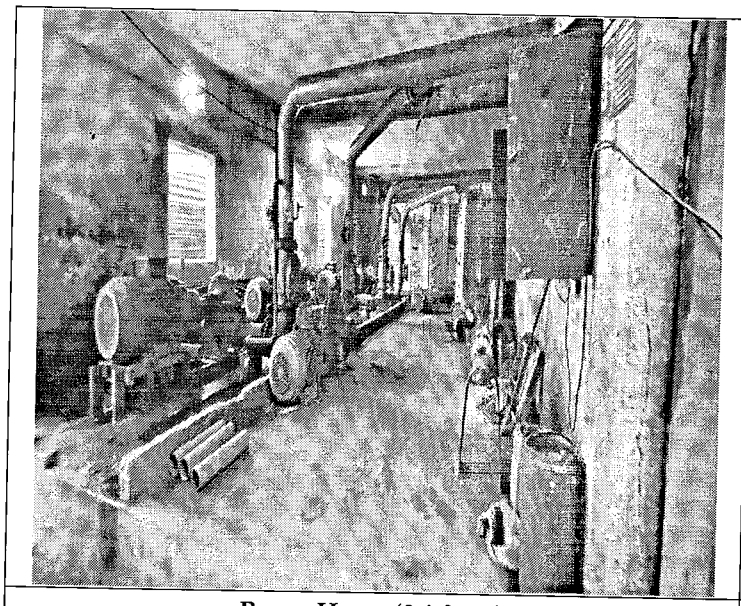
Pump House(1st & 2nd)



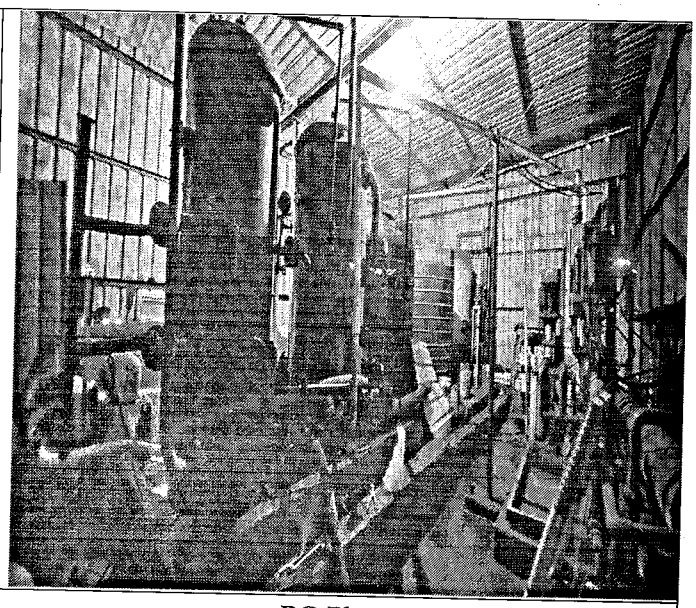
Water Storage tank



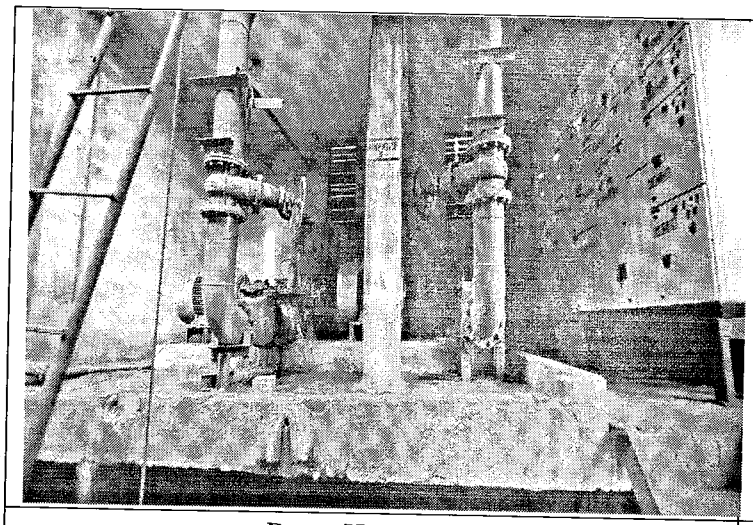
Water Tankers



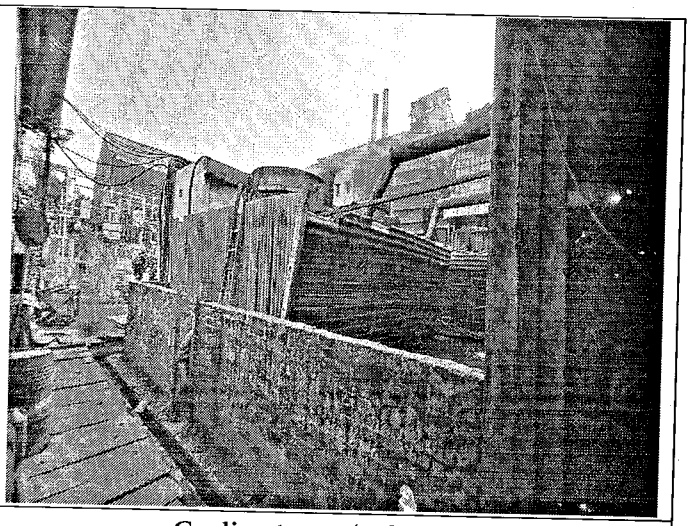
Pump House(3rd & 4th)



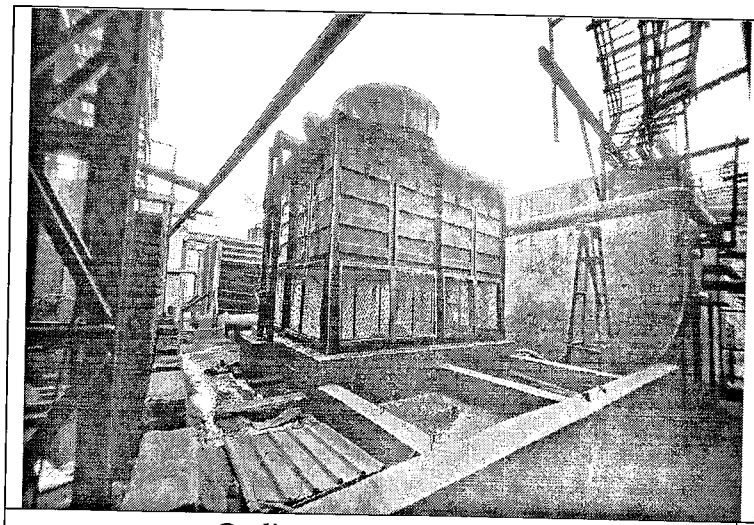
RO Plant



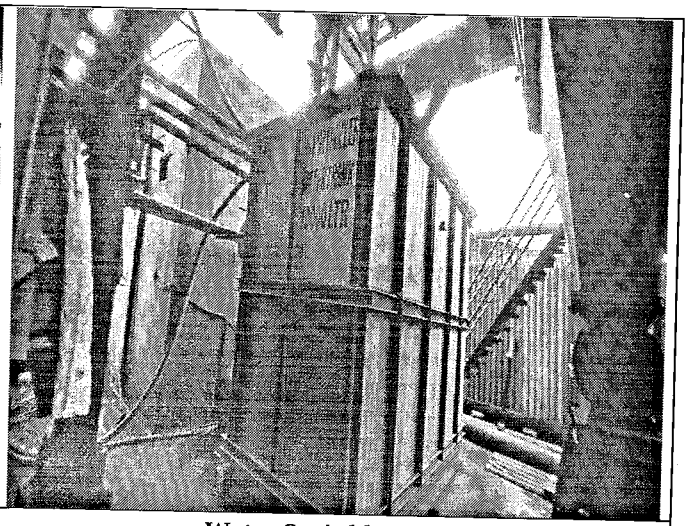
Pump House(5th)



Cooling tower (3rd & 4th)



Cooling tower (1st & 2nd)



Water Sprinkler tank

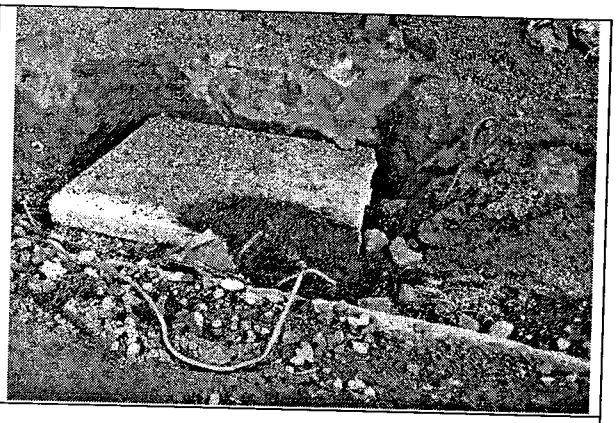
Figure 11. Photographs of WTP Plant

WASTE WATER TREATMENT & DISPOSAL:

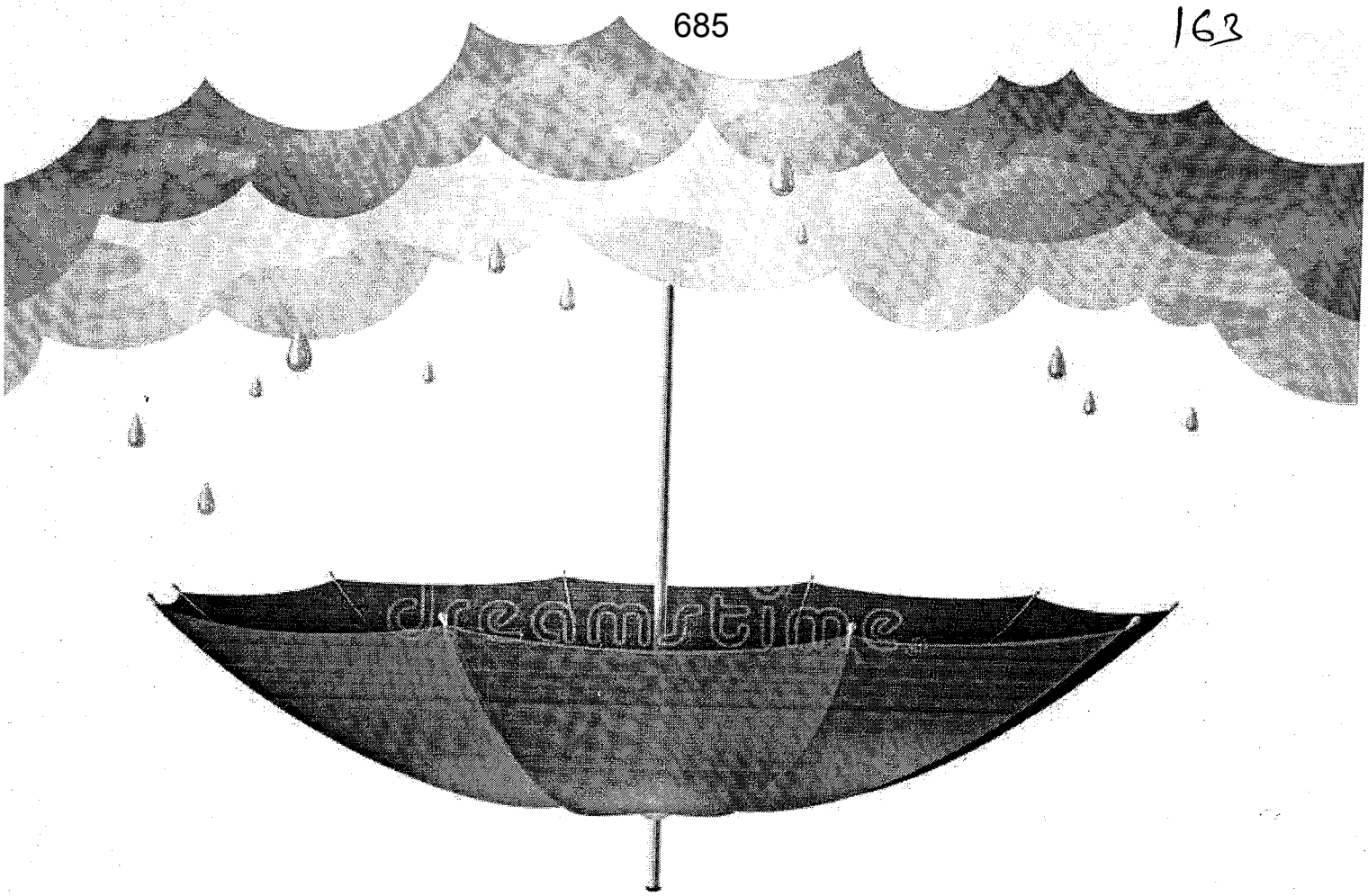
Recycling of process water, reuse of treated wastewater and rainwater harvesting are the important measures of reducing/saving water and conservation on the premises. Team noticed Soak pit for the domestic effluent. Further treated water used in sprinkling, dust suppression, metal cooling, slag cooling, Jigging plant.

Figure 12. Photos of Soak Pit is shown below;

Soak Pit Near Cooling tower



Soak Pit Near Metal handling yard



Conserve Rain Water

CHAPTER 6

RAIN WATER HARVESTING

6. RAIN WATER HARVESTING

The concept of rain water harvesting is an ancient one and has become popular in recent times because of the vagaries of the monsoon, depleting water resources, its user friendliness. It has become an important and eco-friendly tool to protect ground water, useful and cost-effective method to boost water resources in any area. Rainwater harvesting is the technique of collection and storage of rainwater at surface or in sub-surface aquifers, before it is lost as surface run-off.

ABOUT RAIN WATER HARVESTING

Today's scenario, Water scarcity is a major concern. Thus, Rainwater harvesting is one of the best methods practiced and also a sustainable process that helps in preserving water for future needs. It requires a simple technique of collection and storage of rainwater at the surface or in the subsurface aquifer before it is lost as surface runoff from rooftops, parks, roads, open grounds, etc., for later use. There are two ways of Rainwater harvesting:

a) Storage of rainwater in collection tank for direct use

b) Recharge ground water aquifers from Roof top runoff & run off from ground/open area.

Rainwater harvesting systems consists of the following components:

- Catchment- Used to collect and store the captured Rainwater.
- Conveyance system – It is used to transport the harvested water from the catchment to therecharge zone.
- Filter – Used for filtering the collected Rainwater and remove pollutants.
- Tanks and the recharge structures: Used to store the filtered water which is ready to use.

The benefits of rainwater harvesting system are listed below.

- Helps in reducing the water bill.
- Decreases the demand for water.
- Improves the quality & Promotes adequacy of underground water.
- Improves groundwater table, thus saving energy (to lift water).
- Does not require a filtration system for landscape irrigation.
- This technology is relatively simple, easy to install and operate.
- It is an excellent source of water for landscape irrigation with no chemicals and dissolvedsalts and free from all minerals.

RAIN WATER HARVESTING AT BIHAR FOUNDRY & CASTINGS LTD. - FERRO ALLOYS UNIT

As per CGWA NOC, M/s Bihar Foundry & Castings Ltd, has to install Rooftop Rain water harvesting structures in the premises. The runoff generated from the rooftop shall be stored and put to beneficial use by the plant; for the industries which are likely to pollute the ground water e.g. Tanning, Slaughter House, Dye, Chemical/Petrochemical, coal washeries, pharmaceuticals, other hazardous units etc. There are 3 nos. of RWH recharge pits exist in the factory premises of Ferro Alloys unit.Out of 3 pits 2 pits are abandoned and one is operational- which needs improvement as per guidelines of CGWA.

Maintenance of Recharge structure was in progress during audit period. Thus, Audit team recommends maintenance of existing recharge structure before pre-monsoon season for better percolation to recharge to ground.

Audit team also calculated the RWH potential of Plant as per information received from plant officials. RWH potential of Plant is calculated below;

Table 9: Rain Water Harvesting Potential

S. No.	Particulars	Area (Sqm)	Rain fall (m)	Runoff Coefficient	Quantum of Run off available (Cum/Year)
	1	2	3	4	5 (2*3*4)
1	Roof top area (60% of the total Built-up area & Storage Area)	14,468	1.251	0.85	15384.57
2	Internal roads	2,024	1.251	0.65	1645.41
3	Greenbelt	6,131		0.15	1150.52
4	Parking area & Misc. Area	607	1.251	0.20	151.88
5	Water Reservoir	0	1.251	1.00	0.00
	Total (sqm)	**23,230**		**Total Quantum of available runoff (cum/y)**	**18332.39**

** Plant has provided the area like building/shed, road/paved area & green belt for evaluating the Total RWH potential in plant.*

** Rooftop potential is calculated to be about 18332.39 m3/year.*

** RWH water can be used in Filter Backwashing, flushing & cleaning activities of Plant.*

ENVIRONMENTAL COMPLIANCE (RELATED TO WATER)

- Bihar Foundry & Castings Ltd has been granted NOC/permission to withdraw 35m3/day (not exceeding 12775m3/year) of groundwater through 2No. of Existing Borewells from CGWA vide Letter No.- CGWA/NOC/IND/ORIG/2021/10628 and it is valid up to 01/01/2024. It is noticed from Historical data, Ground water withdrawal for FY 2020-21, 2021-22, 2022-23 & 2023-24 (April- July) (sourced from plant official); is about 2900 m3/year (8m3/day), 3170 m3/year (9m3/day), 3960 m3/year (11 m3/day) & 1340 m3/year (11 m3/day). Thus, plant is in under compliance for yearly & daily water withdrawal as per CGWA.

- As per CGWA NOC, M/s Bihar Foundry & Castings Ltd, has to install Tamper proof digital water flow meter (DWFM) on all abstraction structure(s) with Telemetry system. It was noticed during the audit that the plant has installed digital water flow meters with telemetry system on 2Nos. of Borewell on discharge line of Pump. It was also noticed plant has maintained ground water abstracted data on daily & monthly basis in a logbook.

- BFCL-Ferro Alloys Unit Management has to calibrate the digital water flowmeter of all abstraction structures once in a year from NABL/Govt. Approved Laboratory. In view of above, plant has done the calibration of flowmeters and record of same has been maintained.

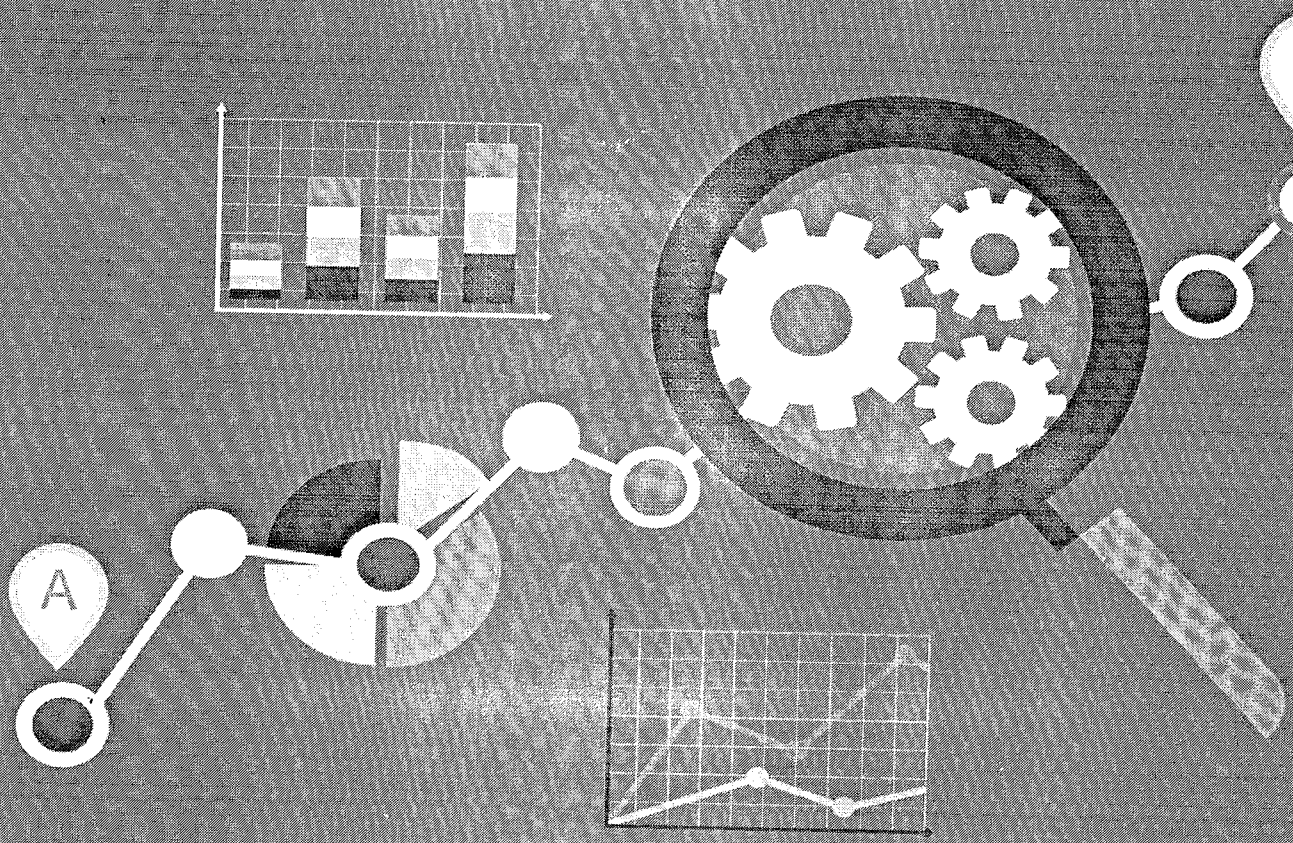
- As per CGWA NOC, M/s Bihar Foundry & Castings Ltd, has to monitor quality of ground water from the abstraction structure(s) once in a year during April/May through NABL accredited laboratories. In view of above, Audit team has checked and verified the water quality test reports of Borewell 1 (Near Time Office) & Borewell 2 (Near Coal Crusher) having sampling date on 05/04/2023. All of the reports related to ground water sample found in accordance to the environmental factors related to water uses. (The ground water test reports are attached separately in annexure in chapter 11). Thus, the plant is under compliance for monitoring the quality of ground water. However, Team recommends monitoring of ground water has to be done during April/May month through NABL accredited laboratories as per CGWA guidelines.

- As per CGWA NOC, M/s Bihar Foundry & Castings Ltd, Ferro Alloys Unit has to install One (1) No. of observation well (piezometer) for ground water level monitoring in project area along with digital water level recorder (DWLR) and Water level data shall be made available to CGWA through web portal. Audit team noticed Plant has installed with one (1) of piezometer along with DWLR on operating borewell 1 (Near Office). In addition, Plant has also done calibration of Piezometer. (The ground water level photo & Calibration Certificate are attached separately in annexure in **chapter 11**).

- As per CGWA NOC, M/s Bihar Foundry & Castings Ltd. - Ferro Alloys Unit has to install Rooftop Rain water harvesting structures in the premises. The runoff generated from the rooftop shall be stored and put to beneficial use by the plant; for the industries which are likely to pollute the ground water e.g. Tanning, Slaughter House, Dye, Chemical/ Petrochemical/coal washeries pharmaceuticals, other hazardous units etc. In view of above, Team visited & noticed 1 No. of RWH(Pond) structures located within plant premises having capacity of 54600m3 (70m x60m x13m) having intake from Plant and Other areas. Maintenance of Recharge structure was in progress

during audit period.

- M/s Bihar Foundry & Castings Ltd, has been granted Consent to Operate (CTO) issued by Jharkhand State Pollution Control Board vide Letter No. JSPCB/HO/RNC/CTO 4412165/2020/1819 dated 10/11/2020 with validity up to 31.12.2025 amendment CTO JSPCB/AUTO-RENEW/CTO/15367225/1341 dated 23.01.2023 for Industrial use (Ferro Alloys Silico/Manganese - 96 TPD) for the period up to 31/12/2025; subject to fulfillment of the terms & conditions mentioned in water & air consent letter. It is noticed from Historical data of FY 2020-21, FY 2021-22 , FY 2022-23 & FY 2023-24(April to July) (sourced from Plant data); the Ferro Alloys Silico/Manganese production was 59097.855 MT, 78532.915 MT, 92571.850 MT & 33698.810 MT respectively, which is well below the quantity notified in CTO. Thus, Plant is under compliance for yearly production limit of Ferro Alloys.
- As per CTO, Plant shall make water sprinkling arrangement in areas around crushing and screening units, raw material heaps at unloading points, heavy vehicle movement areas, roads and waste dump sites etc. During Audit, Team noticed sprinkling system has been arranged at specific location to maintain air and water pollution and improve the housekeeping in these areas.



DATA ANALYSIS

CHAPTER 7

DATA ANALYSIS AND RESULTS

7. DATA ANALYSIS & RESULTS

The source of Fresh Water for domestic use & other activities to the port area is meet through ground water through 2 Nos. of borewells, Water Tanker & Recharge Pond. The water consumption pattern for Four years has been maintained by the port. Thus, the water consumption to the port is provided in below table;

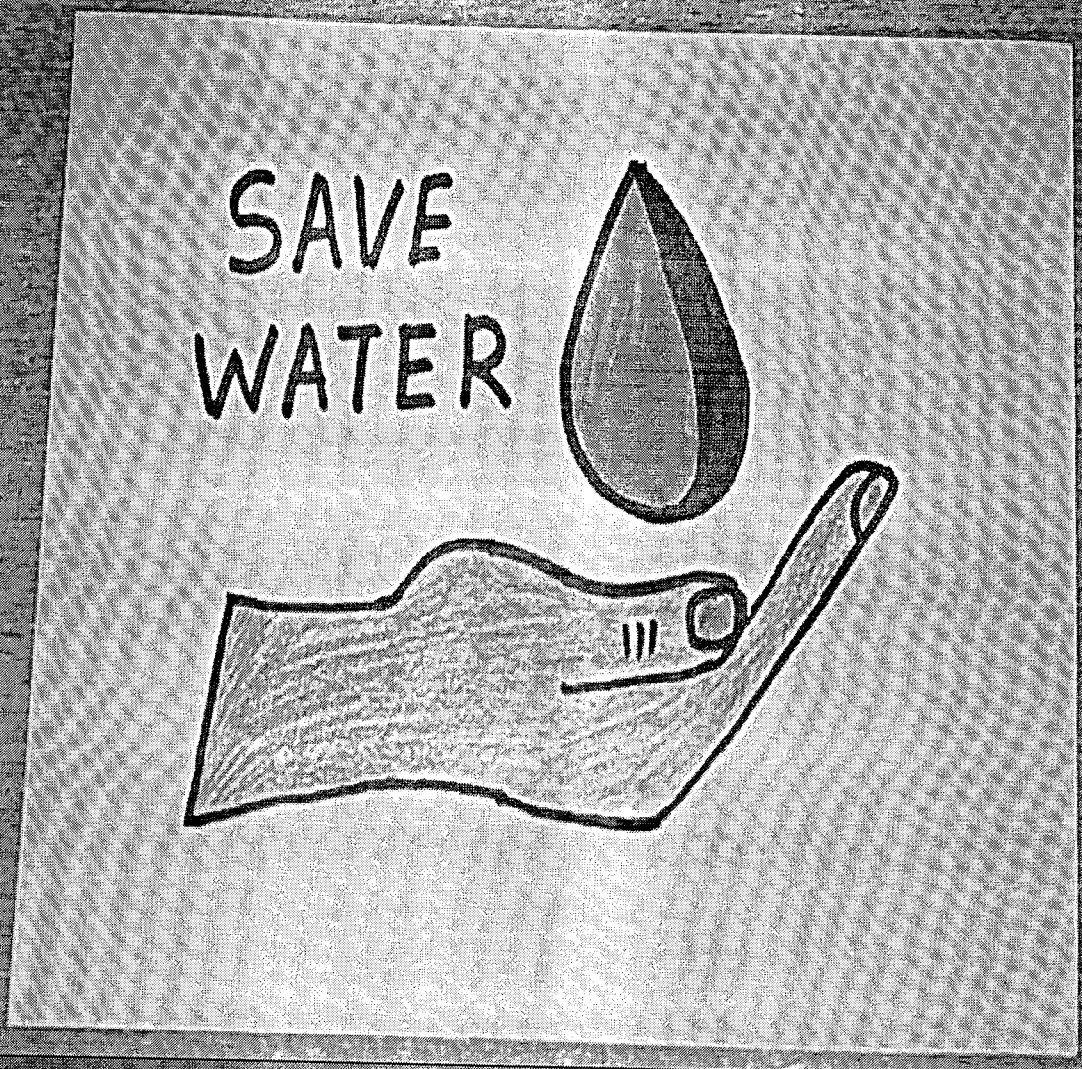
Table 10: Seasonal Data of Plant

Description	Fresh Water (KL)			
	Borewell 1	Borewell 2	From Nala	Total
FY 2020-21	221	199	2480	**2900**
FY 2021-22	204	216	2750	**3170**
FY 2022-23	196	224	3540	**3960**
FY 2023-24 (Apr-July)	62	78	1200	**1340**

Note: *Information has been sourced from Plant officials*

Table 11: Month wise data of (Source & Production) for last 3 FY

Year	FY 2020-21		FY 2021-22		FY 2022-23		FY 2023-24 (Apr- July)	
	Ground Water Abstraction(KL)	Production (MT)	Ground Water Abstraction (KL)	Production (MT)	Ground Water Abstraction (KL)	Production (MT)	Ground Water Abstraction (KL)	Production (MT)
April	250	3390.500	250	5910.500	330	8659.940	340	8254.180
May	250	4401.00	250	5922.000	330	7358.040	340	8472.130
June	240	4585.500	240	5722.180	330	7206.660	330	8433.500
July	240	4711.000	240	5797.000	330	8317.875	330	8539.000
August	240	4345.500	240	6010.000	330	7432.730	-	-
September	240	3358.900	240	5850.700	330	7241.220	-	-
October	240	5301.500	240	6033.950	330	7470.725	-	-
November	240	5740.275	240	6404.650	330	7571.845	-	-
December	240	5994.000	240	6458.500	330	7894.500	-	-
January	240	5955.475	230	7109.00	330	7136.500	-	-
February	240	5368.000	330	7994.900	330	7493.500	-	-
March	240	5946.205	330	9319.535	330	8788.315	-	-
Total	**2900**	**59097.85**	**3170**	**78532.915**	**3960**	**92571.85**	**1340**	**33698.81**



CHAPTER 8

WATER CONSERVATION OPPORTUNITIES

8. WATER CONSERVATION OPPORTUNITIES

BFCL, Ferro Alloys Unit Management has shown keen interest to implement various measures to reduce water consumption. Plant management has adopted various water saving initiatives in past as mentioned below;

- Reuse of Backwash water and RO Reject water in sprinkling system, dust suppression in crusher area, Metal cooling etc.
- Recharge & Reuse of RWH water in Ferro Alloys Plant, dust suppression and gardening. Metering system has been provided at source and various distribution areas.

Best management practices (BMPs) are a set of hands-on recommendations that help to identify opportunities and implement programs to save water in the plant. BMPs are developed for the various water-use categories in the office buildings and for monitoring and operational procedures. They are grouped according to indoor water use, outdoor water use, and monitoring and operational procedures. We can tailor water-saving program by using part or all the BMPs depending on budget and environmental requirements. Tips and information are provided onwater- saving amounts and cost recovery to help in prioritizing measures and make the most knock for buck.

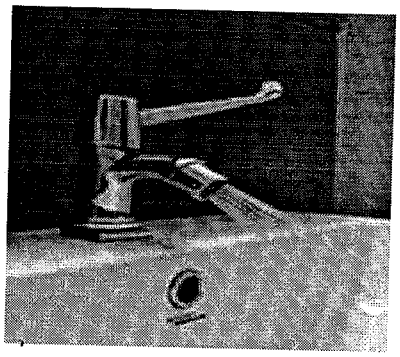
Table 12: Toilet Details of BFCL, Ferro Alloys Unit

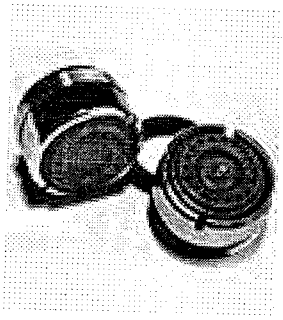
S. No	Location	No. of Toilets	Urinal (M/F)	No. of Soak Pits
1	Ferro Alloys Plant	9	12	2

Based on the information collected and observations, the following can be recommended to reduce water use and increase its efficiency.

FAUCETS

Water efficient faucets and fixtures are available in the market now days to reduce water consumptions in wash basins by reducing flow without compromising comfort level of user. Plant has installed with normal faucets. Thus, Audit team recommends to install water efficient Faucets which can easily reduce water use without affecting the comfort of the water user by using appropriate flow regulator technology for these fixtures. This will result in impressive savings of around 50 percent over conventional tap. Flow regulators, especially the aerators are inexpensive and are easy to install and maintain. This is why they are often considered as the low hanging fruits of water saving programs.





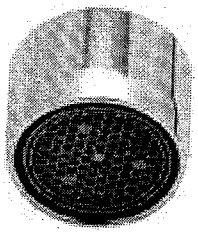


Figure 13. Water Efficient Faucets

TOILETS

Audit team recommend use of dual type flush cisterns with tank capacity of 3/6 liters per flush instead of single flush cistern (10 Liters capacity/flush) results in savings in domestic water.

TOILET TANK BANK

With economical, maintenance free 'Green Toilet Bank' it is very easy to save water on toilet flushing, it helps to save 3 liters water on every flushing, with no sacrifice on performance. Toilet Bank filled with water is hanged inside the toilet flushing tank or reservoir. It will displace an amount of water equivalent to 3 Liters in the tank, which means every flush we will save water, thus saving you money. Less the water you use, the less you need to recycle.

Figure 14. Water Efficient Faucets

Saving Water through Monitoring and Operational Procedures

Identifying and Fixing Leaks

The hidden water leaks can cause loss of considerable water and energy without anyone being aware of it. A small leak can amount to large volumes of water loss. Leaks become larger with time,

and they can lead to other equipment failure. Fix that leaky pipe, toilet, faucet, or roof top tank to save considerable amount of money and water. The establishment of a leak detection and repair program would be a most cost-effective way to save money and water in the Plant premises. Following are some best practices to identify and fixing leaks:

The Management must be committed for providing the staff and resources needed to maintain plumbing fixtures and equipment on a regular basis and assuring prompt identification and repair of leaks.

- ❖ Repair staff is given the tools needed and is trained to make leak repair a priority activity.
- ❖ Staffs are taught to report leaks and other water-using equipment malfunctions promptly.
- ❖ Staffs are rewarded for success.
- ❖ Rooftop tank overflow or leakage water should flow to rainwater gutter system not to sewage system to allow detection of rooftop water loss.
- ❖ Records of the type, location, number, and repair of leaks are kept in a central location.

Water Metering and Sub-metering

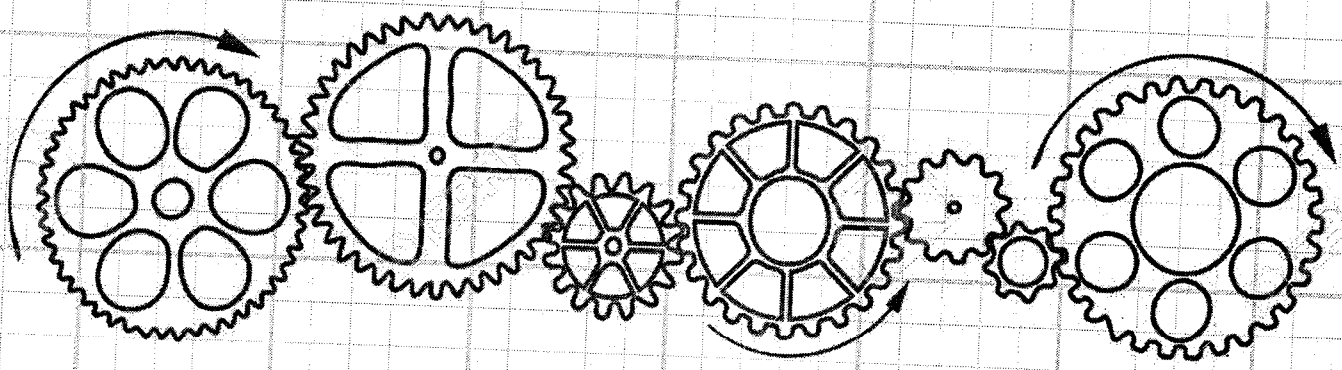
The metering and sub-metering of the Plant's water use is essential to understand the water consumption pattern inside the Plant. The accurate measurements enable management to understand maximum and minimum consumption area in the Plant and improve water efficiency in the Plant. Monitoring the water use allows management to know where and when water is being used and where the best opportunities for water savings exist. The Plant had installed meters inlet toraw water tank only, however it is recommended to install the digital flow meter at the outlet of the Borewell pump before any tapping of line.

RAIN WATER HARVESTING STRUCTURES

Plant has a potential of utilizing Rain water harvesting by construction of adequate capacity of surface storage system at plant premises. The collected water can be used in meeting domestic requirement after proper treatment. Therefore, this will result in saving in fresh/raw water abstracted from the ground for domestic use.

- Filter chambers must have cleanliness, hygiene to help practice best management for harvestingrainwater.
- Iron coverings must be replaced to avoid any kind of contamination even in future.
- Any Change of water meter and pump sets must be immediately informed with photo to CGWA.
- Permission must be sought from CGWA to construct new abstraction structures

Report CGWA if planning more harvesting structures in future outside the premises.



IMPLEMENTATION

CHAPTER 9

IMPLEMENTATION PLAN

9. IMPLEMENTATION PLAN

The audit team has conducted detail audit of Water Sources, Consumption Area and Discharge side of the BFCL. The recommendation/implementation plan are provided below:

THE STORAGE CAPACITY OF RAW WATER STORAGE & SOFT WATER TANK INSTALLED AT FERRO ALLOYS PLANT

Presently, Ferro Alloys plant is having raw water intake from Borewell 1, Borewell 2 & Water Tanker to Raw Water Storage Tank. Further raw water is being treated through Media Filter. Thus, treated water (Soft water) is being stored in 3 Nos. of CT as makeup water and in storage tank.

REGULARLY CALIBRATE & MAINTAIN EXISTING WATER FLOWMETER

The Plant Management has installed water meters at borewells and input line dedicated to Ferro Alloys plant from Borewell 1 & Borewell 2. Plant management has done calibration of Borewells & Digital Water Flow meter and maintain record of same.

TRAINING AND AWARENESS PROGRAMS WOULD BE DONE REGULARLY AT ALL LEVELS I.E., FROM MANAGEMENT TO OPERATOR LEVEL. POSTERS/SLOGANS SHOULD BE PASTED WHEREVER POSSIBLE

The plant has a workforce of around 750 includes (employees + contractual staff) and major water usage in domestic, washing & cleaning activities. It is suggested that the plant employees at all levels should be made aware and trained on 'Water Saving & Conservation' and 'Good Housekeeping Practices'. Therefore, it is recommended to periodically organize Awareness Programs for office employees including shop floor workers on Water Conservation. It is also suggested that prominent water saving labels/posters should be placed/located in the plant at noticeable locations like process area; near hand washing taps; washrooms, reception office etc. This will create awareness & sense of responsibility among staff/employees/visitors.

MAINTAIN LOGBOOKOF DAILY FRESH WATER INTAKE TO PLANT

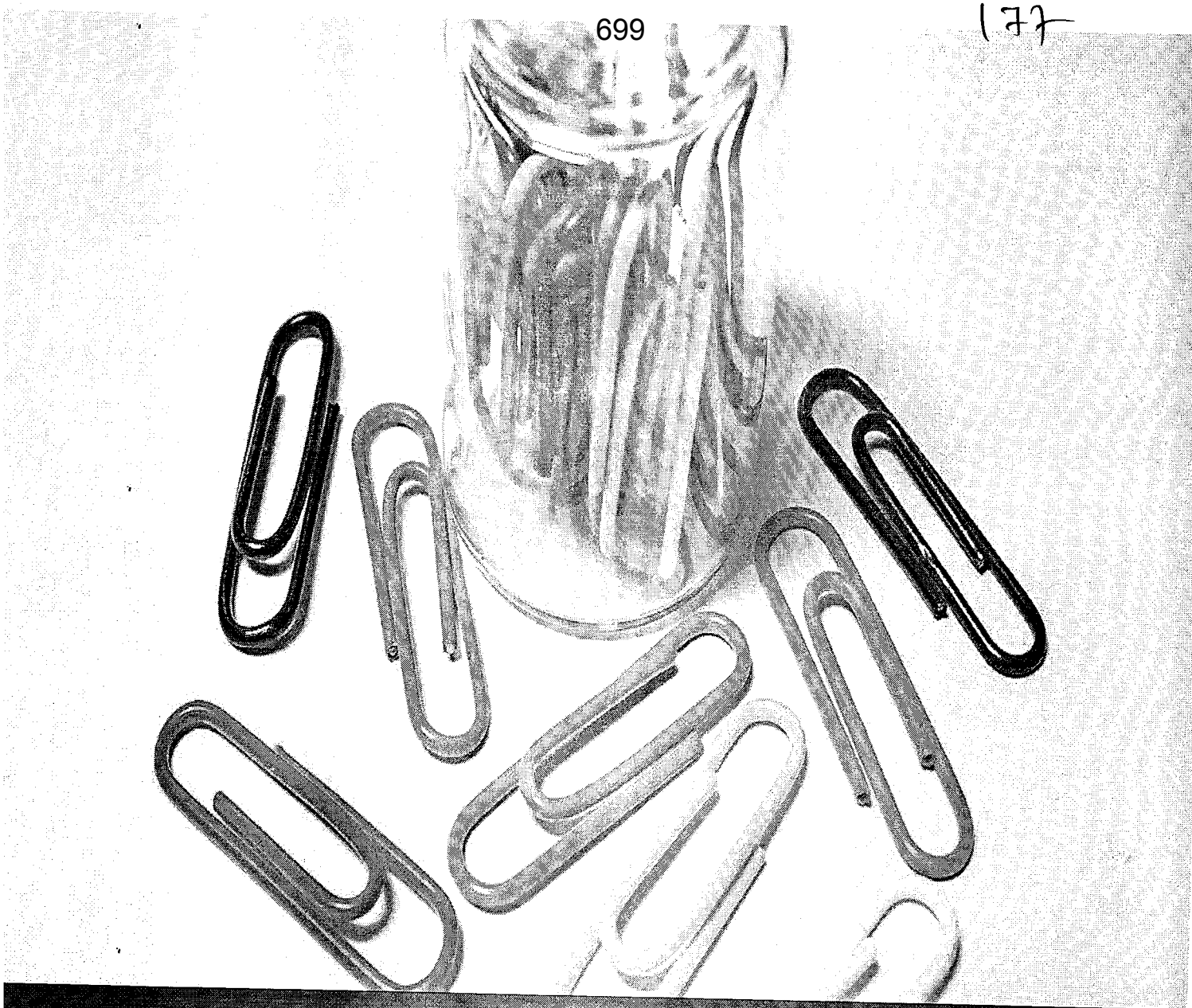
The Plant Management has maintained the record of Ground Water Abstraction on daily basis. However, Team also recommends for maintenance of Total Fresh Water intake to Plant including Ground water abstraction through individual borewells, Water Tanker & reuse from RWH reservoir.Also suggested to maintain the data of distribution system.

OPTIMIZATION OF FLOW RATE OF TAPS

The Average flowrate of the wash basin (Hand wash) Taps was observed to be around 6-8LPM. About 750 employees including contractual staff is available in plant. It is suggested to install Nozzle system with Sensor based in washbasin Taps in the plant area to save domestic water consumption. About 54% domestic water consumption will be reduced through wash basin by installing and maintaining suggested fixtures from hand wash taps.

Table 13: Water saving by optimizing the flow rate of the taps

Description	UOM	Value
Measured flow rate of manual operation wash basin tap	LPM	6.5
Average No. of employees including contractual staff	No.	778
Avg. hand wash duration by employees in a day	min/day	1
Avg water consumed through wash basin tap	m3/day	5.1
Recommended water flow rate of sensor-based washbasin tap with Nozzle system	LPM	3
Estimated freshwater saving	%	54%
Average fresh water savings by optimizing the flow rate of the taps	m3/day	2.7
Annual Fresh Water saving by installing sensor based wash basin taps with nozzle system	m3/year	994



CHAPTER 10

ANNEXURE

10. ANNEXURES (MEASURED DATA)

Sr. No.	Type of Structure/Location	Rated Parameter	Measured Parameter				
		Power	Volt	Current	PF	Power	Average Flow
	Unit	HP	V	A		kW	m3/hr
1	Borewell 1- Near Time Office	1.50 HP	412	3.6	0.81	2.1	5.52
2	Borewell 2- Near Coal Crusher	1.50 HP	409	6.1	0.78	3.4	4.71

11. ANNEXURES (DATA PROVIDED BY PLANT)

A. NOC for ground water withdrawal to Bihar Foundry & Castings Ltd. – Ferro Alloys Unit as per CGWA guidelines

सत्यमेव जयते

भारत सरकार
जल शक्ति मंत्रालय
जल संसाधन, नदी विकास
और गंगा संरक्षण विभाग
केन्द्रीय भूमि जल प्राधिकरण
Government of India
Ministry of Jal Shakti
Department of Water Resources,
River Development & Ganga Rejuvenation
Central Ground Water Authority

(भूजल निकासी हेतु अनापत्ति प्रमाण पत्र)

NO OBJECTION CERTIFICATE (NOC) FOR GROUND WATER ABSTRACTION

Project Name:	Bfcl- Gautam Ferro Alloys		
Project Address:	Plot1405 (p), Marar Industrial Area, Ps Ramgarh		
Town:	Mandu (ct)	Block:	Mandu
District:	Ramgarh	State:	Jharkhand
Pin Code:			
Communication Address:	Managing Director, M/s Bihar Foundry And Castings Ltd, Main Road, Ranchi-834001, Namkum, Ranchi, Jharkhand - 834001		
Address of CGWB Regional Office :	Central Ground Water Board Mid Eastern Region, 6th & 7th Floor, Lok Nayak Jai Prakash Bhawan, Frazer Road Dak Banglow, Patna, Bihar - 800011		

1.	**NOC No.:**	CGWA/NOC/IND/ORIG/2021/10628			
2.	Application No.:	21-4/590/JH/IND/2019	3.	Category: (GWRE 2017)	Semi Critical
4.	Project Status:	Existing Project	5.	NOC Type:	New
6.	**Valid from:**	02/01/2021	7.	**Valid up to:**	01/01/2024
8.	Ground Water Abstraction Permitted:				

Fresh Water		Saline Water		Dewatering		Total	
m³/day	m³/year	m³/day	m³/year	m³/day	m³/year	m³/day	m³/year
35.00	12775.00						

9. Details of ground water abstraction /Dewatering structures

	Total Existing No.:2						Total Proposed No.:1					
Abstraction Structure*	DW	DCB	BW	TW	MP	MPu	DW	DCB	BW	TW	MP	MPu
	0	0	2	0	0	0	0	0	1	0	0	0

*DW- Dug Well; DCB-Dug-cum-Bore Well; BW-Bore Well; TW-Tube Well; MP-Mine Pit;MPu-Mine Pumps

10. Ground Water Abstraction/Restoration Charges paid (Rs.): 76650.00

11. Number of Piezometers(Observation wells) to be constructed/ monitored & Monitoring mechanism.

No. of Piezometers	Monitoring Mechanism		
	Manual	DWLR**	DWLR With Telemetry
1	1	0	0

**DWLR - Digital Water Level Recorder

(Compliance Conditions given overleaf)

This is an auto generated document & need not to be signed.

18/11, जामनगर हाउस, मानसिंह रोड, नई दिल्ली - 110011 / 18/11, Jamnagar House, Mansingh Road, New Delhi-110011
Phone: (011) 23383561 Fax: 23382051, 23386743
Website: cgwa-noc.gov.in

पानी बचाये – जीवन बचाये
SAVE WATER - SAVE LIFE

Validity of this NOC shall be subject to compliance of the following conditions:

Mandatory conditions:

1) Installation of digital water flow meter (conforming to BIS/ IS standards) having telemetry system in the abstraction structure(s) shall be mandatory for all users seeking No Objection Certificate and intimation regarding their installation shall be communicated to the CGWA within 30 days of grant of No Objection Certificate through the web-portal.

2) Proponents shall mandatorily get water flow meter calibrated from an authorized agency once in a year.

3) Construction of purpose-built observation wells (piezometers) for ground water level monitoring shall be mandatory as per Section 14 of Guidelines . Water level data shall be made available to CGWA through web portal. Detailed guidelines for construction of piezometers are given in Annexure-II.

4) Proponents shall monitor quality of ground water from the abstraction structure(s) once in a year. Water samples from bore wells/ tube wells / dug wells shall be collected during April/May every year and analysed in NABL accredited laboratories for basic parameters (cations and anions), heavy metals, pesticides/ organic compounds etc. Water quality data shall be made available to CGWA through the web portal.

5) In case of mining projects, additional key wells shall be established in consultation with the Regional Director, CGWB for ground water level monitoring four (4) times a year (January, May, August and November) in core as well as buffer zones of the mine.

6) In case of mining project the firm shall submit water quality report of mine discharge/ seepage from Govt. approved/ NABL accredited lab.

7) The firm shall report compliance of the NOC conditions online in the website (www.cgwa-noc.gov.in) within one year from the date of issue of this NOC.

8) The firm shall submit the water audit report in case of water requirement is in excess of 100 m3/day through certified auditors within three months of completion of the same to CGWA.

9) Application for renewal can be submitted online from 90 days before the expiry of NOC. Ground water withdrawal, if any, after expiry of NOC shall be illegal & liable for legal action as per provisions of Environment (Protection) Act, 1986.

10) This NOC is subject to prevailing Central/State Government rules/laws/norms or Court orders related to construction of tube well/ground water abstraction structure / recharge or conservation structure/discharge of effluents or any such matter as applicable.

General conditions:

11) No additional ground water abstraction and/or de-watering structures shall be constructed for this purpose without prior approval of the Central Ground Water Authority (CGWA).

12) The proponent shall seek prior permission from CGWA for any increase in quantum of groundwater abstraction (more than that permitted in NOC for specific period).

13) Proponents shall install roof top rain water harvesting in the premise as per the existing building bye laws in the premise.

14) The project proponent shall take all necessary measures to prevent contamination of ground water in the premises failing which the firm shall be responsible for any consequences arising thereupon.

15) In case of industries that are likely to contaminate the ground water, no recharge measures shall be taken up by the firm inside the plant premises. The runoff generated from the rooftop shall be stored and put to beneficial use by the firm.

16) Wherever feasible, requirement of water for greenbelt (horticulture) shall be met from recycled / treated waste water.

17) Wherever the NOC is for abstraction of saline water and the existing wells (s) is/are yielding fresh water, the same shall be sealed and new tubewell(s) tapping saline water zone shall be constructed within 3 months of the issuance of NOC. The firm shall also ensure safe disposal of saline residue, if any.

18) Unexpected variations in inflow of ground water into the mine pit, if any, shall be reported to the concerned Regional Director, Central Ground Water Board.

19) In case of violation of any NOC conditions, the applicant shall be liable to pay the penalties as per Section 16 of Guidelines.

20) This NOC does not absolve the proponents of their obligation / requirement to obtain other statutory and administrative clearances from appropriate authorities.

21) The issue of this NOC does not imply that other statutory / administrative clearances shall be granted to the project by the concerned authorities. Such authorities would consider the project on merits and take decisions independently of the NOC.

22) In case of change of ownership, new owner of the industry will have to apply for incorporation of necessary changes in the No Objection Certificate with documentary proof within 60 days of taking over possession of the premises.

23) This NOC is being issued without any prejudice to the directions of the Hon'ble NGT/court orders in cases related to ground water or any other related matters.

(Non-compliance of the conditions mentioned above is likely to result in the cancellation of NOC and legal action against the proponent.)

Project Name: Water Audit at Bihar Foundry & Castings Ltd. – Ferro Alloys Unit

B. Consent to Operate from JSPCB for Ferro Alloys Unit

JHARKHAND STATE POLLUTION CONTROL BOARD

TOWNSHIP ADMINISTRATION BUILDING, HEC COMPLEX, DHURWA, RANCHI 834004
Telephone: 0651-2400850 (Fax)/ 2400851/2400852/2401847/2400979/2400139

Ref No. JSPCB/HO/RNC/CTO-4112165/2020/1819 Dated : 2020-11-10

Consent to operate (CTO) under section 25 /26 of the Water (Prevention & Control of Pollution) Act, 1974 and under section 21 of the Air (Prevention & Control of Pollution) Act, 1981.

1. Application (s) dated 2020-10-03 of GAUTAM FERRO ALLOYS (UNIT OF BFCL), Occupier Name :HARI KRISHNA BUDHIA for consent under section 25 (1)(b)/25 (1) (c)/26 of the Water (Prevention & Control of Pollution) Act, 1974 and under section 21(1) of the Air (Prevention & Control of Pollution) Act,1981.

2. **Documents Relied Upon:**

(a) The content of Environmental Clearance (EC) vide ref. No.-J11011/34/2010-IA.II(I), Dated- 31.10.2011 issued by Ministry of Environment & Forest, Govt. of India, New Delhi.

(b) The content of Consent-to-Establish (CTE), vide Ref. No.
(i) T-551, Dated- 24.02.2000 for 26 TPD,
(ii) 2577 , Dated-20.05.2009 for 30 TPD &
(iii) D-1510(N), Dated- 21.05.2014 for 40 TPD.

(c) The content of Consent-to-Operate (CTO), vide Ref. No. B-42, Dated. 06.01.2016.

(d) The content of Inspection Report (IR) vide Ref. No. 936 Dated. 08.09.2020.

(e) The content of self certificate regarding procurement of raw material from valid sources.

3. The consent is granted under section 25 / 26 of the Water (Prevention & Control of Pollution) Act, 1974 and under section 21 of the Air (Prevention & Control of Pollution) Act, 1981 to operate the project in Mauza -MARAK , P S -RAMGARH , District -RAMGARH , as follows:

Project	Site-Area		Investment (Rs)	Product & Capacity	Period of CTO
	Plot Nos.	Area			Date of issue To
Before Expansion	1405 (P)	7.26 Acre	35 Crore	Ferro Alloys Silica/ Manganese - 96 TPD (as per previous CTO)	31/12/2025

(A) Specific Conditions:

S N	Pollutant	Time Weighted Average	Concentration in Ambient Air	
			Industrial, Residential, Rural and Other Area	Ecologically Sensitive Area (notified by Central Govt.)
(1)	(2)	(3)	(4)	(5)
1.	Sulphur Dioxide (SO2), µg/m3	Annual 24 hours	50 80	20 80
2.	Nitrogen Dioxide (NO2), µg/m3	Annual 24 hours	40 80	30 80
3.	Particulate Matter (size less than 10 µm) or PM10, µg/m3	Annual 24 hours	60 100	60 100
4.	Particulate Matter (size less than 2.5 µm) or PM2.5, µg/m3	Annual 24 hours	40 60	40 60
5.	Ozone(O3), µg/m3	8 hours 1 hour	100 180	100 180
6.	Lead (Pb) µg/m3	Annual 24 hours	0.50 1.0	0.50 1.0
7.	Carbon Monoxide (CO) mg/m3	8 hours 1 hour	02 04	02 04
8.	Ammonia (NH3) µg/m3	Annual 24 hours	100 400	100 400
9.	Benzene (C6H6) µg/m3	Annual	05	05
10.	Benzo(a) Pyrene(BaP) Particulate Phase only ng/m3	Annual	01	01
11.	Arsenic (As) ng/m3	Annual	06	06
12.	Nickel (Ni) ng/m3	Annual	20	20

Note : Serial no. 1 to 4 – Mandatory
Serial no. 5 to 12 As applicable for specific type of industry.

1. That, the occupier shall obtain raw materials from valid source only.

2. That, the occupier shall operate and maintain online stack emission monitoring system with connectivity to Jharkhand State Pollution Control Board server.

3. That, the occupier shall do regular cleaning and wetting of the ground and shall maintain good housekeeping.

4. That, the occupier shall install and operate fixed type water sprinklers at all dusty places inside the plant.

5. That, the occupier shall upgrade, operate and maintain air pollution control device such as fume extraction system and bag filters.

6. That, the occupier shall utilize solid waste properly.

7. That, the occupier shall comply all the conditions of EC and CTO and submit its six monthly compliance report to the Board alongwith recent analysis report successively.

8. That, this CTO supersedes the CTO granted vide ref. no. B-42, dated 06.01.2016.

9. That, the occupier shall submit applications for renewal of consent under section 25 / 26 of the Water (Prevention & Control of Pollution) Act, 1974 and under section 21 of the Air (Prevention & Control of Pollution) Act, 1981 again 120 days prior to the date of expiry of this consent with documents showing compliance of all of the above conditions.

(B) General Conditions :

(1) That, the occupier shall maintain the **National Ambient Air Quality Standard** given below:

(2) That, the occupier shall maintain the emission quality within the standard and the quantity, as follows:

S N	Parameter	Standard
1	Particulate Matter	150 mg/Nm3

(3) That, the occupier shall keep process effluent in close-circuit and the quality of effluent from other sources in conformity with the standard (s) and the discharge quantity as below:

S N	Parameter	Standard
1	Total Suspended Solids	100 mg/L
2	BOD	30 mg/L
3	COD	250 mg/L
4	Oil & Grease	10 mg/L

(4) That, the occupier shall dispose of solid wastes as follows:

S N	Waste Type	Mode of Disposal
1	Hazardous Carbonaceous Wastes	In co-processing in high temperature furnaces or kilns
2	Hazardous Non-Carbonaceous Wastes	In TSDF
3	Non-Carbonaceous Non-Hazardous solid wastes/ Mine Over Burden	As a substitute of Soil or Mineral

(5) That, the occupier shall keep D G Set(s) within acoustic enclosure and shall keep the height(s) of exhaust pipe(s) as per Central Pollution Control Board norm.

(6) That, the occupier shall install and maintain Central Ground Water Board/ State Ground Water Directorate approved system of rain water harvesting-cum-ground water recharge and submit the photographic view of the structures within a month.

(7) That, the occupier shall grow and maintain greenery of the project in the periphery and other available spaces and shall continue enhancing its plant density and biodiversity.

(8) That, the occupier shall submit environmental statement with supporting stoichiometric calculations/ analyses reports, every year latest by 30th September of the next financial year.

(9) That, the occupier shall submit report(s) duly monitored and issued by an NABL accredited / ISO 9001:2008 and OHSAS 18001:2007 certified laboratory in compliance sub-para (2), (3), (4) and (5) of paragraph 3 of this CTO yearly or required periodicity.

(10) That, this CTO is valid subjected to the validity of mining Lease/Mining Plan/Ecofriendly/Environmental Clearance, if applicable. In case of no renewal of Mining Lease/Mining Plan, this consent shall be treated as revoked automatically.

(11) That, this CTO is issued from the environmental angle only and does not absolve the occupier from other statutory obligations prescribed under any other law or any other instrument in force. The sole and complete responsibility to comply with these conditions laid down in all other laws for the time-being in force, rests with the industry/ unit/ occupier.

(12) That, this CTO shall not in any way, adversely affect or jeopardize the legal proceeding , if any, instituted in the past or that could be instituted against you by the State Board for violation of the provisions of the Act or the Rules made there under.

(13) That, the occupier shall comply with all applicable provisions of the Water (Prevention & Control of Pollution) Act, 1974; the Water (Prevention & Control of Pollution) Cess Act, 1977; the Air (Prevention & Control of Pollution) Act, 1981; and the Environment (Protection) Act, 1986 and Rules made there under.

4. **That, this CTO shall not absolve the occupier from making compliance of other statutory prescribed under any law or direction of courts or any other instrument for the time being in force.**

5. **That, this CTO is being issued on the basis of information/ documents/ certificate submitted by the unit. This CTO will be revoked if any of the information/documents/certificates/undertaking given by the occupier is found false/fictitious/forged in future.**

6. **The Order shall be valid subject to compliance of all other legal requirements applicable to the unit.**

7. **The State Board reserve the right to revoke, withdraw or make any reasonable variation / change / alteration in conditions of this consent.**

This is issued with the approval of the Competent authority

RAJEEV LOCHAN BAKSHI

[Rajeev Lochan Bakshi]
Member Secretary

Memo No. : JSPCB/HO/RNC/CTO-4412165/2020/1819

Dated : 2020-11-10

Copy to: Sri Hari Krishna Budhia (MD), M/s Gautam Ferro Alloys (Unit of BFCL), At+P.O.- Murar, Ramgarh-Industrial Area, Dist.- Ramgarh(Jharkhand)/ Director of Industry, Government of Jharkhand, Ranchi/ Chief Inspector of factories, Ranchi/ Deputy Commissioner, Ramgarh/ DFO, Ramgarh/ Regional officer, Ro, Hazaribagh for information & ensuring compliance of the above conditions. Regional Officer, Hazaribagh is requested to examine the status of compliance every year and shall submit the report to the Board.

RAJEEV LOCHAN BAKSHI

[Rajeev Lochan Bakshi]
Member Secretary

Project Name: Water Audit at Bihar Foundry & Castings Ltd. – Ferro Alloys Unit

C. Ground Water Test reports

YUGANTAR BHARATI
ANALYTICAL & ENVIRONMENTAL ENGINEERING LABORATORY

Accredited by: - Jharkhand State Pollution Control Board (JSPCB)
Certified by: - ISO 9001:2015 & ISO 45001:2018

TC-4032

Test Certificate

ULR (Unique Lab Report) No.	T C 4 0 3 2 2 3 0 0 0 0 0 3 7 9 F			
Discipline: Chemical	Group: Water		Sample Description	Ground Water
Report Release Date	10th April, 2023		Report ID	YBAEEL-230306-121842-GW01
W. Order / JSPCB App. No.	15747848		Work Order Date	06.03.2023
Type of Industry (If any)	Ferro Alloys Plant		Job code/ Ref. no.	YBAEEL/WA/L/C/Apr.-23/01
Report Issue to	M/s Bihar Foundry & Castings Limited (Ferro Alloys Unit) At.+P.O. - Marar, Ramgarh Industrial Area, Dist. - Ramgarh, Jharkhand - 829117			
Sampling Date	05/04/2023		Mode of sample collection	By YBAEEL Team
Sampling Protocol	IS : 3025 (Part-1) 1987, R-2003		Sample Code	230406-GW-W01
Sampling Location	Near Main Gate		Sampling Source	Ground Water
Sample pkg. Condition	Sealed Pack in PP Bottle		Sample Quantity	3000 ml
Meteorological Cond. of Field	W.C.– Clear		RH % - 28	Temp. – 33°C
Sample receipt Date	06/04/2023	Analysis Started on 06/04/2023	Analysis completed on	10/04/2023

******Test Results ******

Sl	Parameter	Test Method	Units	MU %	Results	Limits
1.	pH value	IS 3025 (P-11):2002	pH	1.77	6.65	6.5-8.5
2.	Colour	IS 3025 (P-04):1983	Hazen	–	5	5-15
3.	Conductivity	IS 3025 (P-14):2013	µs/cm	1.90	624.0	–
4.	Turbidity	IS 3025 (P-10):2002	NTU	3.63	BDL (MDL 1.0)	1-5
5.	Total Alkalinity (as $CaCO_3$)	IS 3025 (P-23):2003	mg/l	3.68	124.0	200-600
6.	Total Hardness (as $CaCO_3$)	IS 3025 (P-21):2009	mg/l	1.35	216.0	200-600
7.	Total dissolved solids	IS 3025 (P-16):2006	mg/l	2.85	312.0	500-2000
8.	Chloride (as Cl^-)	IS 3025 (P-32):2003	mg/l	3.41	38.0	250-1000
9.	Fluoride (as F^-)	APHA 4500 F-C 23rd edition 2017	mg/l	12.22	1.1	1.0-1.5
10.	Calcium (as Ca^{2+})	IS 3025 (P-40): 2003	mg/l	4.19	66.2	75-200
11.	Magnesium (as Mg^{2+})	APHA 3500 Mg B : 2017	mg/l	1.90	12.27	30-100
12.	Sulphate (as SO_4^{2-})	IS 3025 (P-24):2003	mg/l	5.42	74.0	200-400
13.	Sodium (as Na^+)	APHA 3111 B 23rd edition 2017	mg/l	16.98	24.0	–
14.	Potassium (as K^+)	APHA 3111 B 23rd edition 2017	mg/l	9.21	2.0	–

******End of Report******

Limit is specified as	IS 10500: 2021
Abbreviation	MDL : Minimum detection limit, BDL : Below detection limit.
Env. Condition of Lab	Laboratory is maintaining, Temperature 27 ± 2°C and Relative Humidity 65 ± 5% in all testing areas as per IS 196:1966 (C).
Specific contractual notes	All values are expressed in as unit and results listed refer only to the tested sample and applicable parameter in Lab's Permanent Facility.
	This report, in full or in part, shall not be used for advertising or as evidence in any court of law.
	This report cannot be reproduced, except when in full, without the written permission of the CEO.
	The samples collected shall be destroyed after 15 days from the date of issue of the certificate unless specified otherwise
	The liability of the laboratory is limited to the invoiced amount.
	All disputes are subjected to the Ranchi Jurisdiction.
Remarks	Sample complies with prescribed limits.

Sample Drawn By – Angad Munda
Tested By – Satyam Kumar (Lab Analyst)

Only CONCERN for
Jharkhand State Pollution Control Board
Application No. 15747848
Allotted Date 06-03-23
Submission Date 10-04-23

10.4.23	10/4/23
Verified by Shivani Kumari Singh (Authorized Signatory)	Issued by Sanjeev Kumar Singh (Technical Manager)

Authorized Signatory
Chemical Section
Yugantar Bharati Analytical &
Environmental Engineering Laboratory

State Pollution Control Board

ISO 9001:2015
ISO 45001:2018

Branch Office : - Jamshedpur | Dhanbad | Hazaribag | Pakur
Main Office : Namkum Post Office, Sidroul, Ranchi - 834010, Jharkhand
Ph : 098351-97960, 098357-86677, Email - ybaeel@gmail.com, Web - https://ybaeel.in

Project Name: Water Audit at Bihar Foundry & Castings Ltd. – Ferro Alloys Unit

YUGANTAR BHARATI
ANALYTICAL & ENVIRONMENTAL ENGINEERING LABORATORY

Accredited by: - Jharkhand State Pollution Control Board (JSPCB)
Certified by: - An ISO 9001:2015 & ISO 45001:2018

State Pollution Control Board

Test Certificate

Discipline	Chemical	Group	Water	Sample Description	Ground Water
Report Release Date		10th April, 2023		Report ID	YBAEEL-230306-121842-GW01
W. Order / JSPCB App. No.		15747848		Work Order Date	06.03.2023
Type of Industry(If any)		Ferro Alloys Plant		Job code/ Ref. no.	YBAEEL/WA/LC/Apr.-23/01
Report Issue to		M/s Bihar Foundry & Castings Limited (Ferro Alloys Unit) At.+P.O. - Marar, Ramgarh Industrial Area, Dist. - Ramgarh, Jharkhand - 829117			
Sampling Date		05/04/2023		Mode of sample collection	By YBAEEL Team
Sampling Protocol		IS : 3025 (Part-1) 1987, R-2003		Sample Code	230406-GW-W01
Sampling Location		Near Main Gate		Sampling Source	Ground Water
Sample pkg. Condition		Sealed Pack in PP Bottle		Sample Quantity	3000 ml
Meteorological Cond. of Field		W.C.– Clear		RH % - 28	Temp. – 33°C
Sample receipt Date		06/04/2023	Analysis Started on	06/04/2023	Analysis completed on 10/04/2023

******Test Results******

Sl	Parameter	Test Method	Units	MU %	Results	Limits
1.	Odour	IS 3025 (P-05):2002	--	--	Agree.	Agreeable
2.	Taste	IS 3025 (P-07):2002	--	--	Agree.	Agreeable
3.	Phenols (C_6H_5OH)	IS 3025 (P-43):1992	mg/l	--	BDL (MDL 0.001)	0.001-0.002
4.	Hexavalent Chromium (as Cr^{+6})	IS: 3025 (P-52):2003	mg/l	--	BDL (MDL 0.03)	--

******End of Report******

Limit is specified as	IS 10500: 2021
Abbreviation	MDL : Minimum detection limit, BDL : Below detection limit,
Env. Condition of Lab	Laboratory is maintaining, Temperature 27 ± 2°C and Relative Humidity 55 ± 5% in all testing areas as per IS 196:1966 (C).
Specific contractual notes	All values are expressed in as unit and results listed refer only to the tested sample and applicable parameter in Lab's Permanent Facility
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	The samples collected shall be destroyed after 15 days from the date of issue of the certificate unless specified otherwise
	The liability of the laboratory is limited to the invoiced amount.
	All disputes are subjected to the Ranchi Jurisdiction.
Remarks	Sample complies with prescribed limits.

Sample Drawn By – Angad Munda
Tested By – Satyam Kumar (Lab Analyst)

Only CONCERN for
Jharkhand State Pollution Control Board
Application No. 19-478418
Allotted Date 06-03-23
Submission Date 10-04-23

Shivani 10.4.23	SKSingh 10/04/23
Verified by	Issued by
Shivani Kumari Singh	Sanjeev Kumar Singh
(Authorized Signatory)	(Technical Manager)

Authorized Signatory
Chemical Section
Yugantar Bharati Analytical &
Environmental Engineering Laboratory

Branch Office : - Jamshedpur | Dhanbad | Hazaribag | Pakur
Main Office : Namkum Post Office, Sidroul, Ranchi - 834010, Jharkhand
Ph : 098351-97960, 098357-86677, Email - ybaeel@gmail.com, Web - https://ybaeel.in

ISO 45001:2018 ISO 9001:2015

Project Name: Water Audit at Bihar Foundry & Castings Ltd. – Ferro Alloys Unit

YUGANTAR BHARATI
ANALYTICAL & ENVIRONMENTAL ENGINEERING LABORATORY

Accredited by: - Jharkhand State Pollution Control Board (JSPCB)
Certified by: - ISO 9001:2015 & ISO 45001:2018

TC-4032

Test Certificate

ULR (Unique Lab Report) No. TC403223000000381F

Discipline: Chemical	Group: Water	Sample Description	Residue & Contaminants in Water		
Report Release Date	10th April, 2023	Report ID	YBAEEL-230306-121842-GW01		
W. Order / JSPCB App. No.	15747848	Work Order Date	06.03.2023		
Type of Industry(If any)	Ferro Alloys Plant	Job code/ Ref. no.	YBAEEL/WA/L/R/Apr.-23/01		
Report Issue to	M/s Bihar Foundry & Castings Limited (Ferro Alloys Unit) At.+P.O. - Marar, Ramgarh Industrial Area, Dist. - Ramgarh, Jharkhand - 829117				
Sampling Date	05/04/2023	Mode of sample collection	By YBAEEL Team		
Sampling Protocol	IS : 3025 (Part-1) 1987, R-2003	Sample Code	230406-GW-W01		
Sampling Location	Near Main Gate	Sampling Source	Ground Water		
Sample pkg. Condition	Sealed Pack in PP Bottle	Sample Quantity	1000 ml		
Meteorological Cond. of Field	W.C.– Clear	RH % - 28	Temp. – 33°C		
Sample receipt Date	06/04/2023	Analysis Started on	06/04/2023	Analysis completed on	10/04/2023

******Test Results******

Sl	Parameter	Test Method	Units	MU %	Results	Limits
1.	Arsenic (as As)	APHA 3114 C 23rd edition 2017	mg/l	10.34	BDL (MDL 0.003)	0.01-No relaxation
2.	Copper (as Cu)	APHA 3111 B 23rd edition 2017	mg/l	11.11	BDL (MDL 0.01)	0.05-1.5
3.	Iron (as Fe)	APHA 3111 B 23rd edition 2017	mg/l	2.34	0.20	1.0-No relaxation
4.	Lead (as Pb)	APHA 3111 B 23rd edition 2017	mg/l	10.64	BDL (MDL 0.02)	0.01-No relaxation
5.	Selenium (as Se)	APHA 3111 C 23rd edition 2017	mg/l	5.08	BDL (MDL 0.01)	0.01-No relaxation
6.	Zinc (as Zn)	APHA 3111 B 23rd edition 2017	mg/l	15.35	BDL (MDL 0.1)	5-15
7.	Cadmium (as Cd)	APHA 3111 B 23rd edition 2017	mg/l	5.0	BDL (MDL 0.02)	0.003-No relaxation
8.	Mercury (as Hg)	APHA 3112 B 23rd edition 2017	mg/l	8.47	BDL (MDL 0.003)	0.001-No relaxation
9.	Chromium (as Cr)	APHA 3111 B 23rd edition 2017	mg/l	12.53	BDL (MDL 0.02)	0.05-No relaxation
10.	Cobalt (Co)	APHA 3111 B 23rd edition 2017	mg/l	28.33	BDL (MDL 0.03)	--

******End of Report******

Limit is specified as	IS 10500: 2021
Abbreviation	MDL : Minimum detection limit, BDL : Below detection limit.
Env. Condition of Lab	Laboratory is maintaining, Temperature 27 ± 2°C and Relative Humidity 65 ± 5% in all testing areas as per IS 196:1966 (C).
Specific contractual notes	All values are expressed in as unit and results listed refer only to the tested sample and applicable parameter in Lab's Permanent Facility.
	This report, in full or in part, shall not be used for advertising or as evidence in any court of law.
	This report cannot be reproduced, except when in full, without the written permission of the CEO.
	The samples collected shall be destroyed after 15 days from the date of issue of the certificate unless specified otherwise.
	The liability of the laboratory is limited to the invoiced amount.
	All disputes are subjected to the Ranchi Jurisdiction.
Remarks	Sample complies with prescribed limits.

Sample Drawn By – Angad Munda

Only CONCERN for
Jharkhand State Pollution Control Board
Application No. 15747848
Allotted Date 06-03-23
Submission Date 10-04-23

Shivani 10.4.23	Sanjeev 10/4/23
Tested by	Verified & Issued by
Shivani Kumari Singh	Sanjeev Kumar Singh
(Lab Analyst)	(Technical Manager)

Authorised Signatory
Chemical Section
Yugantar Bharati Analytical & Environmental Engineering Laboratory

State Pollution Control Board

Branch Office : - Jamshedpur | Dhanbad | Hazaribag | Pakur

Main Office : Namkum Post Office, Sidroul, Ranchi - 834010, Jharkhand
Ph : 098351-97960, 098357-86677, Email - ybaeel@gmail.com, Web - https://ybaeel.in

ISO 9001:2015
ISO 45001:2018

Project Name: Water Audit at Bihar Foundry & Castings Ltd. – Ferro Alloys Unit

YUGANTAR BHARATI
ANALYTICAL & ENVIRONMENTAL ENGINEERING LABORATORY

Accredited by: - Jharkhand State Pollution Control Board (JSPCB)
Certified by : - ISO 9001:2015 & ISO 45001:2018

TC-4032

Test Certificate

ULR (Unique Lab Report) No.	TC403223000000370F				
Discipline: Biological	Group: Water		Sample Description: Ground Water		
Report Release Date: 08th April, 2023			Report ID: YBAEEL-230402-113921-GW01		
W. Order / JSPCB App. No.: 15747848			Work Order Date: 06.03.2023		
Type of Industry(If any): Ferro Alloys Plant			Job code/ Ref. no.: YBAEEL/WA/L/M/Apr-23/01		
Report Issue to: M/s Bihar Foundry & Castings Limited (Ferro Alloys Unit) At.+P.O. - Marar, Ramgarh Industrial Area, Dist. - Ramgarh, Jharkhand - 829117					
Sampling Date: 05/04/2023			Mode of sample collection: By YBAEEL Team		
Sampling Protocol: IS : 1622:1982, R - 2019			Sample Code: 230406-GW-W01		
Sampling Location: Near Main Gate			Sampling Source: Ground Water		
Sample pkg. Condition: Sealed Pack in PP Bottle			Sample Quantity: 250 m		
Meteorological Cond. of Field: W.C.– Clear		RH % - 28		Temp. – 33°C	
Sample receipt Date: 06/04/2023	Analysis Started on: 06/04/2023		Analysis completed on: 08/04/2023		

******Test Results******

Sl	Parameter	Test Method	Units	Results	Limits
1.	Total coliform	APHA 9221 B, 23rd Edition 2017	MPN/100 ml	BDL (MDL 1.1)	Shall not to be Detectable in any 100 ml sample
2.	Fecal coliform	APHA 9221 E, 23rd Edition 2017	MPN/100 ml	BDL (MDL 1.1)	

******End of Report******

Limit is specified as	IS 10500: 2012
Abbreviation	MDL : Minimum detection limit, BDL : Below detection limit, <1.8 / < 1.1 MPN/100 ml denotes that the presence probability of bacteria is absent in the tested sample.
Env. Condition of Lab	Laboratory is maintaining, Temperature 27 ± 2°C and Relative Humidity 65 ± 5% in all testing areas as per IS 196:1966 (C).
Specific contractual notes	All values are expressed in as unit and results listed refer only to the tested sample and applicable parameter in Lab's Permanent Facility. This report, in full or in part, shall not be used for advertising or as evidence in any court of law. This report cannot be reproduced, except when in full, without the written permission of the CEO. The samples collected shall be destroyed after 7 days from the date of issue of the certificate unless specified otherwise The liability of the laboratory is limited to the invoiced amount. All disputes are subjected to the Ranchi Jurisdiction.
Remarks	Sample complies with prescribed limit.

Sample Drawn By – Angad Munda

Only CONCERN for
Jharkhand State Pollution Control Board
Application No. 15747848
Allotted Date 06-03-2023
Submission Date.....08-04-23

Madhuri Sinha 8.4.23	Mukesh Kumar 8-4-23
Tested by	Verified & Issued by
Madhuri Sinha	Mukesh Kumar
(Lab Analyst)	(Authorized Signatory)

Authorized Signatory
Microbiological Section
Yugantar Bharati Analytical &
Environmental Engineering Laboratory

State Pollution Control Board

Branch Office : - Jamshedpur | Dhanbad | Hazaribag | Pakur
Main Office : Namkum Post Office, Sidroul, Ranchi - 834010, Jharkhand
Ph : 098351-97960, 098357-86677, Email - ybaeel@gmail.com, Web - https://ybaeel.in

ISO 9001:2015
ISO 45001:2018

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Project Name: Water Audit at Bihar Foundry & Castings Ltd. – Ferro Alloys Unit

YUGANTAR BHARATI
ANALYTICAL & ENVIRONMENTAL ENGINEERING LABORATORY

Accredited by: - Jharkhand State Pollution Control Board (JSPCB)
Certified by: - ISO 9001:2015 & ISO 45001:2018

TC-4032

Test Certificate

ULR (Unique Lab Report) No.			T C 4 0 3 2 2 3 0 0 0 0 0 0 3 8 0 F		
Discipline	Chemical	Group	Water	Sample Description	Ground Water
Report Release Date		10th April, 2023		Report ID	YBAEEL-230306-121842-GW02
W. Order / JSPCB App. No.		15747848		Work Order Date	06.03.2023
Type of Industry(If any)		Ferro Alloys Plant		Job code/ Ref. no.	YBAEEL/WA/L/C/Apr.-23/01
Report Issue to		M/s Bihar Foundry & Castings Limited (Ferro Alloys Unit) At.+P.O. - Marar, Ramgarh Industrial Area, Dist. - Ramgarh, Jharkhand - 829117			
Sampling Date		05/04/2023		Mode of sample collection	By YBAEEL Team
Sampling Protocol		IS : 3025 (Part-1) 1987, R-2003		Sample Code	230406-GW-W02
Sampling Location		Coal Yard		Sampling Source	Ground Water
Sample pkg. Condition		Sealed Pack in PP Bottle		Sample Quantity	3000 ml
Meteorological Cond. of Field		W.C.– Clear		RH % - 28	Temp. – 33°C
Sample receipt Date		06/04/2023	Analysis Started on	06/04/2023	Analysis completed on 10/04/2023

******Test Results ******

Sl	Parameter	Test Method	Units	MU %	Results	Limits
1.	pH value	IS 3025 (P-11):2002	pH	1.77	6.86	6.5-8.5
2.	Colour	IS 3025 (P-04):1983	Hazen	--	5	5-15
3.	Conductivity	IS 3025 (P-14):2013	µs/cm	1.90	1928.0	--
4.	Turbidity	IS 3025 (P-10):2002	NTU	3.63	BDL (MDL 1.0)	1-5
5.	Total Alkalinity (as $CaCO_3$)	IS 3025 (P-23):2003	mg/l	3.68	112.0	200-600
6.	Total Hardness (as $CaCO_3$)	IS 3025 (P-21):2009	mg/l	1.35	524.0	200-600
7.	Total dissolved solids	IS 3025 (P-16):2006	mg/l	2.85	966.0	500-2000
8.	Chloride (as Cl^-)	IS 3025 (P-32):2003	mg/l	3.41	300.0	250-1000
9.	Fluoride (as F^-)	APHA 4500 F-C 23rd edition 2017	mg/l	12.22	1.2	1.0-1.5
10.	Calcium (as Ca^{2+})	IS 3025 (P-40): 2003	mg/l	4.19	172.4	75-200
11.	Magnesium (as Mg^{2+})	APHA 3500 Mg B : 2017	mg/l	1.90	22.6	30-100
12.	Sulphate (as SO_4^{2-})	IS 3025 (P-24):2003	mg/l	5.42	113.0	200-400
13.	Sodium (as Na^+)	APHA 3111 B 23rd edition 2017	mg/l	16.98	76.0	--
14.	Ptassium (as K^+)	APHA 3111 B 23rd edition 2017	mg/l	9.21	3.0	--

******End of Report******

Limit is specified as	IS 10500: 2021
Abbreviation	MDL : Minimum detection limit, BDL : Below detection limit.
Env. Condition of Lab	Laboratory is maintaining, Temperature 27 ± 2°C and Relative Humidity 65 ± 5% in all testing areas as per IS 196:1966 (C).
Specific contractual notes	All values are expressed in as unit and results listed refer only to the tested sample and applicable parameter in Lab's Permanent Facility
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	The liability of the laboratory is limited to the invoiced amount.
	All disputes are subjected to the Ranchi Jurisdiction.
Remarks	Sample complies with prescribed limits.

Sample Drawn By – Angad Munda
Tested By – Satyam Kumar (Lab Analyst)

Only CONCERN for
Jharkhand State Pollution Control Board
Application No. 15747848
Allotted Date 06-03-23
Submission Date 10-04-23

Verified by	Issued by
10.4.23	10/4/23
Shivani Kumari Singh	Sanjeev Kumar Singh
(Authorized Signatory)	(Technical Manager)

Authorised Signatory
Chemical Section
Yugantar Bharati Analytical &
Environmental Engineering Laboratory

State Pollution Control Board

Branch Office :- Jamshedpur | Dhanbad | Hazaribag | Pakur

Main Office : Namkum Post Office, Sidroul, Ranchi - 834010, Jharkhand
Ph : 098351-97960, 098357-86677, Email - ybaeel@gmail.com, Web - https://ybaeel.in

ISO 9001:2015
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YUGANTAR BHARATI
ANALYTICAL & ENVIRONMENTAL ENGINEERING LABORATORY

Accredited by: - Jharkhand State Pollution Control Board (JSPCB)
Certified by: - An ISO 9001:2015 & ISO 45001:2018

State Pollution Control Board

Test Certificate

Discipline: Chemical		Group: Water		Sample Description	Ground Water
Report Release Date	10th April, 2023			Report ID	YBAEEL-230306-121842-GW02
W. Order / JSPCB App. No.	15747848			Work Order Date	06.03.2023
Type of Industry(If any)	Ferro Alloys Plant			Job code/ Ref. no.	YBAEEL/WA/L/C/Apr.-23/01
Report Issue to	M/s Bihar Foundry & Castings Limited (Ferro Alloys Unit) At.+P.O. - Marar, Ramgarh Industrial Area, Dist. - Ramgarh, Jharkhand - 829117				
Sampling Date	05/04/2023		Mode of sample collection		By YBAEEL Team
Sampling Protocol	IS : 3025 (Part-1) 1987, R-2003		Sample Code		230406-GW-W02
Sampling Location	Coal Yard		Sampling Source		Ground Water
Sample pkg. Condition	Sealed Pack in PP Bottle		Sample Quantity		3000 ml
Meteorological Cond. of Field	W.C.– Clear		RH % - 28		Temp. – 33°C
Sample receipt Date	06/04/2023	Analysis Started on	06/04/2023	Analysis completed on	10/04/2023

******Test Results******

Sl	Parameter	Test Method	Units	MU %	Results	Limits
1.	Odour	IS 3025 (P-05):2002	--	--	Agree.	Agreeable
2.	Taste	IS 3025 (P-07):2002	--	--	Agree.	Agreeable
3.	Phenols (C_6H_5OH)	IS 3025 (P-43):1992	mg/l	--	BDL (MDL 0.001)	0.001-0.002
4.	Hexavalent Chromium (as Cr^{+6})	IS: 3025 (P-52):2003	mg/l	--	BDL (MDL 0.03)	--

******End of Report******

Limit is specified as	IS 10500: 2021
Abbreviation	MDL : Minimum detection limit, BDL : Below detection limit.
Env. Condition of Lab	Laboratory is maintaining, Temperature 27 ± 2°C and Relative Humidity 65 ± 5% in all testing areas as per IS 196:1966 (C).
Specific contractual notes	All values are expressed in as unit and results listed refer only to the tested sample and applicable parameter in Lab's Permanent Facility
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	The liability of the laboratory is limited to the invoiced amount.
	All disputes are subjected to the Ranchi Jurisdiction.
Remarks	Sample complies with prescribed limits.

Sample Drawn By – Angad Munda
Tested By – Satyam Kumar (Lab Analyst)

Only CONCERN for
Jharkhand State Pollution Control Board
Application No. 15747848
Allotted Date 06-03-23
Submission Date 10-04-23

10.4.23	10/04/23
Verified by	Issued by
Shivani Kumari Singh	Sanjeev Kumar Singh
(Authorized Signatory)	(Technical Manager)

Authorized Signatory
Chemical Section
Yugantar Bharati Analytical &
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ISO 45001:2018 ISO 9001:2015

Project Name: Water Audit at Bihar Foundry & Castings Ltd. – Ferro Alloys Unit

YUGANTAR BHARATI
ANALYTICAL & ENVIRONMENTAL ENGINEERING LABORATORY

Accredited by: - Jharkhand State Pollution Control Board (JSPCB)
Certified by: - ISO 9001:2015 & ISO 45001:2018

TC-4032

Test Certificate

ULR (Unique Lab Report) No.			T C 4 0 3 2 2 3 0 0 0 0 0 0 3 8 2 F		
Discipline	Chemical	Group	Water	Sample Description	Residue & Contaminants in Water
Report Release Date		10th April, 2023		Report ID	YBAEEL-230306-121842-GW02
W. Order / JSPCB App. No.		15747848		Work Order Date	06.03.2023
Type of Industry(If any)		Ferro Alloys Plant		Job code/ Ref. no.	YBAEEL/WA/LJR/Apr.-23/01
Report Issue to		M/s Bihar Foundry & Castings Limited (Ferro Alloys Unit) At.+P.O. - Marar, Ramgarh Industrial Area, Dist. - Ramgarh, Jharkhand - 829117			
Sampling Date		05/04/2023		Mode of sample collection	By YBAEEL Team
Sampling Protocol		IS : 3025 (Part-1) 1987, R-2003		Sample Code	230406-GW-W02
Sampling Location		Coal Yard		Sampling Source	Ground Water
Sample pkg. Condition		Sealed Pack in PP Bottle		Sample Quantity	1000 ml
Meteorological Cond. of Field		W.C.– Clear		RH % - 28	Temp. – 33°C
Sample receipt Date		06/04/2023	Analysis Started on	06/04/2023	Analysis completed on 10/04/2023

******Test Results ******

Sl	Parameter	Test Method	Units	MU %	Results	Limits
1.	Arsenic (as As)	APHA 3114 C 23rd edition 2017	mg/l	10.34	BDL (MDL 0.003)	0.01-No relaxation
2.	Copper (as Cu)	APHA 3111 B 23rd edition 2017	mg/l	11.11	BDL (MDL 0.01)	0.05-1.5
3.	Iron (as Fe)	APHA 3111 B 23rd edition 2017	mg/l	2.34	0.36	1.0-No relaxation
4.	Lead (as Pb)	APHA 3111 B 23rd edition 2017	mg/l	10.64	BDL (MDL 0.02)	0.01-No relaxation
5.	Selenium (as Se)	APHA 3111 C 23rd edition 2017	mg/l	5.06	BDL (MDL 0.01)	0.01-No relaxation
6.	Zinc (as Zn)	APHA 3111 B 23rd edition 2017	mg/l	15.35	BDL (MDL 0.1)	5-15
7.	Cadmium (as Cd)	APHA 3111 B 23rd edition 2017	mg/l	5.0	BDL (MDL 0.02)	0.003-No relaxation
8.	Mercury (as Hg)	APHA 3112 B 23rd edition 2017	mg/l	8.47	BDL (MDL 0.003)	0.001-No relaxation
9.	Chromium (as Cr)	APHA 3111 B 23rd edition 2017	mg/l	12.53	0.10	0.05-No relaxation
10.	Cobalt (Co)	APHA 3111 B 23rd edition 2017	mg/l	28.33	BDL (MDL 0.03)	--

******End of Report******

Limit is specified as	IS 10500: 2021
Abbreviation	MDL : Minimum detection limit, BDL : Below detection limit.
Env. Condition of Lab	Laboratory is maintaining, Temperature 27 ± 2°C and Relative Humidity 65 ± 5% in all testing areas as per IS 196:1966 (C).
Specific contractual notes	All values are expressed in as unit and results listed refer only to the tested sample and applicable parameter in Lab's Permanent Facility
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	The liability of the laboratory is limited to the invoiced amount.
	All disputes are subjected to the Ranchi Jurisdiction
Remarks	Sample complies with prescribed limits, except Chromium.

Sample Drawn By – Angad Munda

Only CONCERN for
Jharkhand State Pollution Control Board
Application No. 15747848
Allotted Date 06-03-23
Submission Date 10-4-23

10.4.23	12/4/23
Tested by	Verified & Issued by
Shivani Kumari Singh	Sanjeev Kumar Singh
(Lab Analyst)	(Technical Manager)

Authorized Signatory
Chemical Section
Yugantar Bharati Analytical & Environmental Engineering Laboratory

State Pollution Control Board

Branch Office : - Jamshedpur | Dhanbad | Hazaribag | Pakur

Main Office : Namkum Post Office, Sidroul, Ranchi - 834010, Jharkhand
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ISO 9001:2015
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YUGANTAR BHARATI
ANALYTICAL & ENVIRONMENTAL ENGINEERING LABORATORY

Accredited by: - Jharkhand State Pollution Control Board (JSPCB)
Certified by : - ISO 9001:2015 & ISO 45001:2018

TC-4032

Test Certificate

ULR (Unique Lab Report) No.	TC403223000000037 1F				
Discipline: Biological	Group: Water		Sample Description	Ground Water	
Report Release Date	08th April, 2023		Report ID	YBAEEL-230402-113921-GW02	
W. Order / JSPCB App. No.	15747848		Work Order Date	06.03.2023	
Type of Industry(If any)	Ferro Alloys Plant		Job code/ Ref. no.	YBAEEL/WA/L/M/Apr-23/01	
Report Issue to	M/s Bihar Foundry & Castings Limited (Ferro Alloys Unit) At.+P.O. - Marar, Ramgarh Industrial Area, Dist. - Ramgarh, Jharkhand - 829117				
Sampling Date	05/04/2023		Mode of sample collection	By YBAEEL Team	
Sampling Protocol	IS : 1622:1982, R - 2019		Sample Code	230406-GW-W02	
Sampling Location	Coal Yard		Sampling Source	Ground Water	
Sample pkg. Condition	Sealed Pack in PP Bottle		Sample Quantity	250 m	
Meteorological Cond. of Field	W.C.– Clear	RH % - 28		Temp. – 33°C	
Sample receipt Date	06/04/2023	Analysis Started on	06/04/2023	Analysis completed on	08/04/2023

******Test Results ******

Sl	Parameter	Test Method	Units	Results	Limits
1.	Total coliform	APHA 9221 B, 23rd Edition 2017	MPN/100 ml	BDL (MDL 1.1)	Shall not to be Detectable in any 100 ml sample
2.	Fecal coliform	APHA 9221 E, 23rd Edition 2017	MPN/100 ml	BDL (MDL 1.1)	

******End of Report******

Limit is specified as	IS 10500: 2012
Abbreviation	MDL : Minimum detection limit, BDL : Below detection limit, <1.8 (< 1.1 MPN/100 ml denotes that the presence probability of bacteria is absent in the tested sample.
Env. Condition of Lab	Laboratory is maintaining, Temperature 27 ± 2°C and Relative Humidity 65 ± 5% in all testing areas as per IS 196:1966 (C).
Specific contractual notes	All values are expressed in as unit and results listed refer only to the tested sample and applicable parameter in Lab's Permanent Facility.
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	The liability of the laboratory is limited to the invoiced amount.
	All disputes are subjected to the Ranchi Jurisdiction.
Remarks	Sample complies with prescribed limit.

Sample Drawn By – Angad Munda

Only CONCERN for
Jharkhand State Pollution Control Board
Application No. 15747848
Allotted Date 06-03-23
Submission Date 08-04-23

Madhuri Sinha 8.4.23	Mukesh Kumar 8-4-23
Tested by	Verified & Issued by
Madhuri Sinha	Mukesh Kumar
(Lab Analyst)	(Authorized Signatory)

Authorized Signatory
Microbiological Section
Yugantar Bharati Analytical &
Environmental Engineering Laboratory

State Pollution Control Board

Branch Office : - Jamshedpur | Dhanbad | Hazaribag | Pakur

Main Office : Namkum Post Office, Sidroul, Ranchi - 834010, Jharkhand
Ph : 098351-97960, 098357-86677, Email - ybaeel@gmail.com, Web - https://ybaeel.in

ISO 9001:2015
ISO 45001:2018

D. Calibration Certificate- Digital Water Flowmeter & Piezometer

ENGINEERING AND ENVIRONMENTAL SOLUTIONS

Add: 4/1309, New Sir Syed Nagar, Aligarh - 202002, UP
Web: www.enggenv.com, E-mail: enggenvsolution@gmail.com
Contact: 9540990415 / 7042058885

Calibration Certificate

Page No.1 of 1

Customer Name & Address	Certificate No.	EES/EMF/376
M/S Bihar Foundry & Castings Ltd. Ferro Alloys Unit Plot No. 1405, Ramgarh Industrial Area, PO: Marar, Dist: Ramgarh - 829117, Jharkhand.	Date of Issue	29.08.2023
	Date of calibration	29.08.2023
	Calibration Valid Upto	28.08.2024
	Service request no. & Date	

Instrument Detail			
Name	Electromegnetic Flow Meter	Size	50 mm
Make	Sense India	Flow Range	0 to 71 m³/h
Model	Nil	Location	Outlet
Sr. No	2204500414	K-Factor	1.0444

Environmental Condition			
Temperature (°C)	25 ± 3	Humidity (%RH)	35 to 70

Calibration Result				
S.No	Actual Flow Rate (m³/Hr.)	Observed Flow Rate (m³/Hr.)	Actual Totalizer (m³)	Observed Totalizer (m³)
1	2.27	2.34	0.365	0.362
2	6.88	6.87	0.662	0.666
3	10.36	10.24	0.885	0.883
4	14.65	14.73	0.931	0.934
5	17.21	17.22	1.125	1.122

Results presented in this calibration certificate relates only to the item mentioned
The calibration results reported in this certificate are valid at the time of and under the stated conditions.
The uncertainties are for a confidence probability not less than 95% unless specified otherwise.
EES is not responsible for any change in results of instrument after calibration
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DUC Stands for Device Under Calibration.

ENGINEERING AND ENVIRONMENTAL SOLUTIONS

Calibrated by

Report prepared by

Approved by

Calibration Certificate- Digital Water Flowmeter 1

ENGINEERING AND ENVIRONMENTAL SOLUTIONS
Add: 4/1309, New Sir Syed Nagar, Aligarh - 202002, UP
Web: www.enggenv.com, E-mail: enggenvsolution@gmail.com
Contact: 9540990415 / 7042058885

Calibration Certificate

Customer Name & Address	Certificate No.	EES/EMF/377
M/S Bihar Foundry & Castings Ltd. Ferro Alloys Unit Plot No. 1405, Ramgarh Industrial Area, PO: Marar, Dist: Ramgarh - 829117, Jharkhand.	Date of Issue	29.08.2023
	Date of calibration	29.08.2023
	Calibration Valid Upto	28.08.2024
	Service request no. & Date	

Instrument Detail			
Name	Electromegnetic Flow Meter	Size	50 mm
Make	Sense India	Flow Range	0 to 71 m^3/h
Model	Nil	Location	Outlet
Sr. No	2204500415	K-Factor	1.0444

Environmental Condition			
Temperature (°C)	25 ± 3	Humidity (%RH)	35 to 70

Calibration Result				
S.No	Actual Flow Rate (m^3/Hr.)	Observed Flow Rate (m^3/Hr.)	Actual Totalizer (m^3)	Observed Totalizer (m^3)
1	2.27	2.31	0.365	0.361
2	6.88	6.86	0.662	0.665
3	10.36	10.23	0.885	0.883
4	14.65	14.72	0.931	0.933
5	17.21	17.24	1.125	1.123

Results presented in this calibration certificate relates only to the item mentioned
The calibration results reported in this certificate are valid at the time of and under the stated conditions.
The uncertainties are for a confidence probability not less than 95%, unless specified otherwise
EES is not responsible for any change in results of instrument after calibration
This certificate shall not be reproduced except in full without written permission of Engineering and Environmental Solutions.
DUC Stands for Device Under Calibration.

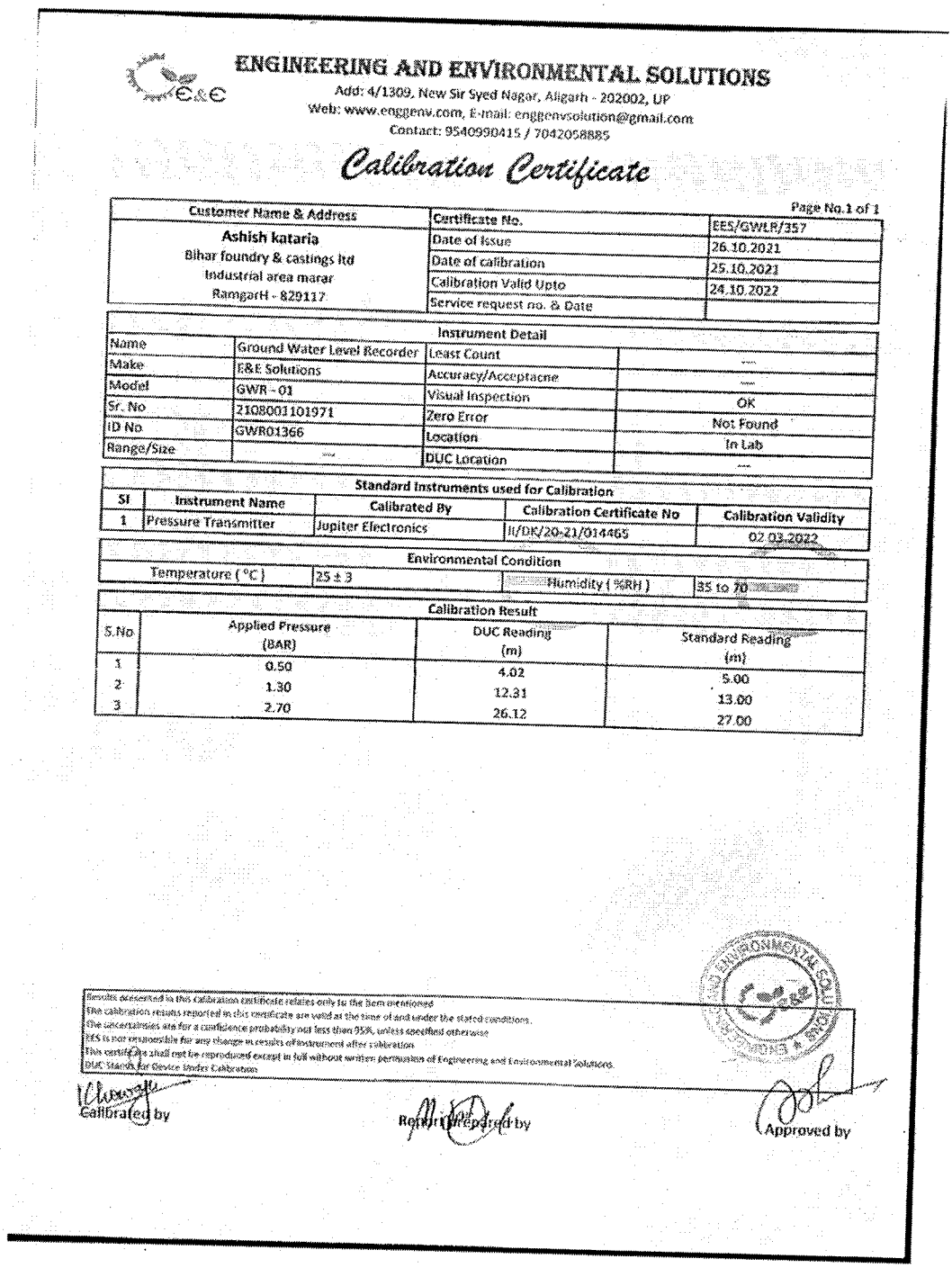
ENGINEERING AND ENVIRONMENTAL SOLUTIONS

Calibrated by

Report prepared by

Approved by

Calibration Certificate- Digital Water Flowmeter 2



ENGINEERING AND ENVIRONMENTAL SOLUTIONS

Add: 4/1309, New Sir Syed Nagar, Aligarh - 202002, UP
Web: www.enggenv.com, E-mail: enggenvsolution@gmail.com
Contact: 9540990415 / 7042058885

Calibration Certificate

Page No.1 of 1

Customer Name & Address		
Ashish kataria Bihar foundry & castings ltd Industrial area marar Ramgarh - 829117	Certificate No.	EES/GWLR/357
	Date of Issue	26.10.2021
	Date of calibration	25.10.2021
	Calibration Valid Upto	24.10.2022
	Service request no. & Date	

Instrument Detail			
Name	Ground Water Level Recorder	Least Count	---
Make	E&E Solutions	Accuracy/Acceptacne	---
Model	GWR - 01	Visual Inspection	OK
Sr. No	2108001101971	Zero Error	Not Found
ID No	GWR01366	Location	In Lab
Range/Size	---	DUC Location	---

Standard Instruments used for Calibration				
SI	Instrument Name	Calibrated By	Calibration Certificate No	Calibration Validity
1	Pressure Transmitter	Jupiter Electronics	II/DK/20-21/014465	02.03.2022

Environmental Condition			
Temperature (°C)	25 ± 3	Humidity (%RH)	35 to 70

Calibration Result			
S.No	Applied Pressure (BAR)	DUC Reading (m)	Standard Reading (m)
1	0.50	4.02	5.00
2	1.30	12.31	13.00
3	2.70	26.12	27.00

Results ascerned in this Calibration certificate relates only to the item mentioned
The calibration results reported in this certificate are valid at the time of and under the stated conditions.
The uncertainties are for a confidence probability not less than 95%, unless specified otherwise
EES is not responsible for any change in results of instrument after calibration
This certificate shall not be reproduced except in full without written permission of Engineering and Environmental Solutions.
DUC Stands for Device Under Calibration

Calibrated by

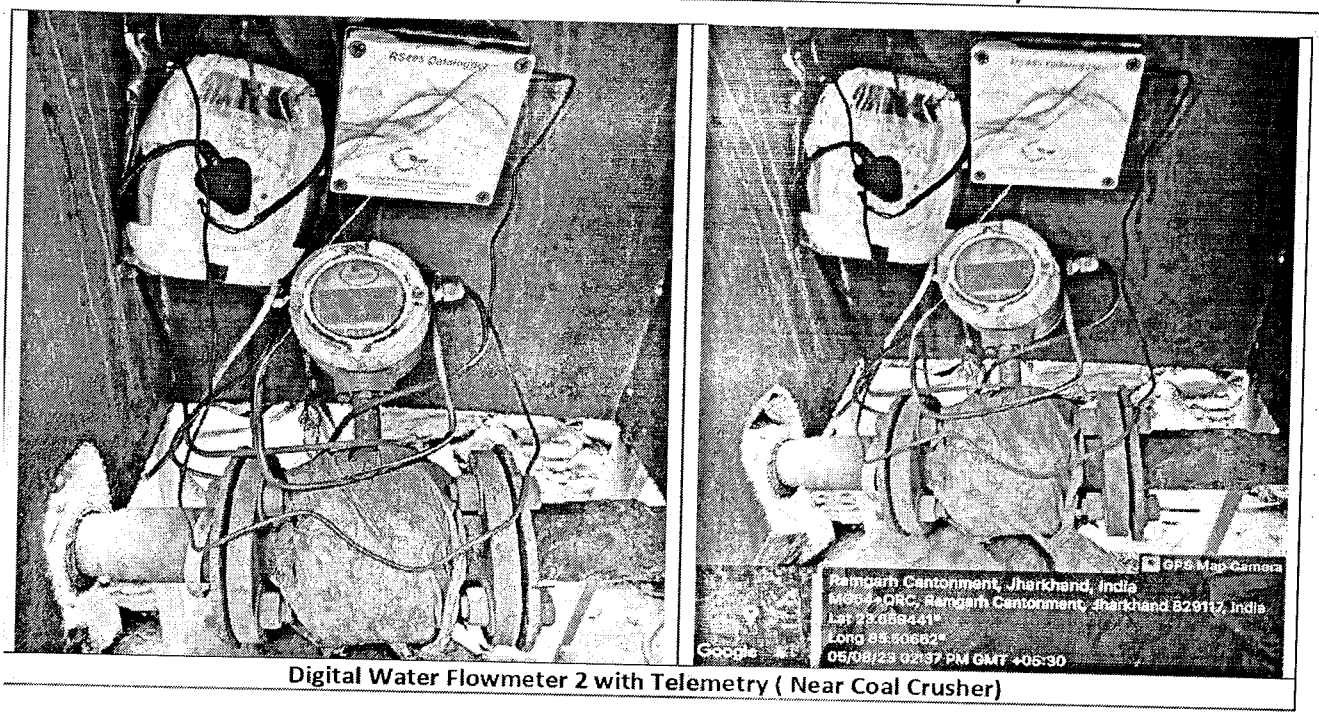
Report Prepared by

Approved by

Calibration Certificate- Piezometer

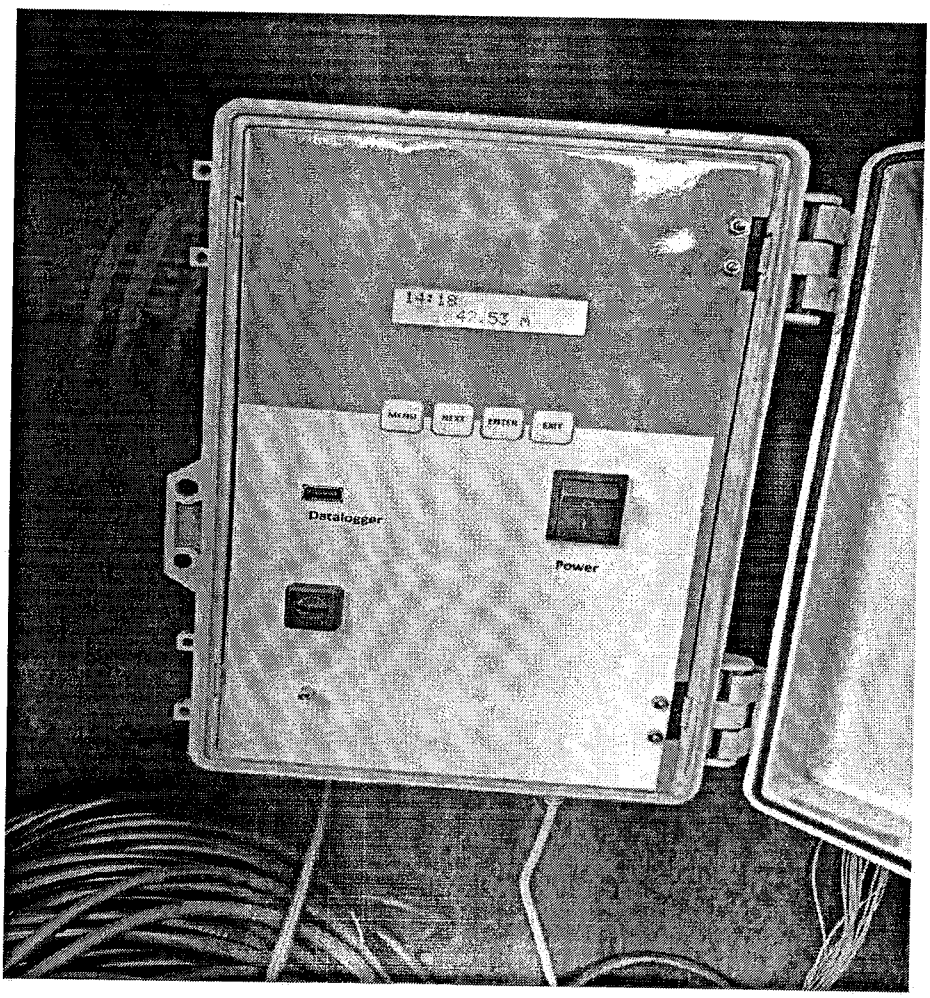
E. Flowmeter & Piezometer

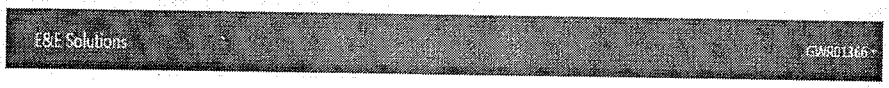
Digital Water Flowmeter 1 with Telemetry (Near Time Office)

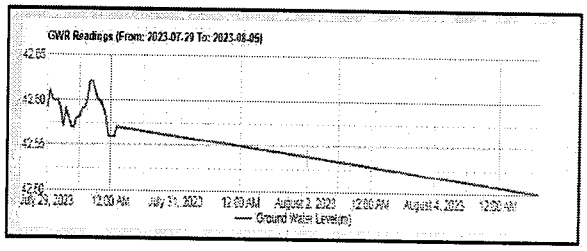


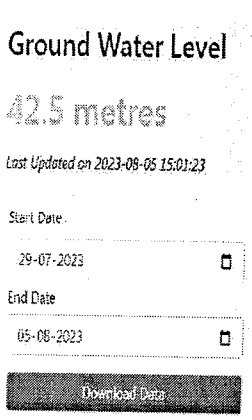
Digital Water Flowmeter 2 with Telemetry (Near Coal Crusher)

Piezometer


Datalogger
Power


E&E Solutions


GWR Readings (From: 2023-07-29 To: 2023-08-05)
42.65
42.60
42.55
42.50
July 29, 2023 12:00 AM
July 31, 2023 12:00 AM
August 2, 2023 12:00 AM
August 4, 2023 12:00 AM
Ground Water Level(m)


Ground Water Level
42.5 metres
Last Updated on 2023-08-05 15:01:23
Start Date
29-07-2023
End Date
05-08-2023
Download Data

Annexure-R-5

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भारत सरकार
जल शक्ति मंत्रालय
जल संसाधन, नदी विकास
और गंगा संरक्षण विभाग
केन्द्रीय भूमि जल प्राधिकरण
Government of India
Ministry of Jal Shakti
Department of Water Resources,
River Development & Ganga Rejuvenation
Central Ground Water Authority

(भूजल निकासी हेतु अनापत्ति प्रमाण पत्र)
NO OBJECTION CERTIFICATE (NOC) FOR GROUND WATER ABSTRACTION

Project Name:	M/s Bihar Foundry And Castings Limited Ferro Alloys Unit		
Project Address:	Plot1405 (p), Marar Industrial Area, Ps Ramgarh		
Town:	Mandu (ct)	Block:	Mandu
District:	Ramgarh	State:	Jharkhand
Pin Code:			
Communication Address:	Managing Director, M/s Bihar Foundry And Castings Ltd, Main Road, Ranchi-834001, Namkum, Ranchi, Jharkhand - 834001		
Address of CGWB Regional Office :	Central Ground Water Board Mid Eastern Region, 6th & 7th Floor, Lok Nayak Jai Prakash Bhawan, Frazer Road Dak Banglow, Patna, Bihar - 800011		

1.	**NOC No.:**	CGWA/NOC/IND/REN/1/2023/8413	2.	**Date of Issuence**	18/10/2023
3.	Application No.:	21-4/590/JH/IND/2019	4.	Category: (GWRE 2022)	Safe
5.	Project Status:	Existing Ground Water	6.	NOC Type:	Renewal
7.	**Valid from:**	02/01/2024	8.	**Valid up to:**	01/01/2027

9. Ground Water Abstraction Permitted:

Fresh Water		Saline Water		Dewatering		Total	
m³/day	m³/year	m³/day	m³/year	m³/day	m³/year	m³/day	m³/year
35.00	12775.00						

10. Details of ground water abstraction /Dewatering structures

	Total Existing No.:2						Total Proposed No.:1					
	DW	DCB	BW	TW	MP	MPu	DW	DCB	BW	TW	MP	MPu
Abstraction Structure*	0	0	2	0	0	0	0	0	1	0	0	0

*DW- Dug Well; DCB-Dug-cum-Bore Well; BW-Bore Well; TW-Tube Well; MP-Mine Pit;MPu-Mine Pumps

11.	Ground Water Abstraction/Restoration Charges paid (Rs.):	38325.00
12.	Environment Compensation (if applicable) paid (Rs.):	0.00

13.	Number of Piezometers(Observation wells) to be constructed/ monitored & Monitoring mechanism.	No. of Piezometers	Monitoring Mechanism		
			Manual	DWLR**	DWLR With Telemetry
	**DWLR - Digital Water Level Recorder	1	1	0	0

(Compliance Conditions given overleaf)

This is an auto generated document & need not to be signed.

Validity of this NOC shall be subject to compliance of the following conditions:

Mandatory conditions:

1) Installation of tamper proof digital water flow meter with telemetry on all the abstraction structure(s) shall be mandatory for all users seeking No Objection Certificate and intimation regarding their installation shall be communicated to the CGWA within 30 days of grant of No Objection Certificate.

2) Proponents shall mandatorily get water flow meter calibrated from an authorized agency once in a year.

3) Construction of purpose-built observation wells (piezometers) for ground water level monitoring shall be mandatory as per Section 14 of Guidelines. Water level data shall be made available to CGWA through web portal. Detailed guidelines for construction of piezometers are given in Annexure-II of the guidelines.

4) Proponents shall monitor quality of ground water from the abstraction structure(s) once in a year. Water samples from bore wells/ tube wells / dug wells shall be collected during April/May every year and analysed in NABL accredited laboratories for basic parameters (cations and anions), heavy metals, pesticides/ organic compounds etc. Water quality data shall be made available to CGWA through the web portal.

5) In case of mining projects, additional key wells shall be established in consultation with the Regional Director, CGWB for ground water level monitoring four (4) times a year (January, May, August and November) in core as well as buffer zones of the mine.

6) In case of mining project the firm shall submit water quality report of mine discharge/ seepage from Govt. approved/ NABL accredited lab.

7) The firm shall report compliance of the NOC conditions online in the website (www.cgwa-noc.gov.in) within one year from the date of issue of this NOC.

8) Industries abstracting ground water in excess of 100 m 3 /d shall undertake annual water audit through certified auditors and submit audit reports within three months of completion of the same to CGWA. All such industries shall be required to reduce their ground water use by at least 20% over the next three years through appropriate means.

9) Application for renewal can be submitted online from 90 days before the expiry of NOC. Ground water withdrawal, if any, after expiry of NOC shall be illegal & liable for legal action as per provisions of Environment (Protection) Act, 1986.

10) This NOC is subject to prevailing Central/State Government rules/laws/norms or Court orders related to construction of tube well/ground water abstraction structure / recharge or conservation structure/discharge of effluents or any such matter as applicable.

General conditions:

11) No additional ground water abstraction and/or de-watering structures shall be constructed for this purpose without prior approval of the Central Ground Water Authority (CGWA).

12) The proponent shall seek prior permission from CGWA for any increase in quantum of groundwater abstraction (more than that permitted in NOC for specific period).

13) Proponents shall install roof top rain water harvesting in the premise as per the existing building bye laws in the premise.

14) The project proponent shall take all necessary measures to prevent contamination of ground water in the premises failing which the firm shall be responsible for any consequences arising thereupon.

15) In case of industries that are likely to contaminate the ground water, no recharge measures shall be taken up by the firm inside the plant premises. The runoff generated from the rooftop shall be stored and put to beneficial use by the firm.

16) Wherever feasible, requirement of water for greenbelt (horticulture) shall be met from recycled / treated waste water.

17) Wherever the NOC is for abstraction of saline water and the existing wells (s) is /are yielding fresh water, the same shall be sealed and new tubewell(s) tapping saline water zone shall be constructed within 3 months of the issuance of NOC. The firm shall also ensure safe disposal of saline residue, if any.

18) Unexpected variations in inflow of ground water into the mine pit, if any, shall be reported to the concerned Regional Director, Central Ground Water Board.

19) In case of violation of any NOC conditions, the applicant shall be liable to pay the penalties as per Section 16 of Guidelines.

20) This NOC does not absolve the proponents of their obligation / requirement to obtain other statutory and administrative clearances from appropriate authorities.

21) The issue of this NOC does not imply that other statutory / administrative clearances shall be granted to the project by the concerned authorities. Such authorities would consider the project on merits and take decisions independently of the NOC.

22) In case of change of ownership, new owner of the industry will have to apply for incorporation of necessary changes in the No Objection Certificate with documentary proof within 60 days of taking over possession of the premises.

23) This NOC is being issued without any prejudice to the directions of the Hon'ble NGT/court orders in cases related to ground water or any other related matters.

24) Proponents, who have installed/constructed artificial recharge structures in compliance of the NOC granted to them previously and have availed rebate of upto 50% (fifty percent) in the ground water abstraction charges/ground water restoration charges, shall continue to regularly maintain artificial recharge structures.

25) Industries which are likely to cause ground water pollution e.g. Tanning, Slaughter Houses, Dye, Chemical/ Petrochemical, Coal washeries, pharmaceutical, other hazardous units etc. (as per CPCB list) need to undertake necessary well head protection measures to ensure prevention of ground water pollution as per Annexure III of the guidelines.

26) In case of new infrastructure projects having ground water abstraction of more than 20 m3/day, the firm/entity shall ensure implementation of dual water supply system in the projects.

27) In case of infrastructure projects, paved/parking area must be covered with interlocking/perforated tiles or other suitable measures to ensure groundwater infiltration/harvesting.

28) In case of coal and other base metal mining projects, the project proponent shall use the advance dewatering technology (by construction of series of dewatering abstraction structures) to avoid contamination of surface water.

29) The NOC issued is conditional subject to the conditions mentioned in the Public notice dated 27.01.2021 failing which penalty/EC/cancellation of NOC shall be imposed as the case may be.
30) This NOC is issued subject to the clearance of Expert Appraisal Committee (EAC) (if applicable).
31) In the self-compliance report, the PP shall submit details of Drilling Agency/ Agencies, which has/ have constructed BW(s)/ TW(s) along with undertaking to the effect that all necessary measures have been taken as per directions of Hon'ble Supreme Court provided in Annexure-VII of guidelines dated 24.09.2020 in respect of abandoned/ failed BW(s)/ TW(s)/Piezometer(s), if any. The PP is advised to engage registered drilling agency/ agencies. In the event of any mishap/ unfortunate incident due to negligence in taking measures for prevention of accident due to falling in Bore Well, both PP and concerned drilling agency shall jointly be held responsible and penal action as per extant Government rules shall be taken.

(Non-compliance of the conditions mentioned above is likely to result in the cancellation of NOC and legal action against the proponent.)

CENTRAL GROUND WATER AUTHORITY
Department of Water Resources, River Development and Ganga Rejuvenation
Ministry of Jal Shakti, Govt. of India

18/11, जामनगर हाउस, मानसिंह रोड, नई दिल्ली - 110011 / 18/11, Jamnagar House, Mansingh Road, New Delhi-110011
Phone: (011) 23383561 Fax: 23382051, 23386743
Website: cgwa-noc.gov.in

पानी बचाये – जीवन बचाये
SAVE WATER - SAVE LIFE