वेस्टन कोलपील्ड्स लिमिटेड



Western Coallie ds Limited

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ph Substituty of Goal India Limited) little existence and each in

Office of the Area General Manager, Majri Area
Po: Ruchne: Th: Enomowork: Bist: Chandrapur -- 442503

संदर्भ संख्या/ १८०१ No. वेक्शिक्षणाक्षीक्षणात्रीपर्यावसम्/२००२०७३

Califor Colo : 25.11.2023

WA.

Add. Principal Chief Conservator of Forests, पर्वाच्या वर वर्ष अञ्चलक परिवर्तन संस्कृत,

क्षेत्रीय कार्याच्या (WC2),

वारंड पत्नेत, हेस्ट दिंग, स्य संवेदरियट बिल्डिंग,

विवित्र आह्ना, समाय-140001, (महाराष्ट्र)

RVA: Six Monthly Report against compliance of conditions of Environmental Clearance for Expansion of New Majit UG to OC Mine of Majit Area, WCL (As on 301 September 2020)

#3#: Environment Georgica of New Majt UG to OC Mine vice letter no. J 11016/25/2008; IA I [M] DL 61.01.5021

HOUSE.

Please find enclosed herewith 5x Monthly Report against compliance of conditions of Environmental Clearance for New Majri UG to OC Mine of Majri Area, WCL (As on 30° september 2003).

Trik is for your kind information and necessary action please.

SERVICE.

Marita

36 27 11/10 m

शंबीय केन्द्रस्य अधिकारी (मर्यावरणाः, साजरी शेव

अंतरसार = साधावरी

प्राचीकाचि ।

- प्रदेशिक आधिकारी, सहसाब्द सद्वार निर्वालन बीके, उपयोग सकत, प्रथम ताल, देवने स्टेकन रोज, पद्भूम 442-401
- क्षेत्रीय महत्त्वराक, ताली रोप
- महावर्षका (नर्वावरमा), वः कोः किः मृक्यालयः, नामपुर
- उपनियोग प्रशंपक, नयु कानरी उपनेत्र



WESTERN COALFIELDS LIMITED

MAJIN AREA

EXPANSION OF NEW MAJRI UG TO OC MINE

3.00 MTY CAPACITY

AS ON 30TH SEPTEMBER 2023

WESTERN COALFIELDS LIMITED

ENVIRONMENTAL CLEARANCE COMPLIANCE REPORT

PART-1

Name of the project	Exponsion of New Majd UNDERGROUND to OPEN CASE COAL MINE
Location and Address	Office of the Sub Area Manager, New Majt Sub Area, Majri Area, PO: Shinj Nager, Tehsil: Khadrawati, Dist. Chandrayur, Maharashira
Address for correspondence	Office of the Sub Area Manager, New Majf Sub Area, Majf Area, FO, Shivi Nager, Tehsit: Bhadrowali, Dist. Chandrapur, Mehereshira
MOEP's alearance letter no. 8, date	J-1/1815/25/908-1A (W) 15-01/01/2021
Period of this report	As on 30H SEPTEMBER 3023
Date of last report submitted	29.05.2023
Date of commencement of project work	30.10.2015

STATUS OF LAND ACQUISMON:

Type of land	Required as per EMP (Ha)	Actual acquired (Ha) as an 30,09,2023
Forest	.NI	NI.
Agriculture	680.51	631.01
Other	25.77	24.50 (Govt, kind) 24.50 (inherited from New Majri UG)
Total	706.29	680.01
Land given to NHAL (for highway)	1000	(-) 1.13 (Agriculture Land)
Net Total		678.88

STATUS OF LEGAL COMPLIANCES:

٨	Consent under Water (Prevention & Control of Poliution) Act	Consent to Operate pronted by MRCB vide letter. Fermat1.0/CAC/UAN No. MRCB-CONSSNT-000014044 CR / 2305000344 Ut. 1205.2020 valid up to 31.00-2224,			
9	Consent under Water (Prevention & Carried of Poliurion) Cest Act				
G	Environment (Protection) Act	Env. Cloarance obtained for 3.0 MTY vide retter no. J- 11015/25/2006-IA.JI[M] Cl.01.01.2021			
0	Forest (Conservation) Act	Tabaldor, Shadrawa'i has informed vide letter no. EV /A K /Prostu 1/2016/11/2 dated 15.11.2016. The sold forest land of 3.68 Ha bearing survey no. 14.19 & 2016 not forest land as per clarification given by RFC Shadrawat and as such same b under reserve depostment Let II is Government Land (Grazing Land).			

PART - II STATUS OF ENVIRONMENT

AIR POLIUTION CONTROL:-

- No. of ambient air monitoring stations. Four
- b. Name of the location:—
 - 1. NMOC Substation
 - 2. Kuchna Colony
 - 3. Polara Wagazine
 - A. Manager Office, New MgR UG to OC.
- C. Ambient of quality status for the parameters (Average 95% time weighted valued):

SUNO	Location	SPWA	REW	502	NOx
- II	NMOC Substation			ring report	
21	Kuchno Colony	for the period from April to Septem		September	
3(Patala Magazine	2023.			
41	Manager Office, New Main LC to CC				

WATER POLLUTION CONTROL:

- a. No. of stations and heavency of monitoring: Mining activities stated from 30.10.2015 & there is no mine water discharge as of now, hence the water pollution monitoring reports will be provided once mine water discharge encountered for the mine.
- b. Description of locations -
- Average concentration of major pollutants prescribed by State Pollution Control Board (fig. in mg/ if except pH) ±

SUNG.	Location	рH	BOD	COD	DO	155	COVG.
14	Mine water duchange.			Monitorio d from Ap			

NOISE POLLUTION CONTROL:

- No. of noise monitoring stations > fivo.
- Description of location and d5 At values-

St. No	Location	Day Night
	For House, New Majri-III UG	The CMPDIL Monitoring report is
2	Colony	enclased for the period from April to September 2020.

PART-III

STATUS OF IMPLEMENTATION OF PROVISIONS OF EMP

LAND USE STATUS:-

Area reclaimed biologically: NS

St No	Particulas	As per EMP	91:94:2023 to 30:09:2023	Progressive
1	Area excavated (Ha)	358.35	24:05	136.82
2	OB removed (Nam?)	373.18	4,345 Incl: Top Sol	43,973 inct, lop Sol
3	Top soil removed (Mm*) *	inclini st no. 2	1,733	(0.623
44	OB backfilled [Mm²] in NMUS to OC Quarty	M	NI	NI
46	OB backfilled (Mn/2) in NM OC Quary	306.73	2.610	10.102
5.	OB dumped (Mm/) Note: 4 (-) 6.48 RH Top Soll during 12* Year	431.43/4	Na	21,643 incl. Top Soil
Å.	Area recovered for reclamation (physical reclamation)	N	M	140

* Status of Top Soil:

2015-16: Top Soil Dump (0:60 Mm/), Emborisment (0:40 Mm/)

281 6-17: Top 3o | Dump (0.020 Mm3), Emborkment (0.50 Mm3)

2017-18: Top Sail Dump (0.60 Mm3), Empantment (0.15 Mm3).

2018-19: Top Sci Dump (2.0% Mm3): Embarkment (0.00% Mm3)

2019-20: Too Sail Dump (1.855897 Nm3)

2020-21: Top 501 Dump (2.25424 Mm3)

2021-22: Top 508 Dump (2.61 Mm3)

2022-23: Top 50f Dump (NEL)

OB removed is bookfilled in NMOC Quarty (7,669 Nm2) as an 31,03,2023.

2023-24: Top Soil Dump (1,733 Mm3) Le. Stacking in NMOC as on 30,09,2025

OB removed is backfilled in NMOC Quarry (2.6) 3 km3) as an 30.09,2023.

PRODUCTION:-

(6) Targeted Capacity: 3.00 MTY (sanctioned capacity)

10 Present Copacity: - 0.587 MT/ (Actual Coal production 23-24 ps on 30.09.23)

AFFORESTATION . .

SLNo	Lecation	01,04,2023 to 30,09,2023	Progressive
Ta .	OR Dumps & embonisments	40,000	95,000
2	Sacirii ed greas	Nil	BU
3.	Other areas (Plain)	NI	85,000
	fold	Ni	1,90,000

Area under plantation (Progressive): - 72.00 Ha

Species planted: Jamun, Amia, Neem, Karanj, Baneda, Sinus, Petalarm, Saled Sinus, Sisson, Gulmohar, Casia REHABILITATION & RESETTLEMENT :-

31,460	Pariostan	Total
1.	No. of land austees	576 (Agricultural Land of 576 farmers
2	No. of land oustees rehabilitated	-
3	No. of PAPS/PAFS to be reteffed	-
A.	No. of PAPS/PARS recetted	
\$.	Area of new site (Ho)	
6	Status of development	
*	Divid amenifies provided at new resettlements to	

Organizational satup at project level-

Name and designation of the personnel to be given:

- štri š.Arumugam šuo Area Manager
- Shri Md. Madhar Whe Manager
- Shri M. Pendiyaraj
 SAE (Civi j/ Nadial officer (Em))

EXPENDITURE !-

CAPITAL

Account head	01.04.2023 to 30.09.2023	Fragrassiva
Rectamation (HEMAI)	NE.	NI
Air poliution control	N.	75: 35.88 haldhe
Water pollution control	N.	% 45.51 lables
Others (Plegometer, Woter meder)	Ry 0.32 Lokha	6s 20.63 Liables

REVENUE

Account head	01:04:2023 to 30:09:2023	Progressive
Afforestation	Rs 95,68 Lokhs	9x 272.40 Takhs
Monhoring	Mr. 15.70 Lottis	Rx 124.04 Lokhs
MPCB IVS	Ni	Rs 1.63 Loids
Starutary expenses	Rs. 0.88 Lakes	Rs 219.58 Lokhs
Oyhen		
Waterpoliution control	NE	Rs 79,77 Lakes
Air pollution control	NI.	Rt. 11.12 Lokes
Rain water howesting pand	NA.	Rs Z AG Laken
Gariand drain	W	Rs 4.37 Loides
Misc. works	NE	Ra & AS Loides
CAAGMS AMC	ML	Rs. 4.99 tokes
Ground Water Abstraction Charges	SIL.	Rs. 86.10 Lookin

6C COMPUANCE REPORT 3-1 1015/25/2008-IAJ(92)

Clearance letter hip:

Octe

14 January 2021

SPINO.	Condition	Compliance as on data
451	The project proportion shall obtain content to Establish/operate from the shalle pollution control beards for the proposed capacity of MIPA prior to commencement.	Consent to Operate has been obtained vide letter no. Formart II/CAC/UAN No. MPCB-CONSBN-0000140448 / CR / 2005000646 0t, 12,05,2023 valid upto 31,03,2024 (Copy of CTO enclosed as Annexure II)
βŪ	Third party monitoring (by NEERI/CIMFR/IT/NITs) for air quality shall be carried out at identified locations Both ambient and the process area, to arrive at impact of the proposed expansion of regular interval of 3 years.	Work of 3th party monitoring for an quality's awarded to VMT Naggur vide. Work Award Setter no. WCL/MA/AGA/ENV/2023/167 dated 24.07,2023 for the period Oct 2023 to Sept 2024 i.e. within 3 years of grant of SC (Copy of Manitoring report enclosed).
\$40	Top sail should be stored separately at marked area and necessary regeration shall be maintained to avoid any entrainment of dust.	Top sall is being stared at designated Top Sall dump with an area of 23,30 Ha 8, 10,70 ha & height at 45 mts & 38 mts resp. Grass seeding and Plantation is done to avoid fugilize dust from dump
[W]	It's shall construct embarioment leaving 100 mts away from HRL of Wardha river and the same shall be taken prior approval from DGMS.	At present the mine working is being done more than 100 mms away from HR, at Wardha liver. Embankment will be constructed along Wardha filter with adequate height and width to prevent mine from rise in water level during manager in Wardha River, las shown in PR/ BIA-BMP - refer enclosed "Suriaces and Guarry toyout Plan - plate VII of BIA-BMP enclosed as annexure 2] However, at present, Embankment is constructed along the diverted Karadi Nata Langth; 6.40 kms, Height; 10 mms. Wighth at tap: 30 mms and width at bottom; 60 mms.
1+)	Transportation of coal from coal handling plant shall be through mechanized covered tracks for 3 years. No transportation by hadid after 3 years and proposed railways siding/pipe conveyor system.	Mechanically closed trucks are not provided by any truck maker for acel in india. However, tarpaulin povering is being ensured for all the acol transportation trucks. There is one common railway siding in WCL Main Area.

		Cool transportation subtidu mine is being done by Raffways only.
NO	At the villages coming under the more of influence as in hydrology study shall be grovided with suitable water supply along with sanitation tacility.	Dise to availability of waterbooks such as Wardha River in South West, Shind Note in North East and Katad Mala in North West direction, there is no spacety of water in the vicinity water supply arrangements will be made for all the villages coming under zone of influence, if there is any water speadly reported in any of the village.
[M]	Commitment made during public consultation process shall be adhere to. As proposed, Rs 299, 46 Lakts is earmarked shall be considered as part of Environment Management Plan, which shall be accomplished within police at 5 years.	The work of Rs 7.48 Lakhs for providing tubewell at Palasgann village is done under CBR Head as per the commitment made during public heating. Work order and photographs of bare enclosed, Apart from this various activity to be covered under CER are also enclosed as American School such as Madical Comps, Health survey/ check-up. Sith Development having for people in nearby villages, development of roads, Rain Water Hursesting worth, Avenue Romation, providing worths, Avenue Romation in nearby villages are being done. However, as the project is running/ already aperational, works total up in nearby village are accounted in CSR Head.
(vii)	Water quality and bloassey test of Wardha kiver shall be manifored quartery and submitted to State Pollution Control Board. No water shall be decharged in fiver. Any deviation from limits as stipulated in norms by CPCOL for quality shall be informed and necessary action shall be taken.	test of Wardha River is being monitored quarterly. Icopy of Surface reports of the OF June 2023 & GE Sept 2023 and Bio Assay test report for the month Sept
fix)	Greaterly maniforing of quality of water from bare hale used for drinking purpose shall be conducted and report thereof shall be submitted to SPCB. Any deviation from limits asstipulated in narms by CPCB for audity shall be informed and necessary action shall be taken.	Directing water monitoring is being done on quarterly both through CMPOR. (pagy of reports of the sampling of QE Anne 2023 & GE Sept 2023 enclosed as atmosphic 6). The part of same is being submitted to MPCE. MOEF Regional offices damp with six monthly EC Compliance report.
00)	Progressive recomplian of dump shot be done	Backfilling of adjacent mine quary is being done as our the mining pion. As an 30.09.2023 10.182 Mint Hard Oil is

		pockfilled it Wine guarr	n adjacent Nev ri	w Majn NA CAC
		having 4 with 55,000 having are	the sorteribly 1 real of 23,50 k I has, and Too a of 10,70 kg k coping of miss	la is planted Soli cump 2 planted with
		Hamaki" ii	seeding of s also being spired Oil Duma	
		Photograp onnexico 2	ha of plantation	n employed as
50	To control the production of dust at source, the graties and in pit bell conveyors shall be provided with mist type sprinkers. Permanent water ippinides shall be installed instead to		where one be ozdes for dust :	
	water sprinking by water lankers on the hauf road.	Also, fixed applicable	sprinklers are yards	provided of
		are Instal	on (3 nos.) of 1 led on Mot point of SHP	00 mts throw site arushers.
		copacity of	bile Water Inc and I no. 15 K. oyed on houl	capacity are
			ns of Ar po cosed as arms	
14%	Mitigating measures shall be underloken to control dust and other fugitive emissions at	30 nos. fixo transporta	ed sprinklers pro fan road	reided at apa
	along the roads by providing sufficient fixed type water sprinklers. Adequate detective measures shall be undertaken to control dust prizzions, which would include mechanized sweeping, water sprinking/mist sproying unlead roads and loading sites, long range misting/loading amangement, wind banks wat and vertical greenery system, green bett, dust suppression amangement at loading and uniqualing points, etc.	12 mgs. feet stocky ara.	ad gorinders pro	occorto bebie
			g comes of 1 agratation	60 mins throw
		Mist saray	arangement	in all mobile
		than 80 % one greet	os, frees plant survival rate a in belt belvis s Palasgaan vil	s wind barrie on mine and
		EY	Nos.	Area (Ha)
		2016-17	20,000 Nos	5 Ha
		2018-17	15,000 Nos	6 Ha
		2019-20	15,000 Nos	6 Ha
		2021-22	50,000 Nos.	20 Ho
		2022-23	40,000 Nos.	16Hg
		2023-24	40,000 Nets.	16 Hg

(x.ii)	Continuous menitoring at accupational safety and other freath hazards, and the corrective actions need to be ensured.	Regular half of departmental as wall as contractual worker is being done for Cooupational and other health hazards.
		PME outing Year 2022 of 91 Depth. Worker and IME during Year 2022 of all new Contractual workers. PME/ 945 details and resource of medical comprisencioses as emposited 9 & 10
(siv)	The total industrial water demand (peak) in operation phase shall be met by utilizing treated mine discharge water, if require, necessary arrangement shall be made to reuse treated water from SIP&EIP to nearby IPF or coal washery for future coal washery by entering suitable agreement. No washewater threated or unfreated that be	Water demand for fire-fighting, dust suppression alloismot through the mine discharge i.e. water pumped out from underground galleries only as there is no time water sump in the mine due to seepage of water in underground galleries.
	discharged into the river or any other water body.	 F efficient is being recycled for westing of HEMM.
		STF will be provided whenever the construction of actory for this mine sharted
	4	Photographs of water pollution control system endosed as annexate 11
[wd]	Blasting effect on patata village should minimised by using latest technology and quarterly health survey shall be conducted by project proponent.	Controlled diasting is being done to minimise the effect of bresting on Patala village, Record of blast vibration mentioring enclosed as annexure 12
		Health survey in the form of Medical Comp is also being done for nearby Vilages. Record of Year wise medical Completed as annesure 10.
		Markover, no such complaint is received from any of nearby village.
jest)	PP shall take permission of state public works Gepartment before the proposed diversion of Boad. Road shall be considered as per PWD requirement and plantation of trees and street light shall be provided by project propohent.	At present there is no PMD road atverted for mine working. PMD Permission will be sought before the atversion of Patala - Majir Road. Plantation on both sides of the road will be done as per the repairmented species under Avenue Plantation.
posti	STP for proposed colony shall be constructed within one year of implementation of colony	All present there is no colony in the project. STP will be provided whenever the odiony will be constructed.
[acii]	Toe wall of all-least 15 mts height should be constructed along the O3 dump.	Al present the minimum of 50 miles distance is kept between Of Dump and adjacent Natal Assu garland arein

		and the wall of thropped 1.5 mits of CRI material & constructed next that confluence point of nota
		Too wall of 15 min height is difficult to be constructed as an one lide of dumps there are sectional Nata, However, TOE Wall Gabian Wall of adequate height will be constructed outpose OB dump along Nata, wherever recessory.
no)	S Fog canon shall be invialed to reduce the impact of air poliution for nearby villages.	Feg. carriers (3 nes.) of 100 min throw with 320 deg rotation are installed at all generating sources. Fag. Cannon (1 nes.) installed attraitway siding and (2 nes.) are in procurement stage at WCL HQ under controlled procurement.
		Further to grevent nearby villages from impost of an pollution, thick green belt over an area of 34 Ha with \$5,000 not, tree soplings planted fill date and having width of 50 to 100 mins charge boundary.
22	years storage pands shall be constructed of appropriate depth in healthy villages in collaboration with Gram Panchayats.	As an date, requirement of water storage pand was not raised by any village.
		Ope to availability of waterbadies such as wordha River in South West, Shima Nato in North West direction, there is no scarcity at water in the vicinity.
		Waterstorage pand will be commuted if any nearby village demand for the same.
(ioi)	Peripheral tree plantation of local species in nearby village in collaboration with Gram. Panchayets. 3-tief plantation with alteral 50000 trees along the potata village and nearby villages wherein no R &R is proposed.	85,000 nps. trees of notive species over an area of 34 Hz as green belt/ wind barrier between mine and nearby villages (Pataiguan nagione) sidone till Cataber 2021.
	shall be done witten 3 years.	95,000 nos. frees planted over an area on 36 Ha on Top Self dump in 2021-22, 2022-23 and 2023-24
(xxxI)	3-fer Green belt along the boundary should be developed on priority bosis preferably within first 3 years.	65,000 nos. Hoos of native species over an area of 34 Ha as green bell/ what barrier between mine and nearby vilages (Pokegaron, Naplane) are planted as an date on plain land. Once the trees will grow up at during the course of plantation. It will help in developing the environment where the

			eto, creeper I grow and a	
		95,000 may over an area of 2 granted on Top Soil dump in FY 3 2022-23 and 2023-24		
		2016-17	Nos. 20.000 Nos.	Alec (Ho) 8Ho
		2018-19	18,000 Nos.	6Ho
		2019-20	15,000 Nos.	
		2021-22	50,000 Nos.	
		2022-23	49,000 Not	to be
		2023-24	40,000 Nos.	16 Ha
	maka Tham-amplayabla.	Security Gunealby vilation work order wCL/HRD/ 27 00, 2022 via CIPEL training	issued by MC Skill Dev/202 for skill develop FDCL Ashok L relifiate, ATO on training per	eners lying in UHC/ vice no 2.23/14 cho prend nothing cyland chive C. Cil skil
Jesv)	Crinking water supply shall be given to all villages coming under zone of influence by extraction of ground water.	as Wardha Naid in Na North West	ricibility of wor River in South off East and K direction, then the vicinity.	i West, Shimo laradi Nala In
		in neuroby	ofer facility will village, where diriting, water alect.	or the water
(loov)	barrer/open and should be covered by		eding is en, Top Sail	cone ove dump & Of
[seci]	Project proconent to plant 150,000 nes of native trees with broad leaves along the transportation tone in three years to prevent the effect of air pollution. After completion of tree plantation, Number of trees shall be duly endorsed from District Forest Officer.	router operations of time show that the colliners of time show and from the colliners of time show and t	ma blong the pattle to coal this about 95/0 at green vertically fugative exclude 15/0 at Chowt to allow the one of the on	t stockyond it do not have salibarier and mission blong rensportation 200 not pranti antation from relivery Siding owe to NAGO

		on creo of borrier be vitages (fi planted or 95,000 ms	on done or over on one Top Sail dump	an beh) wind and hearby agione) are a plain land, a of 22 Ha is
			Nos. 20,000 Nos. 15,000 Nos. 15,000 Nos. 50,000 Nos. 40,000 Nos. 40,000 Nos. 15,000 Nos. 40,000 Nos. 40,000 Nos.	is being
(toi)	Project Proponent shall abtain busing permission from DGMS for conducting mining aperation near villages and also explore development of rack breaker of suitable capacity in the project to avoid blasting very near to villages. There shall be no damages bassed to habitation/structures due to blasting activity.	DGMS vide Region No	lettering, II II 2. IVPerm/2022 Copy of same	1/7041 dated
jovíž	The project proponent shall complies with all the statutary requirements and judgment at Hon'ble Supreme Court dated the 2 rd August 2017 in with partition (Chri) No.114 at 2014 in the matter of Common Cause versus Union at India and Ors. State Government shall ensure that the entire compensation levied. If any, for Regal mining paid by the project proponent through their respective Department in strict compliance of judgment of Hon'ble Supreme Court dated the 2 rd August 2017 in with perition (Chris No. 114 at 2014 in the matter of common Course versus Union of India and Ors.	area. CC manifoling such as Co etc. mining Purther, as mining the mining with Winted as	ty land other is being endured who knowledge is a second to the project of the being dentured to the being dentured to the being dentured to the being dentured to the project of the being dentured to the being dentured t	r surveitance red of place Weigh Bridge on open car olity of Rega orea.
point	Project Proponent shall obtain the necessary prior permission from the Central Ground Water Authority (CGWA) in case of intersecting the Ground water table.	CGWAINS 09.01.2020 Renewol o EAC Meet	C Obtained COMINGER Valid Upto of same approaching Copy of its accommodate 15	2020/7125 dtl 0 08.01.2022 wed vide 63 st CGWA NOV
(1001)	Proponent shall appoint an Occupational Health Specialist for Regular and Periodical modical examination of the workers engaged in the Project and maintain records accordingly: also, Occupational Health	examination	and Periodi on (IME and Departmental	

phedicups for workers hawns some at ments. the Mr. diabetes, habitual smooths, etc., shall undertaken at Majil Area Haspital of WCt. wred Hospittal is needed by Chief be undertaken once in six months and Medical Officer. necessary remedian/ preventive magazines taken accordingly. The Recommendations of there is 1 No. PMF incharger and 1 No. National institute for emining. PME coincharge with appropriate occupational environment for mine workers. medical audification. There are five shall be implemented: The prevention existing Doctors in addition, there is 1. measure for burns, majoria and provision of No. PME Clork and 2 Nos contring antistake venom industria all other crategory warkers, Distarts of FME/INE. paramedical salequard; may be ensured enclosed in annexure Y before infliging the niving activities. The adequate locally and madicines for burns, molaria and anti-make venom are available at Main Area Hospital. I Rescue Room and safety depth is well to peramedical en innen sofequalds in case of emergency. Project Proponent shall follow the mittagen. There is no hobitation within the Support Booth measures provided in office memorandum area. Further, with reference to the OW did 29.10.2014, we have been No 2-T1013/57/2014HAJI TMIL practicing best mine practices with its 29october: 2014, filted "impact of mining." gravidina catetr drains, cortand drains activities on Hobitations-Issuer related to the mining Projects wherein Habitations and to enest runott from the stamps Adequate for water havesting viliages are the part of mine lease areas or Hapitotions and villages are surpunded by measures are also being taken in and the mine lease area". around minu area to recharge the argundwater levels. Recular montioning of cround water level is also being done. in dord and buffer some of the mine. Turnington and sound level of the name. are being monitored regularly inside: mine as well as of nearby habitation. Full grown porton of plantation are being used by nearby villagets for Ivercosk criticis, Some plentation is also got as shelter for these (Nestock's during socioting summers. Vibration manhanne is also being done in negrov Parala viliage from time to time to excertain the impact of blasting. Mebile water tanks sinc used for dust suppression on had road and fixed spiriden are provided for dust suppression on coal transportation market. likerang tion analyse and survey of near ay DoodB. The illumination and sound at night at project. sites disturb the villages in respect of both habitation at night is being done human and animal papulation. Consequent requiredy skeeping disorders and shess may affect the health in the villages located dase to mining.

confractval

workers)

hos:

bassen

	clarkness and minimal naise levels of night. PPs must ensure that the biological clock of the settlement is not distributed by orienting the	It is ensured that the biological clack of the vilages is not abturbed by creating the floodlights/ mass, away from the vilages and keeping the naise levels wall within the prescribed limits for day light/hight hours.
[xxxdii]	The project proponent shall take all precautionary measures during mining operation for conservation and protection of endangered towns, spotted in the study area. Action plan for conservation of flora and found shall be implemented in consultation with the State Forest and Wikitle Department, A capy of action plan shall be supported to the Ministry of broken plan. Forest and Climate Change and its Regional Official.	There is no endangered found & floral species observed during the Blod variety study in the shop area
[soni)	Hon'ble Supreme Court in an witt petition (s) Civit No. 114/2014. Common Course is Union on India 8. On vide its judgement dated 8% inmatery, 2000 has directed the union of India to impose a condition in the mining lease and a similar condition in the environmental deurance and the mining plan to the officer that the mining lease holder shall, offer assaing mining operations, undertake regressing the mining area and any other axea which may have been disturb due to their mining activities and restore the load to a condition which is fit for growth of tadder, floral towns etc. Compliance of this condition of the mining activity is over at the bost of the mining lease holders/Project Proportion". The implementation report of the above sold condition shall be sent to the Regional Office of the MoSECC.	
(000W)	PP shall submit mine closure report/activity of Telwasa OC (2.00 MIPA) and Dhorwasa OC (2.00 MIPA) and status to ministry regional office within six manths.	Progression mine closure claim is qualitied by NEER (as third party auditing agency) and CCO fearth quiring 2000-21

Specific condition with respect area being in CPAs.

10	CTE/CDO for the project shall be aptained from the SPCB as required under the Air Prevention and control of pollution). Act,1981 and the water (Provention of control of Pollution I Act,1974, and the SPCB shall follow the mechanism/protocol issued by the Minsty rice letter no.Q-16017/38/2018.	has been alctained vide letter no- earmat 0/CAC/UAN No. MPCB- CONSENT-0000160448 / CR / 2905000846 Dt. 12.05,2023 valid upila 31.03,2024
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	CPA dated 24actoper 2019 white issuing the CTE/CTO for the project, for improvement of entironment of environmental cuality in the orea.	
91	The green belt of at least 5-10 m width shall be developed in more than 40% of the total project area, mainly along the periphery of mine boundary, in downward wind direction, and along road sides etc. Selection of plant species shall be as per the CPCB guidelines in consultation with the State Forest Department.	Green bott in an crea of about 34 has and for the width of about 50-100 mms has been developed on Western boundary of mine between Mine and Nagione & Palasgoon village. As an date 85,000 nos, freet at notive species planted over an area of 34 Ha on plant land and 95,000 nos, over an area of 35 Ha on Top Sall Dump.
10	In addition, the project proponent shall develop greenbelt outside the plant premises such as avenue plantation, plantation in vacant areas, social to estry etc.	Avenue/Road side plantation is being done. About 15,000 now supplings planted as Avenue Plantation from Lima Shovel Chart to resiway Siding and from tima Shovel as in the premises of other infrastructure.
6.4		Plants distribution to hearby villages (such as Majri, vision, haglene, Fatata end) assteps towards collaboration with nearby villages and navealing green cover in hearby village area.
lwi	Maniforing of compliance of EC condition may be submitted with third party audit every year.	Work for same is awarded to NEER, Nagpur vide dward letter no. WCL/HC/ENV/18-1/23-81 dated 26.10.2021. NEER feam inspected and review the BC Complanaes in the month of March 2022. Copy of report employed as annexuse to
IVI	Fund allocation for Corporate Brivitanment Responsibility (CER) which is atteast 2 times as per OM at 14 May 2014 may now be considered as 2 time of fund allocated on commitment made during public consultation process for	The provisions of fix are to be fulfilled for the works under CER, Mojority of points under public consultation as related to employment. Both client and in-direct employment is being generated are to the project.
	Incorporating in DA-EMP for deliberation of EAC and item-wise details along with time bound action plan shall be prepared and submitted to the Ministry's Regional Office.	The work of Rs 7.48 Lakts for providing tubewel at Paksignan village is done as partities commitment made during public hearing. Work order and pholographs of table enclosed. Apart from this various activity to be covered under CER are also enclosed. Few such activities such as interioral Comps. Health survey! shedded, Séli Development training for people in nearby villages, development of rapids. Soin Water Harvesting works. Avenue Stantation, providing taptings for

		priumitation in nearby villages are being done
vg	effective fugitive emission control measures should be imposed in the process, transportation, packing erc.	Compiled. 12 nos. fixed sprinkers are bravided to control fugitive emission from Cool stockyard.
		30 nos. tixed sprinklers provided to control fugifive emission on coal transportation road
		2 mas, 28 K, and 2 mas, 15 KL Mobile water tankers are deployed on Cool hansportation road and hear road
		3 nos, mist cannon of 100 mits throw with 320 deg ratation installed at Railway Siding and 2 nos, are in programment stage at WCL HQ under Centralised Procurement
		Mat spray arrangement in all mobile arushers
5.4		Gross seeding over embankment, green bott between mine O8 dumps and mine boundary
		Tree plantation in Safety zone, acts as green belt between mine and nearby village. Also plantation on too volictump I dats as vertical green barrier between mine and Majri village.
(vi)	Transportation of materials by tally conveyor belt to be implemented with the implementation of stipulation given in str.	through Rull mode as per Cloal Supply
(viii)	A detailed water hungsting plan may be submitted by the project proposent	Rain Water Helvesting Fond of dimension 88 mtr x 18 mtr x 1.20 m costing Rs 7.62 Lakes has been constructed by considering the long form banetits. If helps in augmenting ground water lesources.
		Aport from this, roof top rain water harvesting system is also installed at various office buildings ruch as Alea Hospital Kessus room. GVTC, Cool testing lab ata
		Moreover, the galeties of old abandoned Underground mine (New Majif UG mine no. 1) acts as a ground water recharge shucture aso.

		Photographs of rain waret harventing shuchules enclosed as annibute 17
K	In case, domestic waste water generation is more than 10 KLD, the inclustry may install STP.	The domestic water requirement of the mine is very less. Only 5 KLD overhead tank is provided for conteen and wastroom requirement of the office. Madular SIP for mine premios will be
		provided for confeen and other daments waste if the affluent generation exceeds 18 KLD.
ixt	Maritaing of compliance of EC conditions may be submitted with third party audit every year.	

4.1 The grant of environmental clearance is further subject to compliance of the Standard EC conditions as under:

(A) Statutory Compliance

45]	The project proposers shall obtain forest planarious of forest (Conservation) Act 1986,in case of the diversion of forest land for non-forest purpose involved in the project.	Not Applicable
H	The project proponent shall obtain clearance from the Notional Board Wildlife, if applicable.	Not Applicable
(FI)	The project proportent shall prepare a ste-specific conservation plan? widthe management plan and approved by the chief widtle worden. The recommendation of the approved elespecific conservation plan? widtle management plan shall be implemented in consultation with the state forest department. The implementation report shall be furnished along with the six mantity compliance report (in case of the presence of schedule-1 species in the study area).	Not Applicable as the mine and its surrounding area does not have any schedule-species
Bv1	The project proponent shall obtain consent to establish/operate under the provisions of Air [Provention &Control of Pallution]. Act 1981, and the water	Consent to Operate for capacity 3 MTV has been ablained vide letter no. Format LO/CAC/UAN No. MPC8-CONSENT-0000140848 / CR /

	(Preventions Contral of Patiation) Act 1974 from the concerned State pollution Control Scard/Committee.	2305000846 Dt. 12:05:2023 valid upto 31:03:2024
[9]	The project proponent shall obtain the necessary permission from the Central Ground Water Authority.	CGWA NOC Obtained vide NOC no. CGWA/NOC/WIN/ORIG/2020/7125 and 09:01:2020 valid upto 06:01:2022. Renewed of tame approved vide 63 rd EAC-Moeting.
ME	Solid/hazardous waste generated in the mines needs to addressed to the solid waste management rules, 2016/hazardous & ather waste management rules 2018.	Seint waste i.e. Overburgen is being handed at per dumping plan. Overburden stacked at designeted external 08 dump (Bump ki-3). Further Overburden is being backfilled in adjacent mine. Hazardous waste such as 8umt Oil is
		being sent to authorised recycler for recycling and other hazardous waste such as Oil filter, have place, only contain waste is being given to CHNISDF Surbori for disposal.
630		Getaily of disposal during the period 2021-22 (Annual Razpralaus Waste return 21-22 enclased as annexure (8)
		h i i i i i i i i i i i i i i i i i i i

(B) Air Quality Manitoring And Preservation

11 Continuous ambient of augity. moniforing startage as prescribed in the statue be established in the core. zone as well as in the buffer zone for monitoring of polytoms, namely PM10, PM2,5, 502, and NOx. Location of the stations shall be decided based Bred. meteorological dala. and. tepographical félatures. environmentally, and ecologically sensitive sorgets in consultation with the state politifier control board. Online ombient 200 catolity. monitoring stations may also be installed in addition to the residut marilaina stations as per the requirement and/ or in consultation with the SPCB, Monitoring of heavy metals such as Ha, As, Ni, Cld ,Cr ,etc. to be carried out at least once in six months.

I no. CAAQMS along with MET station is operational in mine care zone and same was installed in consultation with MPCB. Copy of MPCB teller unclosed as announce 19.

Apart from this 4 Hes. AAQ manifering stations are also set up for AAQ manifering on farthightly basis.

Heavy Metal maniforing is being monitored on half yearly basis through CMPDE, [NASL accredited lab). Report at some for the gestad June 2023 enclased as annexing 20.

the Ambient Air Gually manifoling 10 in the care zone shall be carried out to annure the Coal industry Stronglands rapidled vide CSS 742 ft nated 25° September, 2000 and as amended from time to time by the Central Pollution Control Board. Data on ambient oir quality and heavy metals such as Ho. As. Ni. Cd. Criand other monitoring data shall be regularly reported to the win stry? Regional Office and to the CPCB/SPCB.

Monitoring at Ambient Air Quality is being. contact out as per CSR 742 (El dated) 25 09,00000

Data on ambient as quality is being manifored an fortnightly basis and hwave melos such as Ho. As, N. Cd. Cr is being: manifered on fraff yearly basis and same is: being reported to the Ministry, Regional Office and to the MPCB along with the montrly IC Complance report

the ambient oir quality maniforing stations. are established in consultation with officials. of Maherestyre Poliution Central Board. Chandragus.

Maniforing reports for the period from April to Sept 2023 is enclosed as annexite 21.

If can be seen that of the parameters are: within the prescribed standards.

Manifoling of Heavy metals has also been comed curby CAPTAL in the month of June. 2003. Report of the tome engineed inconcerning 20

(PM18) Vacus of pg/m²				
Date	Contractor comp	Holioto Histogram	Manager orbits	
APR 23 (PM)	165	156	100	
ALCOHOLDS: 15 THE	0 125	156	1776	
ANAY 23 (17.6%	144	153	190	
MAY 23 (2 - B)	177	156	210	
3100E 25 111 PM	E 166	156	106	
11/41/25 (25)	136	Hd-	160	
JULY 23 (14 PS	186	166	190	
3012232000	0 150	154	181	
AUG 02 (NOT)	8. 144	126	142	
AUG 23 (2 YH)	NI: 140	131	380	
SEPT 22 10° EM	160	136	150	
SEPT 23 (2) 10		195	100	
310	380	250	353	
11	W2.5] Values è	Lugation!		
Date	1000 1000 B	Potrako etragischia:	Manager office	
ARR 25 (15.5%)		30	74	
APE 35 应从非	(I we	4.5	20	
MADE STREET	0 40	52.1	47	
24A3 2312 V.S.	90 50	56	50.	
JOHE 20 (17 HT	0 45	542	- 89	
SUND 20 (2***)	16 20	480	- 1/4	
JULY STOPP IN	44	500	57	
JULY 28279 PM	0 32	44	63	
AUG 22 (19 ft)	0 40	16	369	
AUG 2512 F 6	6 G	150	50	
SECT 22 (18 FH	989	46	326	
\$621.00 (0.44)	40	50	- 60	

Transportation of cost to the extent permitted by road, shall be corred. out by payered trucks/conveyors.

Coal transportation through road is being done only from mine to common Rollway. Siding (which comes under mine boundary) Effective control measures such as liat actioners which and same is being done

Hit.

	gun etc shot be carried out in critical areas prone to air pollution [with higher values of PM III/PM2.5] such as houl read, loading/unloading and harster points. Fugitive dust emissions from all sources shall be controlled regularly. It shot be ensured that the Ambient Air Guality parameters conform to the norms prescribed by the Control/ State Pollution Control Board.	30 nas. fixed sprinklers installed on Coal transportation road. 10 nos. fixed sprinklers of 30 m/s throw are installed at common Railway Staing. 12 nos. fixed sprinklers are provided to control. fixed sprinklers are provided to stockyard. All the makins asshars are provided with Mal sprayers. Diel suppression arrangement on Coal transportation route through mobile fantors is also being done. 2 nos. 28 KL and 2 nos. 15 KL Mobile water transportation road and houl road.
0v1	The transportation of door shall be comed out as per the ptaystens and route envisaged in the approvad Mining. Plan or environment maniforing plan transportation of the coal through the existing road passing through any village shall be avoided. In case, it is proposed to construct the by-pass road, it should be constructed so that the impact of sound, dust and accidents could be oppropriately millipated.	The transportation of cool is being done from Cool face to shockyard to Crusher to Sallway stoing. from Cool face to Railway stoing, the complete cool transportation raute for within the mine property of WCL Main Area. Plan shawing Cool transportation raute enclosed at annexure 22.
19)	vishicular emissions shall be lead under control and regularly manifored. All the vehicles engaged in mining and allied activities shall operate only other obtaining "PUC" contilicate from the authorized pollution testing contres.	All the light vehicles namely jusp & trucks etc. having valid PUC certificate for vehicular emission fitrough RTO approved agency are used, PUC of vehicles analoused as annexise 23.
M	Coalyless pile/ crusher/feeder and breaker material transfer points shall invariable be provided with aust suppression system. Hell-conveyor shall be fully covered to avoid air barne dust. Sate alackting all along the conveyor gantry should be made to avoid air some dust. Dals shall be wet operated or fitted with dust extractors.	12 nos, fixed sprinters are provided to control fugitive emission from Coal stackyard & 30 nos, fixed sprinters installed on Coal transportation road. At the mobile crusters are provided with Mist sprayers. 2 nos, 28 KL and 2 nos, 13 KL Mobile water tankers are deproved an Coal transportation road and hours and 3 nos. Fag connon of 100 mits throw with 320 day ratation installed mear Clushers. In procurement stage at WCL HO Driv are well operated.
(41)	Coal handing plant shall be operated with effective control a measures w. s. I, various environmental parameters.	Mabile clushers are provided with Mix sprayers. Also, have mobile crushers are covered with side clodding to control

Environmental triendly sustainable highlys amission. This help in controlling rechnology should be implemented. I localised dust emission. Fixed spinklen at common CHP Premises for mitigating such parameters ACHP of galacent mine) with mist and water toxer nazies at transfer paints feeder brooker, crushers, on conveyor bells etc. Conveyan are completely covered with ride clodding. 3 new top common of 100 mts throw with 300 dea rotation installed near Crushers. T not installed at Railway Siding and 2 nost are

(C) Water Quality Maniforing and Preservation

10	The efficient discharge (mine world
	water, workshop efficient) shall be
	monitored in terms of the parameters
	notified under the water Act, 1974.
	Coal hat, any Standards vide CSR 742 €
	dated 25° September, 2000 and as
	ar ended from time to time by the
	Central Faturion Control Board:

Mine Water elsenarge: Workshop EIP effluent is being monitored vide CSR 742 6 duted 25h September, 2000.

In procurement stage at WCL I/O

MINE	MINE WATER DISCHARGE						
Date	pli	000	122	ONG			
APR 23 (15 PM)	2.72	22.00	20.00	50%			
APR 25 (204 HIT	7.50	20,00	33,00	55%			
MAT 20 19 000	7.94	52.00	20.00	604			
MAY 20 TO SHE	2,74	48,00	38.60	BOL			
高原220 [D. 25]	7.50	41.00	34.00	504			
33 N 5 23 12 THAT	1.72	54.00	43.55	804			
3/3 Y 20 HT RV	5.46	52/03	43.00	BEM			
五月子 25度2 年 20日	7.20	40.00	20.00	67%			
AUCCRETTERN)	7.08	60.00	48.51	804			
AUG 23 (20/09)	7.25	44.00	33,50	SDL			
SEPTEM THE N	7.00	48.50	52.50	ADA			
36/122 (2016)	7.25	24.03	49.00	803			

WORKSHOP ETP BRILLIANT

Dote	он	000	500	040
AFFE SST IV PN	8.22	36.00	22.60	804
APR 23 (24 IN)	7.45	44.20	30.00	DOL
MAT221 THIS	5.86	160.00	1,300,000	004
AUA 22 (200 PM)	2.74	146.00	288,000	80.3
July 23 (14 f.N)	7.65	52.50	44.00	SEA
克斯尼35 (2019)	7.55	40.00	38.00	904
A4.8.22 (** 8%)	a.c.u	26.00	46.00	004
#1. 1 20 ST HAT	7.00	44.00	24.00	663
A00233 5/4 RM	6.25	44.00	38.00	BC4
AUG 32 (SHIFN)	2.00	25.00	20000	964
3681 328 (15 75)	2.40	62.15	27.50	804
2001 23 (5°97 N)	4.30	40.00	38.00	DEAL.

84 on the company's website and displayed of the project site of a sulfable regation. The circular No.1-20012/1/2006-IA.11 [M] dated 27* May, 2009 issued by Ministry of

Environment, forest and Christe. Change shall also be referred in this

record for bicompliance.

The montinging data shall be uploaded. Compiled

At the monitoring reports are being uploaded on westernoon websheunder SECTION AS DEPARTMENT AS **ENVIRONMENT** 10 ENMIRONMENT QUARTY REPORT. Sycpular of process enclosed as annexure 24

http://www.westernoop.in/index1.php/-Static Page / 163

Del	level and quality shall be carried out in and ground fine mine lease area by	Regular monitoring at ground water level and quality is being carried out in and around the mine leane.
	establishing a network of existing wells constructing new plesameters during the mining operations. The monitoring of ground water levers shall be carried out four times a year i.e. pre-monsoon, monsoon, post-monsoon and winter. The ground water quality shall be monitored once a year, and the data thus collected shall be sent regularly to MOEFCC/RO.	The monitoring is carried out four times in a year pie- monsoon (April-May), monsoon (April-May), monsoon (August), post-monsoon (November) and winter (January) and the dara thus collected is being sent regularly to Ministry of Environment. Forest and Climate Change and is Regional Office. Central Ground Water Authority and Regional Oraclor, Central Ground Water Board
		Report of the monitoring (December 2022 to August 2023) has been submitted to your good office vice feller no. WCL/MA/AC/A/ENY/2023/253 dated 18.41.2023 Report of some enclosed as annexure 25
JWI	Manitaring of water quality upstream and downstream of water bodies shall be carried out once in sis months and record of monitoring data shall be maintained and submitted to the Ministry of Environment, Ponst and Climate Changer Regional Office.	Manifoling of water quality systemm and downstream of Wardha River is being comediaut regularly and report of same is also submitted to MPCB & Matter regular basis. Copy of latest report OE June 2023 & GE Sept 2023 enclosed as annexure 4.
[vj	coound water, excluding mine water, shall not be used for mining operations. Rainwater increasing shall be implemented for conservation and	Complied Ground water excluding mine water is not being used for mining operations.
	sugmentation of ground water resources.	Sain Water Harvesting Pand of dimension 88 mitrix 18 mitrix 1,20 m has been constructed by considering the long term benefits.
		Apart from this roof top fain water harvesting is being implemented at affice building such as GVTC. Cool feeling lab. filter plant Hospital Resourcement tending Vidhyalay.
		hinther, rich underground galleries of UG mine also helped in storing water. Also, the abandoned volds of adjacent mine also help in storing and recharging ground water. It helps in augmenting ground water resources.
(vi)	Catch and/ or garand drains and sinason pands in adequate numbers and appropriate size shall be constructed around the mine working.	Catend drains of dimension (Length: 6400 mit. Avg. wieth: 2.50 mit. Avg.

coal helps & C6 dumps to prevent run. off oil water and flow of sediments nices the into the river and water backer. further, dump material shall be properly consolidated/ compacted and eccumulation of water over dumps shall be avoided by providing adequate channels for flow of sit into the circles. The drains/ bonds so constructed theil by requierly desilled. particularly before ariset of mansoon and maintained property. System capacity should provide adequate retention period to allow proper retting of all material. The water so collected in the sump shall be utilized. for dust suppression and arean bett development and other industrial use. Dimension of the retaining wall constructed, if any, at the lice of the OB dumps within the mine to check run-off and situator should be based. on the rolinfall data. The plantation of netive species to be made between toe of the dump and adjacent field? hotalolion; water bodies.

Depth: 7.00 min is provided around the mine.

Catch drain of dimension (Length: 4980 mir, Avg. Walls: 2.50 mir, Avg. Depth: 2.50 mir) provided around Officiation.

Photographs of Calen arain and Garand Drain englosed as annexure 26 8 27

Desiting of catch drains and garland drains is done every year before asset of manuson departmentally.

The catch drains provided all around the OB Dump acts as an arrestor against any flow of sit and sediments into the nearby fields, notice. As such specifically, at present there is no requirement of retaining watt at the loss of the dump. Moreover, grass seeding has been placed over the slopes which further protects the flow at sits and sediments.

(M)

Asequate groundwater recharge measures shall be taken up for augmentation at ground water. The project authorities shall meet water requirements of nearby village(s) offer due treatment conforming to the specific requirementsalandards).

Rain Water Horvesting Pand of dimension 83 mir x 18 mir x 1,20 m has been constructed by considering the long terminenetts.

Apart from this roof top rain water harvesting is taking implemented at office building such as GYTC, God testing ab, filler plant, Hospital, Rescue room Kenativa Victorian.

Further, old underground gatteres of IIO mine also helped in storing water. Also, the aboutched voids of adjacent mine also help in storing and recharging ground water. If helps in augmenting ground water resources.

If helps in augmenting ground water resources.

Due to availability of waterbadies such as Wurdha Biver in Bouth West. Stimus halo in North Bast and Keroal Nota in North West direction, there is no scale by of water in the vicinity.

If any water requirement issue at nearby Wage come to the notice, project authority will take at necessary measures, to fulfill the requirement.

0400	industrial waste water generated from	ere of 100 cm	connect	N William	OR (\$40)	arrior 8
	CHP, workshop and other waste water, that are properly collected and treated so as to conform to the	provises for treating the efficient generated from washing of LDAM. ETP Efficient				
	A LONG CONTRACTOR CONT	Dole	138	000	178	Toxis
	standards prescribed under warer Act.	APR 23 HE FM	8.32	36.00	22,00	27.
	1974 and Environment (Protection)	AFR 23 (2" 6%	3 65	44.76	20.00	FO.
	Act,1986 and the rules made there	MILY DATE ON	172	30.50	400	60
	under, and as amended from time to	May 25 De But	7.74	48.00	38/00	186
	time. Adequate EIP/SIP needs to be	J196 23 434 OH	7.00	522.000	44.00	82%
	provided.	119E 23-E9FF00	7.56	4000	34.00	1001
	1 000000000000000000000000000000000000	1307 20 210 794	8.01	50.00	44.00	BOL
		JJLY 23/2** (Fig.)	7.00	44(0)	784.00	5006 5004
	4	ASC 20 197 BNJ	1 A.SM	44.00	34.00	BOL
	Al S	A (00) 20 (20) Feb	7:09	29,00	30.00	RD4
			17.00	22.00	43.00	100A
		2841.52 (1) 840				1000
	1	SEPT DE 19-10-10	6.30	40.db	34.00	SC4
341		At present of a residing of old Mapt UG Mine generated is to 8. Sook Pile. There is no constructed is populate will be the constructed workers of New Yorkers of New Yorke	no. If y eated now/ or this r se con	w of e chance through dealer nine, S structe new op	estatili i Inuse in Sept offed in TP of si ed offer celles	e New Iwag Icilar Color Idol Ig will For th
(k)	The water pumped out from the mine after ditation, shall be utilized for industrial purpose viz. watering the mine area, roads, grean belt development etc. The drains shall be regularly desired particularly after mansoon and maintained property.	shall be utilised for after stration is being used for a service watering the succession five lighting etc. roads: green both to The drains shall be ad particularly after being desired before the ansat of av-				r du ra cr
60	The surface chainage plan including surface water conservation plan for the area of influence affected by the sold mining operations, considering the presence of rive/ fivulet/pond/ alterations and the prepared and implemented by the project propareer. The surface drainage plan and/or any diversion of natural water courses shall be as per the approved Mining Flan/EA/EMP report and with due approval of the concerned State/Gal Authority. The construction of embanisment to prevent any stanger against much of surface water into the mine should be as per the approved Mining Plan and as per the	A detailed report on average coasyst has been propored. Copy of absubin fixed along with Six Monthly Compliance report of March 2022 (Corp) of knowing accession conservation pagain engased in orthware 28). The Mining activity is strictly carried as per the approved Mining from a with due permission of DGMS. The so will continue to the operated as per above. Diversion of Korad nullah was done per the design at CDG Mark. Businepart englesed as annexure 27. The construction of embankment				admitty (copies on pro- electron on electron on electron one (com- per final)
	approved Mining Plan and as per the	The construction				

	permission of DGMs or any other authority as prescribed by the law.	surface water into the mine was done as per the approved Mining Plan and as per the guidelines of DGMS
DM)	The project proponent shall take all preparationary measures to ensure rivering/fiparian appsystem in and around the cool mine up to a distance od 5 km. A rivaring/fiparian acceptation and management plan should be prepared and implemented in consultation with the inigation/weter resources department in the state government.	Rivarine/ riparian ecosystem coreen attant and management plan is prepared and same will be implemented in consultation with the intigation/water resources department in the state government. Copy at same submitted along with 5k Monthly EC Compliance report of Warsh 2022. Copy of tarrier's englosed as annexine 28.

(D) Noise And Vibration Worldoring And Provention

10	Adequate measures shall be taken for contratof noise levels as purificise faultion. Notes, 2016 in the work environment. Workers ungaged in blasting and drilling operations, operation of IEMM, etc. shall be provided with personal protective equipments. (PPE) I se complugs/mutts in conformity with the prescribed norms and guidelings in this regard. Adequate awareness	biosting a being clone so as to control noise levels below 85 dB(A). The worken engaged in noisy environment are provided with our plugs/mult's. Durank of PTP distribution enclosed as annexare 30. Noise Manifering stations are established for monitoring the noise level data and regularly manifered. Rose levels in cb (A)				
	programms for users to be conducted. Progress in usage of	Down	1000	Hot		looy .
	such doosepries to be monitored.		Doy	Hight	Doy	Water
	sour decaysters to be incrinored.	APR 20 (ELFN)	41.70	40,40	46.50	46.60
	1	458.5315×840	58.80	57.40	44.93	45.90
		MAY 25 JP RH	58.10	37.70	47,50	46.33
		MAY 28 (2 196)	86.80	68,40	47.90	46.15
		J.B.E. 25 (平下的)	57.60	55.50	17.70	46.10
		JUNE 23 (5 = 1 N)	38,00	30.10	48.70	47.80
		2002/2017/2017	06.60	37,40	44.50	45,10
		2001, 23 (See 19)	34.66	32.70	43.30	45.20
		利位28 世本 国	55,55	33,50	42.50	40.00
		AUG 23 (2.94) N	54.00	35.30	40.30	42.50
		36PF 29 (P PM)	64.23	83,50	44.50	43.93
		2014 52 (5 o H)	52.00	50.40	44.70	43.30
		Stb	-26	70	- 186	45
δi	Corrected blasting techniques shall be practised in order to mitigate ground vibrations, fly rocks, noise and oir blast etc., as per the guidelines prescribed by the DGWS.	Controlled 1sk DGMS-guidelit lubio. Blanin DGMS-enclosi	tes with g. ger	cord n	clay on accord	dancel
(B)	The noise level survey shall be carried out as par the prescribed guidelines to access noise exposure of the workman of vulnarable points in the mine premises, and report in this	Note level survey shall be carried out as per the DGMS guidelines to access naise exposure of the workman at vulnerable points in the mine premises. Report of				

regard shall be submitted to the ministry/ RC on significantly basis.	Personal dust sampler monitoring smclosodi as annexure 31
	And the state of t

(E) Mining Plan

ĢI	Mining shall be comed out under strict agherence to provisions at the Mines Act 1952 and subordinate legislation made the wurder as applicable.	Mining is carried out as par the provisions of the Minis Act 1752
II)	Mining shall be carried out as par the approved mining plant/including. Mining Clasure Plant) abiding by mining laws related to cool mining and the relevant disculars issued by Directorate General Mining Safety (DGMS).	All the activities are being done at per Approved Mining Flan, DGMS directors are being strictly followed. Minis Closure Plan will be implemented as the mine will reach in final stage of operation.
lii)	tio mining shall be carried out in forest land without obtaining forestry Clearance as per forest (Conservation) Act. 1980.	There is no levest land involved in this project
5-5	Efforts should be made to reduce energy and consumption by conservation, efficiency improvements and use of randwable energy.	Steps for instanction of energy efficient lightings being taken in mine. Deficient set energy efficient lighting installed are enclosed as annexure 32.
		Renewable energy such as tool log salar power instruction at the AGM office and building of Kendiya Vighyalay is also implemented (Denois of Salar installation with Photographs anclosed as principles 33)

(f) Lend Resignation

16	Digital survey if entire lease hold area/ core zone using Satellite Remote Sensing survey that be carried out at least once in three years for mentioning land use pottern and report in 1,50,000 scale or as notified by Winistry of Environment, Fotest and Climata Change (MOEFCC) from time to time shall be submitted. To MOEFCC) from time to time shall be submitted.	Land use partern of the mine is studied every 3 year through Satellite imagery. Monitoring of same has been denietry CMPOII, in 2022, Report of same is upleaded on WCL Website (http://www.rest/samoadi.in/Ramade/270). Snepshol of webpage shown of annesure 34
11	The final mine you cepth should preferably be as per the approved. Mine Closure flan.	The final mine wold depth will be as per the approved Mine Closure Plan.

	and in case if exceeds 40 m, adequate engineering interventions shall be provided for sustenance of aquatic life therein. The remaining area shall be backfilled and affive top soil. Post-mining land be rendered usable for agricultural forestry purposes and shall be diverted. Further botton will be healed as specified in the guidelines for preparation of Mine Closure Plan Issued by the Ministry of and subsequent amendments.	gi thi mine Booki ather	e void o closure flect ar useful	are will be depth will colon and ea will be purposes colon/ gu	be mo se the s	ne tho mine mad t	n 45 mi Closeid sy peam	r as per L afon or
630	The entire excavated area.		100	MATION		0.700	11 10 10 10	
	bacifiling, external O3 dumping (including loss soil)	Yeor	Area	imos	Book		Areco	ners Nos
	and afforestation plan shall be	etani.	Hot	- Mos.	Aneca [HQ]	7,000	[40]	
	in conformity with the "during mining" (and-	14 yr	0	0	0	n	20	90000
	use pattern, which is an integral part of the approved Mining Plan and the bity tiMP submitted to this Ministry. Progressive compliance status vis-awis the post mining land use pattern that he submitted to the MOBPOC/RO.	5™ VF	.0	.0	0	0	50.2	125500
0.6		10°	60	150000	0	0	70.2	175500
		15	94.6	21 1500	0	0	90.2	2,25500
		end of Se	94.5	21 1500	0	C-	150.2	275500
			2014- 2019- 2021- SOL 1 2022- SOL 1 2023-	17 = 20 19 = 15 20 = 15 22 = 3 N) 8, 1 DUMP) 23 = 40 DUMP)	UAL PLAN (000 Nes. (000 Nes. (000 Nes. (000 Nes. (000 Nes.	over a over a over a s, over cover a	n area n area r on an are	rafalla rafalla rafalla area ar ea or 6
(M)	By ash shall be used for escended dump of overborden, backfilling or stowing of mine as per provisions contained in closes (ii) and (ii) of subparagraph (8) at fly ash notification issued vide SC 2804 (8) dated 3rt November 2009	fly de minin New dope during	ir tar n g plan Majr t oache Jing in	oravision noting in KG to GC d by any mine vok gypsum i	octoria Stran Thermo by web	at car of Pow or sal C	gam ag a flor y er Plan	aprenional et been t for Ast

i

as amended from time to time. As por the natification. By oth for backfilling will be Efforts shall be made to utilize I utilized as per natification of the end of mine #o. when the mine get; dognooned. gynsum generated from Rue Gas Deputuration (PGC) if env. glong with fiv ash for external dump of averburden. book/illino 66 Compliance report and be submitted to Regional Office of MotFCC, CPC% and SPCB. 10.873 Mm² Top soi has been exercised 11. further, it may be entired that ėvi. 30.07,2023 and a being stared in the earmarked os per the time schedule she and will be utilized as per the plantation. specified in mine closure plan It programme. should remain live till the point 33.150 Mm² CB lead top soil has been of utilization. The roosal shall excavated 18 50.09.2023 and is being stacked. temporarily be stored at at the economic damp size only. earmarked site its only and shall not be kept unuflibed. The Signs seeding is being done on Top soil & Hard. topsal shall be used for land OB dumps, Mareover, 95,000 nos, frees are reclamation and plantation started on both Too Soil durnes to rectain the purposes. Active Oil dumps dump. and be stablised with native gross species to prevent Rowever, or per the approved mining plan Aeresion and surface run off. The Wine clouve pair, the entire de coaled great other overburden dumos shall will be converted into water body as no be vegetated with native floraagaidling is proposed for excavated area of species. The excuvoled great MMUG to DC mine quarry, blockfilling of snat be backfled and adjacent mine is being done from OB of this afforested in the with the mine. approved Mine Clasure Plan. Monitoring and management Recording Maniforing and management of of rehabilitated areas shall rendalitated areas It's submitted that the confinue until the vegetation same in respect of external O3 dump 8 vol to becomes soff sustaining. start as the dump is active. But offer vegetation. Compliance status shall be / elentation, the manifeting and management submitted to the ministry of will be controlled tit if becomes well-subtaining. Environment. Eggst. and. Compliance against this condition is a part of Climate Changer Regional 5b monthly EC Compliance record which is Office: submitted to RO. MoEF&CC regularly and will continue to be submitted. IVII: The project proponent shall Not Applicable, most of the land accurred way. make necessary offernative denountine land. grangements, it grazing land is involved on core zone. In However, Full grown pariety of plantation in consultation with the Store preen belt (adjacent to mine boundard are government 100 provide: being used by nearby villagers for liverstockattempte areas for livestock cyclema. grading. If any, in this context. the project proponent shall Porther to inform that to minimise the land implemented the directions of acquistion, no separate land it acquired as Hon'ble Supreme Court with growing terres. regard to acquiring grazing Rong.

14	The project proponent that take all precautionary measures during mining operation for conservation and protection of endangered/endersic flore/leans. If any, spatted/reported in the study area, the Action plan in this regard, if any, shall be propored and implemented in consultation with the State Forest and Wileti's Department.	Not Applicable at there it so endargered/endemic flora/favria in and around mine area.
(i)	Creenbelt convising of 3-lier plantation of width not less than 7.5 m shall be developed at along the mine lease area assoon as possible. The green bett comprising a mix of native species lendemic species should be given priority) shall be developed all along the major approach/ coal transportation roads.	The green bet complising a mix of native species. Photographs enclosed as annexore? 80,000 trees planted over an area of 34 trained over plain land between mine and adjacent villages along western boundary of mine and 95,000 has over an area of 36 train Top Soli dump. Once the trees will grow up or during the course of plantation, it will help in developing the environment where the shrubs, herbs, creepes of native species will grow and develop 3-fier plantation.

(H) Public Hearing and Human Health Issues

đ	Adequate Rumination shall be ensured in all mine locations (as per DGMS standards) and mentared weekly. The report on the same shall be submitted to this ministry 8, it's 80, on sis-monthly basis.	Adequate Humination's being done in all time locations. Record of Burnington enclased as annexure 34
0)	The project proponent shall undertake accupational health survey for initial and periodical medical examination of the periodical medical examination of the periodical regard in the provisors of the Mines Rules, 1995 and DGWS chauters. Tesides regular periodic health check-up, 20% of the personnel identified from workforce engaged in active mining operation shall be subjected to health check-up for occupational diseases and hearing impairment time to time.	Regular and Periodical medical examination (ME and FME) of the workers (Departmental as well as contractual workers) has been underraken at Majn Area Haspital of WCL Area Haspital is headed by Chief Medical Official. Heath check up to dated for according impairment is also being done. Year-wise Details of PME/TME enclosed as anneance?
94	hersonnel (including outsourced employees) working in core zone shall wear protective respiratory devices and shall also be provided with	Resonnel (including outsourced employees) working in mine is provided with profective respiratory devices and adequate training and information on

	adequate fraining and information on which and health aspects.	safety and health aspects is also provided at GVTC Majt on inducting it mining activity at well as on regular basis till they work in mines of WCL MAJRI AREA.
(le)	implementation of the action plan on the inner raised during the public hearing shall be remarked. The project proponent shall undertake all the toskylmectures as per the action plan submitted with budgetary provisions change the public hearing. Usno outless shall be compensated at per the name told clown in the R&R policy of the compone/State. Government/Central Government, as applicable.	wickely of points under public consultation are related to employment is being generated due to the project. The work of its 7.48 Loids for providing sub-ewell of Polaspoon village is done caper the commitment treate during public nearing. Work order and photographs of nore enclosed. Apart from this various activity to be covered under CER are also enclosed. How such activities such as wasted in the product in nearby villages, physicians to interest which is travely and product in nearby villages, physicians being soppings for production in nearby villages are being dotted. Land austacs shall be compensated as per the norms loid down in the CL IEER pulsar.
[9] ·	the project proportent shall takew the miligation measures provided in this reinstry's OM No 2-3 or 3/4/10014-1001 (vi) dafed 27% October, 2014 titled "impact of mining activities on habitations libraries projects wherein habitations and villages are the part of mine lease area; or habitations and villages are surganded by the mine lease area.	There is no habited an within the Project unau harbot with reference to the Charted 24.10.2014, we have been producing past mine produces such as providing point drains particularly activate grange. Adjusted from water howering invasures are able to being taken in and around mine axed to micharge the ground-water levels. Regular mannesing of ground-water levels. Regular mannesing of ground-water levels. Regular mannesing of ground-water levels to be burned to remain and buffer some of the same. Burning manifered regularly inside mine as well as a nearly hotely habitation. Following periods of plantation are befree.
		used by heathy viliages for freeholds graving. Same plantation is also and as shelterforthise livistock's during scanding summers.
		Vibration monitoring is also being done to receipt Patata village from time to time to excertain the impact of blooking.
		Mobile water tankers are used for dust suppression on hour most and fixed sprinters are provided for dust suppression on coal humasuflation road.

13	The project proponent shall comply with the provisions participed in the winning's CM vide F.No.22-65/2017-IAH dated 1 st May 2016, call applicable, regarding Corporate Environment Responsibility.	The work of Rt. Z.46 Ladm for providing full-work of Pulasquan village's done as per the commitment make during public floating under CER Head. Few such activities such as Medical Comps, Health survey chack-up Still Devarpment training for people in nearby villages, development of roads. Rain Water Harvesting works, Avenue Plantation in nearby villager are also being const. However, as the project is running's already operational, works taken up in nearby village are accounted in CSR Head.
K	The campany shall have a well laid clown environmental policy duty approve by the Board of Directors. The environmental policy should presente for standard operating procedures to have proper affects and balances and to bring into focus any infringements/ asviation/ violation of the environmental/forest/ whatte name/ conditions. The company shall have defined system of reporting infringements/ deviation/ violation of the environmental/ forest/ whatte name/ conditions and/ or shareholders/ stake holders.	Coal India Limited has its well laid down environmental policy duly approve by the CIL Board. The Environment Policy prescribes for standard operating process/ procedures to bring into focus any infringements/deviation/violation of the environmental of forest name/conditions. The company has a well laid down system of reporting of non-compliances/ violations of environmental name to the Board of Directors of the company and/or shareholders or stakeholders at large.
(#)	A separate Environmental Cell both of the project and company head quarter. Never, with qualified petionnel shall be set up under the control of senior Executive, who will directly to the head of the organization.	Environment Cell exists of HG, Area, & project. Reset. GM (Environment) directly reports to the head of the Organization. OM (ENVIRONMENT) Free hude officer (CNV) by Mg (Sm) Made officer (CNV) by Mg (Sm)
Ovl	Action plan for implementing EMP and environmental conditions along with responsibility matrix of the company shall be prepared and shall be duly approved by competent authority. The year wise funds earmarked for environmental protection insessures shall be kept in	The year wise funds earmarked for environmental protection measures are kept in separate account and not alverted for any other purpose.

	separate account and not to be diverted for any other purpose. Year wise progress at implementation of action plan shall be reported to the Ministry. Regional Office along with the Six Monthly Report.	Capital and Revenue head endosed
59	Self environmental audit shall be conducted annually. Every thron years third party sinvironmental audit shall be conted out.	

[J] Miscelaneous

10.	The project proponent shall make public the environmental decrance granted for that project along eith the environmental conditions and salequards at their cost by prominestly adverting it at least to two local nevopages at the Detrict or State, of which one shall be in the vernacular language within seven days and in addition the shall also be also layed in the project proported in website permanently.	Complied, Advertisement given in following 3' Newscopes > 1) Chandiapur Samuchar (Wordin), dulied 08.01.2021 2) Manavidnesbira (Hindi) dated 08.01.2021
61	The capter of the immorrhantal classrance shall be submitted by the project proponent to the heads at local bodies. Penchayats and Municipal Badies in addition to the relevant offices of the Coverment who in rum has to display the same for 30 days from the date at receipt.	Copies of the environmental decrance is submitted to the huads of local bodies. Panarayate and Municipal Bodies and relevant offices of the Coversment between 22.01.21 to 65.01.21
19)	The project proponent that uplous the status of compliance of the aliputated environment decrance conditions. Including result of monitoredicatoron their website and update the same on half-yeary bank.	Compliance of the stoulated environment decrance conditions, including rand of monitored data are uploaded on WCL website regularly. Inthesistence westerncoolin/Rannade/2701.
[6]	The project proponent shall mention the criteria, pollutants level namely: PMIO, 5001 NCX (ambient levels) of critical sectoral parameters, indicated for the projects and display the same at a convenient location for disclosure to the public and pull on the westerie of the company.	Pollutants level namely, FW10, FW0,5 CO, 902, NOx are being monitored at CAAGMS and some B displayed at LFD Basins suitabled at CAAGMS Station. Moreover, Amblem AAG manifesting inconvenid notice zone, Bata at some b displayed on manual handwritten docted installed at Manager Office, managerphyolisame enclosed as amenus 37.

(4)	The project proponent and submit six-monthly reports on the slotus of the numerical conditions on the website of the ministry of environment, forest and Climate Change of environment absorbed control.	Summarity FC Compliance reports are uploaded an Matt Website' partningularly
I-II	The project proponent shall follow the milligation measures provided in this Ministry's OM No. 7-11013/57120144A. If (M) dated 25th Ocober 2014, titled impost of mining activities on habitations-issues related to the mining projects wherein habitations and villages are the part of mine lease areas an habitations and villages are surrounded by the mine lease.	There is no habitation within the Project orea. Further, with reference to the OM atd. 29:10:2014, we have been practicing best mine practices such as providing catch crains, gadeno drains to arest runoff from the dumps. Adequate rain water harresting measures are also being taken in and around mine area to recharge the groundwater levels. Regular monitoring of ground water levels. Regular monitoring of ground water levels. Regular monitoring of ground water levels.
	orea'.	flumination and sound level of the mine are being monitored regularly inside mine as well as at rearby habitation.
		Put grown patch of plantation are being used by hearby villagers for investock growing. Some plantation is also act as sheller for these livestock's during scoroting summers.
		Vibration monitoring is also being dank in nearby Patala village from time to time to ascertain the impact of blasting.
		Michille water kankers are used for dust suppression on haut road and Fixed sprinklers are provided for dust suppression on cool transportation toad.
(47)	The project proponent shall submit the environmental statement for each financial year in Form-vito this concerned State Hall-tion Control Social os prescribed under the Environment (Protection) Rules, 1966 os otherwise subspapertly and put on the website of the company.	Invitorment Statument for 2022-29 from been spenified to MPC8 vice WAN No. 56782 on doned 05-09-2028 or prescribed under the Environment (Protection) Rules, 1864, as amended subsequently. Dopy of this recovered Statement 2022-23 and assertes analysis of the Company's website along with the starus of compliance of BC conditions.
		(http://www.westempool.in/lightnode/270)
[48]	The project authorities shall inform to the Repland Office of the MOESCO.	Information to the Regional Office of the MODISCC regarding commencement of

	microperations.	mining operations has been given via e-mail dated \$1.01.2021.
[84]	The project authorities must slikely genera to the dipatritions mode by the State Fertilian Control Board and the State Covernment.	Noted and 8 being completel
×	The project proportent start attall by all the commitments and recommendations made in the EA/EAP legal, commitment reads during hubblesting and also field during their presentation to the Exper Approach Committee.	Nated and is being complied
(a)	No further expansion or modificulture in the plant shall be confed out without prior approval of the Winstey of Environment. Forest one Climate Change.	Noted
(4)	Consisting rectus data or summission of rober lotarisated data may result in revisions of this environmental discretions of Environment (Protection) act 1966.	Noted
(168)	The minetry high revoke at suggest the elegrance. If illustrationalization of any of the above condition broadsalation.	Noted
[#V]	The Ministry energies the right to algorithm additional conditions it found receiving. The Compared in a time bound resident shuffers around these conditions.	Noted
[av]	The regional office of this ministry shall monitor complicates of the shouldness conditions. The project authorities should extend full cooperation to the officer (s) of the regional Office by furnishing the regions action information) monitoring reports.	Noted
[xe]	the doorse conditions shall be enforced. Inter-day under the provisions of this water prevention & Captral of poliution). Act 1994, the Air Prevention & Cartral of poliution). Act 1994, the Air Prevention & Cartral of poliution). Act 1995, the Environment Profession). Act 1996, the Environment Profession). Act 1996, the Environment and Professional Water (Water 2014) and the public tability insurance Act, 1997 along with their prevent power by the Fertile supreme could of indial high courts and one other court of leader high courts and one other court of leader high courts and one other court of leader high to the supreme could of leader high courts and one other court of leader high to the supreme could be leader to the leader.	Noted
Č.	The personners shall oblice by all the operationers and secontreendations works it the BA/BAP report and also that during presentation to the BAC. All the operationers viade on the issues raised buring public hearing shall also be implemented in letter and spatis.	Nored
é.	the program and obtain oil necessary observators responds that they be required before the start of the policy. The Kindley or any other comparant authority may alpudate any further condition for environmenta protection. The Windley or any other competitude.	Nated and complete

	gurhady may stourate any further condition for environmental protection.	
7.	Any operand against this environmental infectionary that is with the Malland Green Tribunat. If preferred, within a period of 50 days as prescribed under source 16 of the Mallands Green Mallands Act 2010.	Noted
В,	The cool company/ project proponent that be liable to pay the compensation options the liead mining. If ark, and as taked by the respective State Governments at any point of time in terms of the adders dated 2nd August 2017 of Handlife Suprame Court in Myland No.114/2016 in the matter of Common Dauge Vs Union of India 8 other.	There is no Regal mining in the jurisdiction of WCL Majd Area
7.	The concerned State Government and ensure its mining operations for nominence. It the entire complexistion for Regal mining. If one, is baid by the project proportion fresugh their respective Department of mining & Geology, in stat compliance of the judgment of Honfole Supreme Court.	There is no lilegal mining in the jurisdiction of WCL Majri Area
16.	This environmenter comprises a shall not be operational till ruch time the project proportion complies with the above add judgment of floorbie Supreme Court, as applicable, and other startion requirements.	Noted

100

Sub Area Manager For A Expansion of New Mort GG to CC Mine New Majri Sub Area

MAHARASHTRA POLLUTION CONTROL BOARD

Tel: 24010706/24010437

Fax: 24023516

Website: http://mpcb.gov.in Email: cac-cell@mpcb.gov.in



Kalpataru Point, 2nd and 4th floor, Opp. Cine Planet Cinema, Near Sion Circle, Sion (E), Mumbai-400022

Date: 12/05/2023

RED/L.S.I (R35) No:- Format1.0/CAC/UAN No.MPCB-

CONSENT-0000160648/CR/2305000846

To. M/s Western Coalfields Limited, Expansion of New Majri UG to OC Mine, At-Majri, Tal-Bhadrawati, Dist-Chandrapur.



Renewal of consent with increase in CI under RED category.

Ref:

- 1. Consent granted by Board for existing mine vide No.Format1.0/CAC/ UAN-130759/CR/2207001196 dated 24.07.2022 valid up to 31.03.2023.
- 2. Minutes of Consent Appraisal Committee Meeting held on 24.04.2023.

Your application No.MPCB-CONSENT-0000160648 Dated 28.01.2023

For: grant of Consent to Operate under Section 26 of the Water (Prevention & Control of Pollution) Act, 1974 & under Section 21 of the Air (Prevention & Control of Pollution) Act, 1981 and Authorization under Rule 6 of the Hazardous & Other Wastes (Management & Transboundary Movement) Rules 2016 is considered and the consent is hereby granted subject to the following terms and conditions and as detailed in the schedule I, II, III & IV annexed to this order:

- The consent to renewal is granted for a period up to 31/03/2024
- The capital investment of the project is Rs.188.978 Crs. (As per Balance Sheet submitted by industry Existing CI is Rs.169.375 Cr + increase in CI Rs. 19.603 Cr = Total CI- Rs.188.978 Cr.)
- Consent is valid for the manufacture of:

Sr No	Product	Maximum Quantity	иом	
Products				
1	Coal	3	MTPA	

Conditions under Water (P&CP), 1974 Act for discharge of effluent:

Sr No	Description	Permitted (in CMD)	Standards to	Disposal Path
1.	Trade effluent	3973		Recycle/Reuse 100% for dust suppression and fire fighting

Sr No	Description	Permitted	Standards to	Disposal
2.	Domestic effluent	4	As per Schedule-I	On land for gardening

5. Conditions under Air (P& CP) Act, 1981 for air emissions:

Sr No.	Stack No.	Description of stack / source	Number of Stack	Standards to be achieved
1	0	NA	0	As per Schedule -II

6. Non-Hazardous Wastes:

Sr No	Type of Waste	Quantity	UoM	Treatment	Disposal
1	Overburden	600000	m3/month		Back filling and reclamation of Land

7. Conditions under Hazardous & Other Wastes (M & T M) Rules 2016 for treatment and disposal of hazardous waste:

Sr No	Category No./ Type	Quantity	UoM	Treatment	Disposal
1	5.1 Used or spent oil	90	KL/A	Recycle	send to Authorised Recycler/Re-processor
2	5.2 Wastes or residues containing oil	2	Ton/Y	Incineration	CHWTSDF
3	35.3 Chemical sludge from waste water treatment	9	Ton/Y	Landfill	CHWTSDF

- 8. The Board reserves the right to review, amend, suspend, revoke etc. this consent and the same shall be binding on the industry.
- 9. This consent should not be construed as exemption from obtaining necessary NOC/permission from any other Government authorities.
- 10. The applicant shall comply with the conditions of the Environmental Clearance granted by MoEF-CC, GoI vide letter No.I-11015/25/2008-IA. II(M) dated 01.01.2021.
- 11. PP shall extend the existing BG of Rs.25.0 Lakh towards O & M of Pollution control system and towards compliance of consent and EC conditions for the period up to 31.12.2025.
- 12. PP shall submit the copy of renewed NOC of CGWA within 3 months
- 13. PP shall provide the mechanized sweeping machine for road dust cleaning within 3 months period and submit the BG of Rs.5.0 Lakh towards compliance of same.
- 14. PP shall provide the tyre wash system at mine entry and exit points within 3 months period and submit the BG of Rs.5.0 Lakh towards compliance of same.
- 15. PP shall convert existing water sprinkling arrangement into chemical fogging arrangement (MgCl2) within three months period.
- 16. PP shall install the 5 number fog cannon as per the EC conditions as industry has installed only 3 number fog cannon.
- 17. PP shall submit the BG as per BG regime of Mines
- 18. PP shall carry out over burden dump management as per CPCB guidelines.

- 19. PP shall carry out plantation as per EC condition before ensuing monsoon.
- 20. The applicant shall make an application for renewal of consent 60 days prior to date of expiry of the consent.
- . This consent is issued as per communication letter dated 03/11/2022 which is approved by competent authority of the board.







Received Consent fee of -

Sr.No	Amount(Rs.)	Transaction/DR.No.	Date	Transaction Type
1	4812280.00	MPCB-DR-17285	17/02/2023	RTGS
2	39200.00	MPCB-DR-18493	12/04/2023	RTGS

As per earlier consent No. Format1.0/CAC/UAN-130759/CR/2207001196 dated 24.07.2022, the consent fees balanced with the Board is Rs. 30,77,500/-. Industry has paid the Consent fees of Rs. 48,51,480/- with this application. Total consent fees available with the Board is Rs. 79,28,980/-. Consent fees for renewal of consent for the period up to 31.03.2024 is Rs. 16,27,956/-including consent to establish fees towards increase in Cl. Now consent fees balance with the Board is Rs. 63,01,024/-which will be considered during the next renewal of consent.

Copy to:

- 1. Regional Officer, MPCB, Chandrapur and Sub-Regional Officer, MPCB, Chandrapur
- They are directed to ensure the compliance of the consent conditions.
- 2. Chief Accounts Officer, MPCB.Sion, Mumbai
- 3. CAC desk-for record and website updation purpose.

SCHEDULE-I

Terms & conditions for compliance of Water Pollution Control:

- A] As per the application submitted, industry has provided the ETP having capacity 100 CMD.
 - B] The Applicant shall operate the effluent treatment plant (ETP) to treat the trade effluent so as to achieve the following standards prescribed by the Board or under EP Act, 1986 and Rules made there under from time to time, whichever is stringent:

Sr.No	Parameters	Limiting concentration not to exceed in mg/l, except for pH
(1)	рН	5.5 to 9.0
(2)	Oil & Grease	10
(3)	BOD (3 days 27°C)	30
(4)	COD	250
(5)	Total Suspended solids	100
(6)	Total Dissolved solids	2100

- C] The treated effluent shall be recycled for secondary purposes to the maximum extent and remaining shall be discharged on land for gardening within premise after confirming above standards. In no case, effluent shall find its way to outside factory premises.
- 2. A] As per your application, you have provided Sewage Treatment Plant of designed capacity 5 CMD for the treatment of 4 CMD of sewage.
 - B] The Applicant shall operate the sewage treatment system to treat the sewage so as to achieve the following standards.

Sr.No	Parameters	Standards (mg/l)		
1	BOD (3 days 27°C)	Not to exceed	30 mg/l	
2	COD	Not to exceed	100 mg/l	
3	SS	Not to exceed	50 mg/l	

- C] The treated sewage shall be recycled for secondary purposes to the maximum extent and remaining shall be discharged on land for gardening within premise after confirming above standards. In no case, sewage shall find its way to outside factory premises.
- 3. The Board reserves its rights to review plans, specifications or other data relating to plant setup for the treatment of waterworks for the purification there of & the system for the disposal of sewage or trade effluent or in connection with the grant of any consent conditions. The Applicant shall obtain prior consent of the Board to take steps to establish the unit or establish any treatment and disposal system or an extension or addition thereto.
- 4. The industry shall ensure replacement of pollution control system or its parts after expiry of its expected life as defined by manufacturer so as to ensure the compliance of standards and safety of the operation thereof.

5. The Applicant shall comply with the provisions of the Water (Prevention & Control of Pollution) Act, 1974 and as amended, by installing water meters and other provisions as contained in the said act:

Sr. No.	Purpose for water consumed	Water consumption quantity (CMD)
1.	Industrial Cooling, spraying in mine pits or boiler feed	250.00
2.	Domestic purpose	10.00
3.	Processing whereby water gets polluted & pollutants are easily biodegradable	100.00
4.	Processing whereby water gets polluted & pollutants are not easily biodegradable and are toxic	0.00
5.	Gardening	40

6. The Applicant shall provide Specific Water Pollution control system as per the conditions of EP Act, 1986 and rule made there under from time to time/ Environmental Clearance/ CREP guidelines.

SCHEDULE-II

Terms & conditions for compliance of Air Pollution Control:

1. As per your application, you have provided the Air pollution control (APC) system and erected following stack (s) to observe the following fuel pattern:

Stack No.	Source	APC System provided/pro posed	Stack Height(in mtr)	Type of Fuel	Content(in	Pollutant	Standard
0	NA		0.00	/ _/	-	l na	-

- 2. The Applicant shall provide Specific Air Pollution control equipments as per the conditions of EP Act, 1986 and rule made there under from time to time/ Environmental Clearance / CREP guidelines.
- The Applicant shall obtain necessary prior permission for providing additional control equipment with necessary specifications and operation thereof or alteration or replacement/alteration well before its life come to an end or erection of new pollution control equipment.
- 4. The Board reserves its rights to vary all or any of the condition in the consent, if due to any technological improvement or otherwise such variation (including the change of any control equipment, other in whole or in part is necessary).
- 5. Control Equipments
 - a. Coal handling plant shall provided with dust collector & automatic water sprinkler and it shall be operated continuously.
 - b. Scientific spraying of water on all working area, dump area, stock piles with the help of appropriate dust suppression system.
 - c. Minerals shall be properly covered during transportation.
 - d. The applicant shall carry out tree plantation along road side, around dumps or compulsory afforestation as per proposal approved by Forest Department.
 - e. Black topped metal roads shall be provided and it shall be well maintained to prevent dust formation.

- f. Overloading of dumpers shall be avoided to prevent spillages.
- g. Correct type & quantity of explosive shall be used to avoid excess dust formation & vibration in the surrounding area.
- h. The slope of the over burden shall have slope not more than 28° to the horizontal. The overburden shall be properly covered by vegetation for stabilization.
- i. Minerals transportation shall be done by installing conveyors wherever possible & mechanically covered closed trucks shall be used for transportation.

6. Standards for Ambient Air Pollutants:

The Suspended Particulate Matter (SPM), Respirable Particulate Matter (RPM), Sulphur dioxide (SO_2) and Oxides of Nitrogen (NO_x) concentration in downwind direction considering predominant wind direction, at a distance of 500 metres from the following dust generating sources shall not exceed the standards specified in the table given below:

Dust Generating Sources:

Loading or unloading, Haul Road, coal transportation road, Coal handling plant (CHP), Railway Sliding, Blasting, Drilling, Overburden dumps, or any other dust generating external sources like coke ovens (hard as well as soft), briquette industry, nearby road etc.

Pollutant	Time weighted average	Concentration in Ambient Air
Suspended Particulates	Annual Average	360 μg/m³
Matter (SPM)	24 hours	500 μg/m³
Respirable Particulate Matter	Annual Average	180 μg/m³
(size less than 10 μm) (RPM)	24 hours	250 μg/m³
Sulphur Dioxide (SO ₂)	Annual Average	80 μg/m³
Sulphur Dioxide (50 ₂)	24 hours	120 μg/m³
Oxides of Nitrogen as NO _x	Annual Average	80 μg/m³
Oxides of Microgen as NO _x	24 hours	120 μg/m³

- i. In case of any residential or commercial or industrial place falls within 500 metres of any dust generating sources, the National Ambient Air Quality Standards notified vide MOEFCC GOI notification dtd 16.11.2009 as ammended shall be made applicable.
- ii. The applicant shall provide minimum three ambient air quality monitoring stations within mining area which should be monitored for SPM, RSPM, SO₂, NOx, HC, CO etc. The Annual Arithmetic Mean of minimum 104 measurements in a year taken twice a week 24 hourly at uniform interval shall conform to the National Ambient Air Quality Standards prescribed under Air (Prevention and Control of Pollution) Act, 1981 and Environment (Protection) Act, 1986. The records of results of monitoring done shall be made available for inspection to the officers of the Board.

7. The applicant shall take adequate measures for control of noise levels from its own sources as follows:

Sr. No	Location	Permissible Norms [in dB (A)]	Desired minimum thickness of green belt (m)
1.	Along Road side	65 (Commercial Area)	20
2.	In colonies	55 (Residential Area)	20
3.	Near Opencast Mines	75 (Industrial Area)	10
4.	Near CHPs	75	30
5.	Near Shaft	75	20
6.	Near Mine exhaust fan	75	> 50

8. Other conditions:

Whenever due to any accident or other unforeseen act or even, such emissions occur or is apprehended to occur in excess standards laid down, such information shall be forthwith reported to Board, concerned Police station, office of Directorate of Health services, Dept. of explosives, Inspectorate of Factories & Local Body. In case of failure of pollution control equipments, the production process connected to it shall be stopped.

SCHEDULE-III
Details of Bank Guarantees:

Sr. No.	Consent (C2E/ C2O /C2R)	Amt of BG Imposed	Submission Period	Purpose of BG	Compliance Period	Validity Date
1	C2R	Rs. 5.0 Lakh	15 days	Regular monitoring of ground water level and quality should be carried out by establishing the network of existing wells and constructing new piezometers during mining operations	6 Monthly	31.12.2025
2	C2R	Rs.5.0 Lakh	15 days	Catch drain and siltation ponds of appropriate size should be constructed to arrest silt and sediment flow from soil, OB and mineral dumps. Water so collected should be utilized for watering of the mining area, roads green belt developers etc.	Regular Activity	31.12.2025
3	C2R	Rs. 5.0 Lakh	15 days	Coal transportation shall be done by covered trucks. Overloading of shall be avoided to prevent spillages.	6 Months	31.12.2025
4	C2R	Rs.5.0 Lakh	15 days	Coal Handling Plant (CHP) & loading / unloading area will be provided with Dust Suppression system and Automatic Water Sprinklers	3 Months	31.12.2025
5	C2R	Rs.5.0 Lakh	15 days	Convert existing water sprinkling arrangement into chemical fogging arrangement (MgCl2)	3 Months	31.12.2025

Sr. No	Consent (C2E/ C2O /C2R)	Amt of BG Imposed	Submission Period	Purpose of BG	Compliance Period	Validity Date
6	C2R	Rs.5.0 Lakh	15 days	Deploying mechanized sweepers which are automated suction sweeper for cleaning the coal dust from road.	3 Months	31.12.2025
7	C2R	Rs.5.0 Lakh	15 days	To provide Mist Cannon-3 Nos- 100-meter throw with 360 deg rotation-within 3 months period	3 Months	31.12.2025
8	C2R	Rs.5.0 Lakh	15 days	Adoption and installation of tyre wash system to mining transportation at entry and exit point of mining area.	3 Months	31.12.2025
9	C2R	Rs.5.0 Lakh	15 days	Use of toppers/binders/surfactants on the top surface of coal pile on trucks carrying coal on road to minimize spillage during transportation	3 Months	31.12.2025
10	C2R	Rs.5.0 Lakh	15 days	Over burden (OB) should be stacked at earmarked dumpsites only and should not be kept active for long period. Proper terracing of OB should be carried out so that the overall slope will come down to 28°. Over Burden shall be disposed by way of backfilling.	Regular Activity	31.12.2025
11	C2R	Rs.25.0 Lakh	15 days	Towards Operation and Maintenance of pollution control system and towards compliance of consent & Environment Clearance. conditions	Regular Activity	31.12.2025

The above Bank Guarantee(s) shall be submitted by the applicant in favour of Regional Officer at the respective Regional Office within 15 days from the date of issue of Consent.

BG Forfeiture History

Srno.	Consent (C2E/C2O/C2R)	Amount of BG imposed	Submission Period	Purpose of BG	Amount of BG Forfeiture	BG
			NA			

BG Return details

Srno.	Consent (C2E/C2O/C2R)	BG imposed	Purpose of BG	Amount of BG Returned
	•	N	A	

SCHEDULE-IV

General Conditions:

- The applicant shall provide facility for collection of environmental samples and samples of trade and sewage effluents, air emissions and hazardous waste to the Board staff at the terminal or designated points and shall pay to the Board for the services rendered in this behalf.
- 2. If the MIDC pipeline is broken/ overflowing chamber, in such cases industry shall not discharge their treated effluent into MIDC drain, it shall be sent to CETP by tanker.
- 3. Industry should monitor effluent quality, stack emissions and ambient air quality monthly/quarterly.
- 4. The applicant shall provide ports in the chimney/(s) and facilities such as ladder, platform etc. for monitoring the air emissions and the same shall be open for inspection to/and for use of the Board's Staff. The chimney(s) vents attached to various sources of emission shall be designated by numbers such as S-1, S-2, etc. and these shall be painted/ displayed to facilitate identification.
- 5. Whenever due to any accident or other unforeseen act or even, such emissions occur or is apprehended to occur in excess of standards laid down, such information shall be forthwith Reported to Board, concerned Police Station, office of Directorate of Health Services, Department of Explosives, Inspectorate of Factories and Local Body. In case of failure of pollution control equipment, the production process connected to it shall be stopped.
- 6. The applicant shall provide an alternate electric power source sufficient to operate all pollution control facilities installed to maintain compliance with the terms and conditions of the consent. In the absence, the applicant shall stop, reduce or otherwise, control production to abide by terms and conditions of this consent.
- 7. The firm shall submit to this office, the 30th day of September every year, the Environmental Statement Report for the financial year ending 31st March in the prescribed Form-V as per the provisions of rule 14 of the Environment (Protection) (Second Amendment) Rules, 1992.
- 8. The industry shall recycle/reprocess/reuse/recover Hazardous Waste as per the provision contain in the H&OW(M&TM) Rules 2016, which can be recycled/processed/ reused/ recovered and only waste which has to be incinerated shall go to incineration and waste which can be used for land filling and cannot be recycled/ reprocessed etc. should go for that purpose, in order to reduce load on incineration and landfill site/environment.
- 9. The industry should comply with the Hazardous & Other Wastes (M & TM) Rules, 2016 and submit the Annual Returns as per Rule 6(5) & 20(2) of Hazardous & Other Wastes (M & TM) Rules, 2016 for the preceding year April to March in Form-IV by 30th June of every year.
- 10. An inspection book shall be opened and made available to the Board's officers during their visit to the applicant.
- 11. The applicant shall make an application for renewal of the consent at least 60 days before the date of the expiry of the consent.
- 12. Industry shall strictly comply with the Water (P&CP) Act, 1974, Air (P&CP) Act,1981 and Environmental Protection Act,1986 and industry specific standard under EP Rules 1986 which are available on MPCB website(www.mpcb.gov.in).
- 13. The industry shall constitute an Environmental cell with qualified staff/personnel/agency to see the day to day compliance of consent condition towards Environment Protection.

- 14. Separate drainage system shall be provided for collection of trade and sewage effluents. Terminal manholes shall be provided at the end of the collection system with arrangement for measuring the flow. No effluent shall be admitted in the pipes/sewers downstream of the terminal manholes. No effluent shall find its way other than in designed and provided collection system.
- 15. Neither storm water nor discharge from other premises shall be allowed to mix with the effluents from the factory.
- 16. The applicant shall install a separate meter showing the consumption of energy for operation of domestic and industrial effluent treatment plants and air pollution control system. A register showing consumption of chemicals used for treatment shall be maintained.
- 17. Conditions for D.G. Set
 - a) Noise from the D.G. Set should be controlled by providing an acoustic enclosure or by treating the room acoustically.
 - b) Industry should provide acoustic enclosure for control of noise. The acoustic enclosure/ acoustic treatment of the room should be designed for minimum 25 dB (A) insertion loss or for meeting the ambient noise standards, whichever is on higher side. A suitable exhaust muffler with insertion loss of 25 dB (A) shall also be provided. The measurement of insertion loss will be done at different points at 0.5 meters from acoustic enclosure/room and then average.
 - c) Industry should make efforts to bring down noise level due to DG set, outside industrial premises, within ambient noise requirements by proper sitting and control measures.
 - d) Installation of DG Set must be strictly in compliance with recommendations of DG Set manufacturer.
 - e) A proper routine and preventive maintenance procedure for DG set should be set and followed in consultation with the DG manufacturer which would help to prevent noise levels of DG set from deteriorating with use.
 - f) D.G. Set shall be operated only in case of power failure.
 - g) The applicant should not cause any nuisance in the surrounding area due to operation of D.G. Set.
 - h) The applicant shall comply with the notification of MoEFCC, India on Environment (Protection) second Amendment Rules vide GSR 371(E) dated 17.05.2002 and its amendments regarding noise limit for generator sets run with diesel.
- 18. The industry should not cause any nuisance in surrounding area.
- 19. The industry shall take adequate measures for control of noise levels from its own sources within the premises so as to maintain ambient air quality standard in respect of noise to less than 75 dB (A) during day time and 70 dB (A) during night time. Day time is reckoned in between 6 a.m. and 10 p.m. and night time is reckoned between 10 p.m. and 6 a.m.
- 20. The applicant shall maintain good housekeeping.
- 21. The applicant shall bring minimum 33% of the available open land under green coverage/ plantation. The applicant shall submit a yearly statement by 30th September every year on available open plot area, number of trees surviving as on 31st March of the year and number of trees planted by September end
- 22. The non-hazardous solid waste arising in the factory premises, sweepings, etc. be disposed of scientifically so as not to cause any nuisance / pollution. The applicant shall take necessary permissions from civic authorities for disposal of solid waste.
- 23. The applicant shall not change or alter the quantity, quality, the rate of discharge, temperature or the mode of the effluent/emissions or hazardous wastes or control equipment provided for without previous written permission of the Board. The industry will not carry out any activity, for which this consent has not been granted/without prior consent of the Board.

- 24. The industry shall ensure that fugitive emissions from the activity are controlled so as to maintain clean and safe environment in and around the factory premises
- 25. The industry shall submit official e-mail address and any change will be duly informed to the MPCB.
- 26. The industry shall achieve the National Ambient Air Quality standards prescribed vide Government of India, Notification dtd. 18.11.2009 as amended.

This certificate is digitally & electronically signed.



VISVESVARAYA NATIONAL INSTITUTE OF TECHNOLGY, NAGPUR DEPARTMENT OF CIVIL ENGINEERING



NO.: CIVIL/CEC 493/DHL-55/Majei (Oct-23) / 5/60 November 22, 2023/5/60

2 2 NOV 2023

To:

The Area Nodal Officer (Environment)

Office of the Area General Manager, Mairi Area

Post: - Kochana, Tabsil: - Bhadroweri

Disinct: Chancingur - 447503

Subject: Ambient Air Quality monitoring at Expansion of New Major UG to OC Mine, Tubsil: Bladenwar, District: - Charlesper.

Malarance: 3448-746-746-746-746-747-746-72023/167 dated 12:03:2523.

District.

Please find histority, the results of Ambiert Air Quality monitoring at Expansion of New Majet UG to OC Mine; Valuel: - Bhadrawati, District: - Charakapur, Maharushira in the month of October 2023 formightly.

A) CORE ZONE

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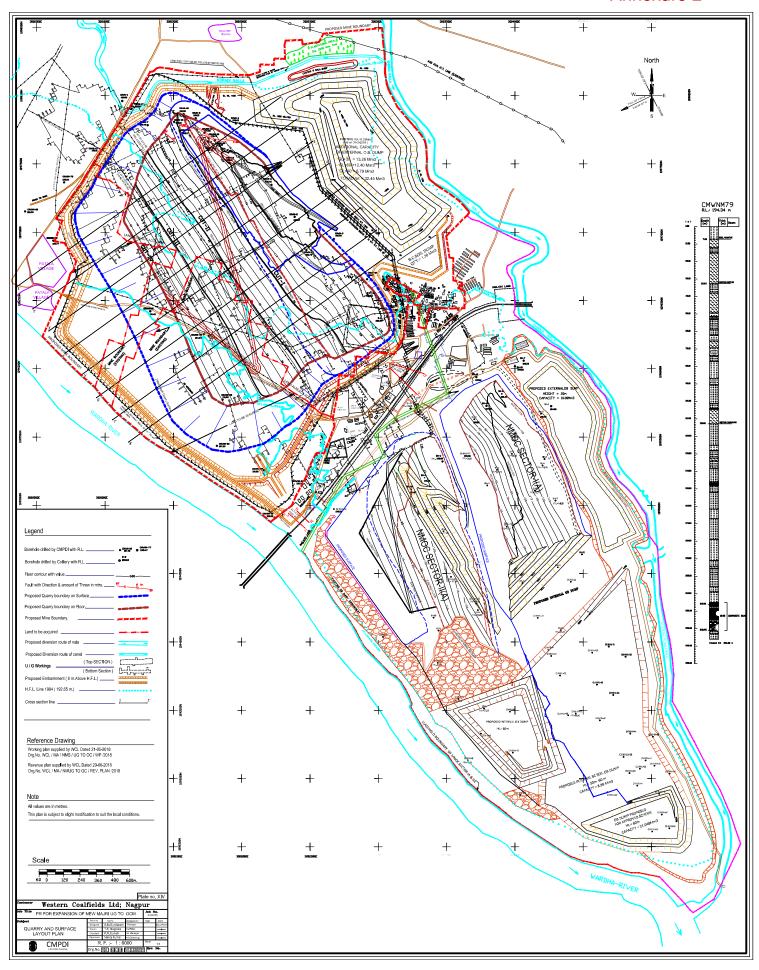


B) BUFFER ZONE

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(Dilip H. Lataye) Professor & Coordinator (Dr. Yashwant B. Katpatal) Professor & Head, CED (Dr. (Mrs.) Madhuri A. Chaudhari) Professor & Dean (R&C)

NOTE: The report has been governood on the basis of earliest sampling done on the locations mentioned at actual field conditions. The results have been analysed as per CPCB guidelines for unbless als quality monitoring, IS 5182, Part -2 (for SO₂), IS 5182 Part -4 (for Suspended Particulate Markers, PW₁₀, and PM₂₃) and IS 5182 Part -6 (for NO₂). This report shall not form a document in any dispose/litigation.



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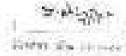
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References and Control

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New Majri UG to OC Mine Work Done Under CER

Work Name: Construction of Tube Well Beneficiary Village: Palasgaon



STRICTLY RESTRICTED FOR COMPANY USE ONLY

The information given in this report is not to be communicated either directly or indirectly to the press or to any person not holding an official position in the CIL / Government

SURFACE WATER MONITORING REPORT

MAJRI AREA

WESTERN COALFIELDS LTD.

JOB NO.4634420034



QE-JUNE 2023

Environment Laboratory

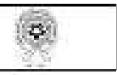
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Test Report Surface water quality monitori



TEST REPORT NO.	RIN/TR/JUNE-23/SW21			DATE OF ISSUE	31-08-23
NAME OF CUSTOMER	GM(ENV.), WC	_(HQ), NAGPUR		SAMPLE DESCRIPTION	WATER SAMPLE
NAME OF AREA	MAJRI			SAMPLING METHOD: LSOP 5	
NAME OF PROJECT	NEW MAJRI UG	то ос		SAMPLING PLAN: LQR 47	
NO OF PAGES	1		•		-

NAME OF LOCATION: UP STREAM OF WARDHA RIVER W.R.T. MINE DISCHARGE			SAMPLING DATE: 22-05-23	
SL. NO.	PARAMETER	TEST METHOD	DETECTION LIMIT	ANALYSIS RESULT
1	pH Value	IS 3025 Part-11 Electrometric Method: 2017	2	7.36
2	Colour (Hazen)	IS 3025 Part-4 Pt-Co Method: 2017	1	2
3	TDS -mg/l	IS 3025 Part-16 Gravimetric Method: 2017	25	210
4	Oil & Greese - mg/l	IS 3025 (Part 39): 1991 (RA 2003) Partition gravimetric Method	2	BDL
5	Dissolved Oxygen - mg/l	IS 3025 (Part-38):1989 (RA 2003) Winkler Azide Method	0.1	4.8
6	B.O.D. (3 days at 27°C) - mg/l	IS 3025 Part 44: 1993 (RA 2014)	2	3
7	Arsenic (As)-mg/l	APHA, 23rd Edition 3114 C AAS-VGA Method:2017	0.005	BDL
8	Lead as (Pb) -mg/l	APHA, 23rd Edition 3113 B AAS GTA Method:2017	0.005	BDL
9	Hexavalent Chromium -mg/l	APHA, 23rd Edition 3500-Cr B Colorimetric Method: 2017	0.01	BDL
10	Copper (as Cu) -mg/l	IS 3025 Part-42 AAS Flame Method :2014	0.03	BDL
11	Zinc as (Zn) -mg/l	IS 3025 Part-49 AAS Flame Method:2014	0.01	BDL
12	Selenium (Se) –mg/l	APHA, 23rd Edition 3114 C AAS-VGA Method:2017	0.005	BDL
13	Cadmium as (Cd)- mg/l	APHA, 23rd Edition 3113 B AAS GTA Method:2017	0.0005	BDL
14	Fluoride (as F ⁻)- mg/l	APHA, 23rd Edition 4500-F D SPADNS Method: 2017	0.02	0.42
15	Iron (as Fe) -mg/l	IS 3025 Part-53 AAS Flame Method:2014	0.06	BDL
16	Nitrate Nitrogen - mg/l	APHA, 23rd Edition 4500-NO ³ B UV Spectrophotometric Method: 2017	0.5	BDL
17	Sulphate (as SO ₄ ⁻²) -mg/l	APHA (23rd Edition) 4500E Turbidimetric Method:2017	2	24.6
18	Chlorides (as Cl ⁻)- mg/l	IS 3025 Part-32 1988 Argentometric Method:2014	2	18

BDL: BELOW DETECTION LIMIT

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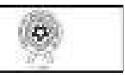
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TEST REPORT NO.	RIN/TR/JUNE-2	RIN/TR/JUNE-23/SW22			31-08-23
NAME OF CUSTOMER	GM(ENV.), WC	GM(ENV.), WCL(HQ), NAGPUR			WATER SAMPLE
NAME OF AREA	MAJRI			SAMPLING METHOD: LSOP 5	
NAME OF PROJECT	NEW MAJRI U	NEW MAJRI UG TO OC		SAMPLING PLAN: LQR 47	
NO OF PAGES	1		•		_

NAME OF LOCATION: DOWN STREAM OF WARDHA RIVER W.R.T. MINE DISCHA			ISCHARGE	SAMPLING DATE: 22-05-23
SL. NO.	PARAMETER	TEST METHOD	DETECTION LIMIT	ANALYSIS RESULT
1	pH Value	IS 3025 Part-11 Electrometric Method: 2017	2	7.96
2	Colour (Hazen)	IS 3025 Part-4 Pt-Co Method: 2017	1	3
3	TDS -mg/l	IS 3025 Part-16 Gravimetric Method: 2017	25	340
4	Oil & Greese - mg/l	IS 3025 (Part 39): 1991 (RA 2003) Partition gravimetric Method	2	BDL
5	Dissolved Oxygen - mg/l	IS 3025 (Part-38):1989 (RA 2003) Winkler Azide Method	0.1	4.4
6	B.O.D. (3 days at 27°C) - mg/l	IS 3025 Part 44: 1993 (RA 2014)	2	2.4
7	Arsenic (As)-mg/l	APHA, 23rd Edition 3114 C AAS-VGA Method:2017	0.005	BDL
8	Lead as (Pb) -mg/l	APHA, 23rd Edition 3113 B AAS GTA Method:2017	0.005	BDL
9	Hexavalent Chromium -mg/l	APHA, 23rd Edition 3500-Cr B Colorimetric Method: 2017	0.01	BDL
10	Copper (as Cu) -mg/I	IS 3025 Part-42 AAS Flame Method :2014	0.03	BDL
11	Zinc as (Zn) -mg/l	IS 3025 Part-49 AAS Flame Method:2014	0.01	BDL
12	Selenium (Se) –mg/l	APHA, 23rd Edition 3114 C AAS-VGA Method:2017	0.005	BDL
13	Cadmium as (Cd)- mg/l	APHA, 23rd Edition 3113 B AAS GTA Method:2017	0.0005	BDL
14	Fluoride (as F ⁻)- mg/l	APHA, 23rd Edition 4500-F D SPADNS Method: 2017	0.02	0.92
15	Iron (as Fe) -mg/l	IS 3025 Part-53 AAS Flame Method:2014	0.06	BDL
16	Nitrate Nitrogen - mg/l	APHA, 23rd Edition 4500-NO ³ B UV Spectrophotometric Method: 2017	0.5	0.84
17	Sulphate (as SO ₄ ⁻²) -mg/l	APHA (23rd Edition) 4500E Turbidimetric Method:2017	2	109.7
18	Chlorides (as Cl ⁻)- mg/l	IS 3025 Part-32 1988 Argentometric Method:2014	2	26

BDL: BELOW DETECTION LIMIT

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SURFACE WATER MONITORING REPORT

MAJRI AREA

WESTERN COALFIELDS LTD.

JOB NO.4634420034



QE-SEPTEMBER 2023

Environment Laboratory
NABL Accredited vide Cert. No. TC-7102

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TEST REPORT NO.	RIN/TR/SEPT-23/SW21			DATE OF ISSUE	27-10-2023
NAME OF CUSTOMER	GM(ENV.), WCI	_(HQ), NAGPUR	SAMPLE DESCRIPTION	WATER SAMPLE	
NAME OF AREA	MAJRI	MAJRI		SAMPLING METHOD: LSOP 5	
NAME OF PROJECT	NEW MAJRI UG	NEW MAJRI UG TO OC		SAMPLING PLAN: LQR 47	
NO OF PAGES	1		_		•

NAM	NAME OF LOCATION: UP STREAM OF WARDHA RIVER W.R.T. MINE DISCHARGE			SAMPLING DATE: 13-07-2023
SL. NO.	PARAMETER	TEST METHOD	DETECTION LIMIT	ANALYSIS RESULT
1	pH Value	IS 3025 Part-11 Electrometric Method: 2017	2	7.20
2	Colour (Hazen)	IS 3025 Part-4 Pt-Co Method: 2017	1	2
3	TDS -mg/l	IS 3025 Part-16 Gravimetric Method: 2017	25	210
4	Oil & Greese - mg/l	IS 3025 (Part 39): 1991 (RA 2003) Partition gravimetric Method	2	BDL
5	Dissolved Oxygen - mg/l	IS 3025 (Part-38):1989 (RA 2003) Winkler Azide Method	0.1	8.0
6	B.O.D. (3 days at 27°C) - mg/l	IS 3025 Part 44 : 1993 (RA 2014)	2	3.0
7	Arsenic (As)-mg/l	APHA, 23rd Edition 3114 C AAS-VGA Method:2017	0.005	BDL
8	Lead as (Pb) -mg/l	APHA, 23rd Edition 3113 B AAS GTA Method:2017	0.005	BDL
9	Hexavalent Chromium -mg/l	APHA, 23rd Edition 3500-Cr B Colorimetric Method: 2017	0.01	BDL
10	Copper (as Cu) -mg/l	IS 3025 Part-42 AAS Flame Method :2014	0.03	0.080
11	Zinc as (Zn) -mg/l	IS 3025 Part-49 AAS Flame Method:2014	0.01	0.066
12	Selenium (Se) –mg/l	APHA, 23rd Edition 3114 C AAS-VGA Method:2017	0.005	BDL
13	Cadmium as (Cd)- mg/l	APHA, 23rd Edition 3113 B AAS GTA Method:2017	0.0005	BDL
14	Fluoride (as F⁻)- mg/l	APHA, 23rd Edition 4500-F D SPADNS Method: 2017	0.02	0.24
15	Iron (as Fe) -mg/l	IS 3025 Part-53 AAS Flame Method:2014	0.06	BDL
16	Nitrate Nitrogen - mg/l	APHA, 23rd Edition 4500-NO ³ B UV Spectrophotometric Method: 2017	0.5	1.05
17	Sulphate (as SO ₄ ⁻²) -mg/l	APHA (23rd Edition) 4500E Turbidimetric Method:2017	2	47.54
18	Chlorides (as Cl ⁻)- mg/l	IS 3025 Part-32 1988 Argentometric Method:2014	2	22

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TEST REPORT NO.	RIN/TR/SEPT-23/SW22		DATE OF ISSUE	27-10-2023	
NAME OF CUSTOMER	GM(ENV.), WCL	(HQ), NAGPUR		SAMPLE DESCRIPTION	WATER SAMPLE
NAME OF AREA	MAJRI			SAMPLING METHOD: LSOP 5	
NAME OF PROJECT	NEW MAJRI UG	NEW MAJRI UG TO OC		SAMPLING PLAN: LQR 47	
NO OF PAGES	1		•		•

NAM	NAME OF LOCATION: DOWN STREAM OF WARDHA RIVER W.R.T. MINE DISCHARGE			SAMPLING DATE: 13-07-2023
SL. NO.	PARAMETER	TEST METHOD	DETECTION LIMIT	ANALYSIS RESULT
1	pH Value	IS 3025 Part-11 Electrometric Method: 2017	2	7.36
2	Colour (Hazen)	IS 3025 Part-4 Pt-Co Method: 2017	1	3
3	TDS -mg/l	IS 3025 Part-16 Gravimetric Method: 2017	25	200
4	Oil & Greese - mg/l	IS 3025 (Part 39): 1991 (RA 2003) Partition gravimetric Method	2	BDL
5	Dissolved Oxygen - mg/l	IS 3025 (Part-38):1989 (RA 2003) Winkler Azide Method	0.1	7.5
6	B.O.D. (3 days at 27°C) - mg/l	IS 3025 Part 44 : 1993 (RA 2014)	2	4.2
7	Arsenic (As)-mg/l	APHA, 23rd Edition 3114 C AAS-VGA Method:2017	0.005	BDL
8	Lead as (Pb) -mg/l	APHA, 23rd Edition 3113 B AAS GTA Method:2017	0.005	BDL
9	Hexavalent Chromium -mg/l	APHA, 23rd Edition 3500-Cr B Colorimetric Method: 2017	0.01	BDL
10	Copper (as Cu) -mg/I	IS 3025 Part-42 AAS Flame Method :2014	0.03	0.084
11	Zinc as (Zn) -mg/l	IS 3025 Part-49 AAS Flame Method:2014	0.01	0.082
12	Selenium (Se) –mg/l	APHA, 23rd Edition 3114 C AAS-VGA Method:2017	0.005	BDL
13	Cadmium as (Cd)- mg/l	APHA, 23rd Edition 3113 B AAS GTA Method:2017	0.0005	BDL
14	Fluoride (as F⁻)- mg/l	APHA, 23rd Edition 4500-F D SPADNS Method: 2017	0.02	0.28
15	Iron (as Fe) -mg/l	IS 3025 Part-53 AAS Flame Method:2014	0.06	BDL
16	Nitrate Nitrogen - mg/l	APHA, 23rd Edition 4500-NO ³ B UV Spectrophotometric Method: 2017	0.5	1.18
17	Sulphate (as SO ₄ ⁻²) -mg/l	APHA (23rd Edition) 4500E Turbidimetric Method:2017	2	44.78
18	Chlorides (as Cl ⁻)- mg/l	IS 3025 Part-32 1988 Argentometric Method:2014	2	24

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DRINKING WATER MONITORING REPORT

MAJRI AREA

WESTERN COALFIELDS LTD.

JOB NO.4094423068



QE-JUNE 2023

Environment Laboratory
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TEST REPORT NO.	RIN/TR/JUNE-23/DW33			DATE OF ISSUE	31-07-23
NAME OF CUSTOMER	GM(ENV.), WCL(HQ), NAGPUR			SAMPLE DESCRIPTION	WATER SAMPLE
NAME OF AREA	MAJRI			SAMPLING METHOD: LSOP 5	
NAME OF PROJECT	NEW MAJRI UG	NEW MAJRI UG TO OC		SAMPLING PLAN: LQR 47	7
NO. OF PAGES	2		•		_

NAME C	F LOCATION: FILTER PLANT	SAMPLING DATE: 08-05-23				
					IS 10	500:2012
SL. NO.	PARAMETER	TEST METHOD	DETECTION LIMIT	ANALYSIS RESULT	REQUIREMENT (ACCEPTABLE LIMIT)	PERMISSIBLE LIMIT IN THE ABSENCE OF ALTERNATE SOURCE
1	Colour (Hazen)	IS 3025 Part-4 Pt-Co Method: 2017	1	2	5	15
2	Odour	IS 3025 Part-5:2014	Qualitative	Unobjectionable	Agreeable	Agreeable
3	Turbidity (NTU)	IS 3025 Part-10 Neplometric Method: 2012	1	3	1	5
4	pH Value	IS 3025 Part-11 Electrometric Method: 2017	2	7.76	6.5 to 8.5	No relaxation
5	Total Hardness (as CaCO ₃) - mg/l	IS 3025 Part-21 EDTA Metod: 2014	4	216	200	600
6	Iron (as Fe) -mg/l	IS 3025 Part-53 AAS Flame Method:2014	0.06	BDL	0.3	No relaxation
7	Chlorides (as Cl ⁻)- mg/l	IS 3025 Part-32 1988 Argentometric Method:2014	2	36	250	1000
8	Residual Chlorine -mg/l	APHA, 23rd Edition 4500-G DPD Colorometric method: 2017	0.02	BDL	0.2	1
9	Fluoride (as F ⁻)- mg/l	APHA, 23rd Edition 4500-F D SPADNS Method: 2017	0.02	1.28	1	1.5
10	TDS -mg/l	IS 3025 Part-16 Gravimetric Method: 2017	25	450	500	2000
11	Calcium (as Ca) -mg/l	IS 3025 Part-40 : 2014	1.6	30.40	75	200
12	Magnesium (as Mg) -mg/l	APHA (23rd Ed.) 3500 B, Calculation Method:2017	3	39.8	30	100
13	Copper (as Cu) -mg/l	IS 3025 Part-42 AAS Flame Method :2014	0.03	BDL	0.05	1.5
14	Manganese as (Mn)- mg/l	IS 3025 Part-59, AAS Flame Method: 2006	0.02	BDL	0.1	0.3
15	Sulphate (as SO ₄ -2) -mg/l	APHA (23rd Edition) 4500E Turbidimetric Method:2017	2	62	200	400
16	Nitrates (as NO3) - mg/l	APHA (23rd Edition) 4500- NO3-B UV Spectrophotometric	0.5	9.12	45	No relaxation
17	Cadmium as (Cd)- mg/l	APHA, 23rd Edition 3113 B AAS GTA Method:2017	0.0005	BDL	0.003	No relaxation

18	Lead as (Pb) -mg/l	APHA, 23rd Edition 3113 B AAS GTA Method:2017	0.005	BDL	0.01	No relaxation
19	Selenium (Se) –mg/l	APHA, 23rd Edition 3114 C AAS-VGA Method:2017	0.005	BDL	0.01	No relaxation
20	Arsenic (As)-mg/l	APHA, 23rd Edition 3114 C AAS-VGA Method:2017	0.005	BDL	0.05	No relaxation

21	Zinc as (Zn) -mg/l	IS 3025 Part-49 AAS Flame Method:2014	0.01	BDL	5	15
22	Total Chromium -mg/l	IS 3025 Part-52 Clause 6, AAS Flame Method:2014	0.03	BDL	0.05	No relaxation
23	Boron as (B) -mg/l	APHA, 23rd Edition 4500 B-C Carmine Method:2017	0.002	BDL	0.5	1
24	Alkalinity -mg/l	IS 3025 Part-23:2014	4	156	200	600
25	Nickel-mg/l	APHA, 23rd Edition 3113 B AAS FLAME Method:2017	0.005	BDL	0.02	No relaxation
26	Aluminum (AI)-mg/l	APHA (23rd Edition) 3113B AAS-GTA Method:2017	0.005	BDL	0.1	0.2

BDL: BELOW DETECTION LIMIT

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TEST REPORT NO.	RIN/TR/JUNE-23/DW34			DATE OF ISSUE	31-07-23
NAME OF CUSTOMER	GM(ENV.), WCL(HQ), NAGPUR			SAMPLE DESCRIPTION	WATER SAMPLE
NAME OF AREA	MAJRI	MAJRI		SAMPLING METHOD: LSOP 5	
NAME OF PROJECT	NEW MAJRI UG	NEW MAJRI UG TO OC		SAMPLING PLAN: LQR 47	
NO. OF PAGES	2		•		_

NAME OF LOCATION: EKTA NAGAR COLONY				SAMPLING DATE: 08-05-23		
	·				IS 10	500:2012
SL. NO.	PARAMETER	TEST METHOD	DETECTION LIMIT	ANALYSIS RESULT	REQUIREMENT (ACCEPTABLE LIMIT)	PERMISSIBLE LIMIT IN THE ABSENCE OF ALTERNATE SOURCE
1	Colour (Hazen)	IS 3025 Part-4 Pt-Co Method: 2017	1	2	5	15
2	Odour	IS 3025 Part-5:2014	Qualitative	Unobjectionable	Agreeable	Agreeable
3	Turbidity (NTU)	IS 3025 Part-10 Neplometric Method: 2012	1	3	1	5
4	pH Value	IS 3025 Part-11 Electrometric Method: 2017	2	8.15	6.5 to 8.5	No relaxation
5	Total Hardness (as CaCO ₃) - mg/l	IS 3025 Part-21 EDTA Metod: 2014	4	116	200	600
6	Iron (as Fe) -mg/l	IS 3025 Part-53 AAS Flame Method:2014	0.06	BDL	0.3	No relaxation
7	Chlorides (as Cl ⁻)- mg/l	IS 3025 Part-32 1988 Argentometric Method: 2014	2	28	250	1000
8	Residual Chlorine -mg/l	APHA, 23rd Edition 4500-G DPD Colorometric method: 2017	0.02	BDL	0.2	1
9	Fluoride (as F⁻)- mg/l	APHA, 23rd Edition 4500-F D SPADNS Method: 2017	0.02	1.12	1	1.5
10	TDS -mg/l	IS 3025 Part-16 Gravimetric Method: 2017	25	220	500	2000
11	Calcium (as Ca) -mg/l	IS 3025 Part-40 : 2014	1.6	27.20	75	200
12	Magnesium (as Mg) -mg/l	APHA (23rd Ed.) 3500 B, Calculation Method:2017	3	9.72	30	100
13	Copper (as Cu) -mg/l	IS 3025 Part-42 AAS Flame Method :2014	0.03	BDL	0.05	1.5
14	Manganese as (Mn)- mg/l	IS 3025 Part-59, AAS Flame Method: 2006	0.02	BDL	0.1	0.3
15	Sulphate (as SO ₄ -2) -mg/l	APHA (23rd Edition) 4500E Turbidimetric Method:2017	2	56	200	400
16	Nitrates (as NO3) - mg/l	APHA (23rd Edition) 4500- NO3-B UV Spectrophotometric	0.5	12.10	45	No relaxation
17	Cadmium as (Cd)- mg/l	APHA, 23rd Edition 3113 B AAS GTA Method:2017	0.0005	BDL	0.003	No relaxation

18	Lead as (Pb) -mg/l	APHA, 23rd Edition 3113 B AAS GTA Method:2017	0.005	BDL	0.01	No relaxation
19	Selenium (Se) –mg/l	APHA, 23rd Edition 3114 C AAS-VGA Method:2017	0.005	BDL	0.01	No relaxation
20	Arsenic (As)-mg/l	APHA, 23rd Edition 3114 C AAS-VGA Method:2017	0.005	BDL	0.05	No relaxation

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DRINKING WATER MONITORING REPORT

MAJRI AREA

WESTERN COALFIELDS LTD.

JOB NO.4094423068



QE-SEPTEMBER 2023

Environment Laboratory NABL Accredited vide Cert. No. TC-7102 CMPDI REGIONAL INSTITUTE-IV, KASTURBA NAGAR, JARIPATKA, NAGPUR, PIN – 440 014

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TEST REPORT NO.	RIN/TR/SEPT-23/DW33			DATE OF ISSUE	27-10-2023
NAME OF CUSTOMER	GM(ENV.), WCI	.(HQ), NAGPUR		SAMPLE DESCRIPTION	WATER SAMPLE
NAME OF AREA	MAJRI			SAMPLING METHOD: LSOP 5	
NAME OF PROJECT	NEW MAJRI UG	TO OC	1	SAMPLING PLAN: LQR 47	1
NO. OF PAGES	2		•		-

NAME C	F LOCATION: FILTER PLANT	SAMPLING DATE: 13-07-2023				
		TEST METHOD	DETECTION LIMIT	ANALYSIS RESULT	IS 10500:2012	
SL. NO.	PARAMETER				REQUIREMENT (ACCEPTABLE LIMIT)	PERMISSIBLE LIMIT IN THE ABSENCE OF ALTERNATE SOURCE
1	Colour (Hazen)	IS 3025 Part-4 Pt-Co Method: 2017	1	3	5	15
2	Odour	IS 3025 Part-5:2014	Qualitative	Unobjectionable	Agreeable	Agreeable
3	Turbidity (NTU)	IS 3025 Part-10 Neplometric Method: 2012	1	2	1	5
4	pH Value	IS 3025 Part-11 Electrometric Method: 2017	2	7.45	6.5 to 8.5	No relaxation
5	Total Hardness (as CaCO ₃) - mg/l	IS 3025 Part-21 EDTA Metod: 2014	4	140	200	600
6	Iron (as Fe) -mg/l	IS 3025 Part-53 AAS Flame Method:2014	0.06	BDL	0.3	No relaxation
7	Chlorides (as Cl ⁻)- mg/l	IS 3025 Part-32 1988 Argentometric Method:2014	2	24	250	1000
8	Residual Chlorine -mg/l	APHA, 23rd Edition 4500-G DPD Colorometric method: 2017	0.02	0.042	0.2	1
9	Fluoride (as F ⁻)- mg/l	APHA, 23rd Edition 4500-F D SPADNS Method: 2017	0.02	0.54	1	1.5
10	TDS -mg/l	IS 3025 Part-16 Gravimetric Method: 2017	25	270	500	2000
11	Calcium (as Ca) -mg/l	IS 3025 Part-40 : 2014	1.6	32	75	200
12	Magnesium (as Mg) -mg/l	APHA (23rd Ed.) 3500 B, Calculation Method:2017	3	14.58	30	100
13	Copper (as Cu) -mg/l	IS 3025 Part-42 AAS Flame Method :2014	0.03	BDL	0.05	1.5
14	Manganese as (Mn)- mg/l	IS 3025 Part-59, AAS Flame Method: 2006	0.02	BDL	0.1	0.3
15	Sulphate (as SO ₄ -2) -mg/l	APHA (23rd Edition) 4500E Turbidimetric Method:2017	2	62.18	200	400
16	Nitrates (as NO3) - mg/l	APHA (23rd Edition) 4500- NO3-B UV Spectrophotometric	0.5	4.95	45	No relaxation
17	Cadmium as (Cd)- mg/l	APHA, 23rd Edition 3113 B AAS GTA Method:2017	0.0005	BDL	0.003	No relaxation
18	Lead as (Pb) -mg/I	APHA, 23rd Edition 3113 B AAS GTA Method:2017	0.005	BDL	0.01	No relaxation
19	Selenium (Se) –mg/l	APHA, 23rd Edition 3114 C AAS-VGA Method:2017	0.005	BDL	0.01	No relaxation
20	Arsenic (As)-mg/l	APHA, 23rd Edition 3114 C AAS-VGA Method:2017	0.005	BDL	0.05	No relaxation
21	Zinc as (Zn) -mg/l	IS 3025 Part-49 AAS Flame Method:2014	0.01	BDL	5	15
22	Total Chromium -mg/l	IS 3025 Part-52 Clause 6, AAS Flame Method:2014	0.03	BDL	0.05	No relaxation
23	Boron as (B) -mg/l	APHA, 23rd Edition 4500 B-C Carmine Method:2017	0.002	BDL	0.5	1
24	Alkalinity -mg/l	IS 3025 Part-23:2014	4	80	200	600
25	Nickel-mg/l	APHA, 23rd Edition 3113 B AAS FLAME Method:2017	0.005	BDL	0.02	No relaxation
26	Aluminum (AI)-mg/I	APHA (23rd Edition) 3113B AAS-GTA Method:2017	0.005	BDL	0.1	0.2

BDL: BELOW DETECTION LIMIT

SZL

DEEPANSHU SAHU AUTHORIZED SIGNATORY

SCIENTIFIC ASSISTANT

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Test Report Drinking water quality monit



TEST REPORT NO.	RIN/TR/SEPT-23/DW34			DATE OF ISSUE	27-10-2023
NAME OF CUSTOMER	GM(ENV.), WCI	(HQ), NAGPUR		SAMPLE DESCRIPTION	WATER SAMPLE
NAME OF AREA	MAJRI			SAMPLING METHOD: LSOP 5	
NAME OF PROJECT	NEW MAJRI UG TO OC			SAMPLING PLAN: LQR 47	
NO OF PAGES	2				

NAME C	NAME OF LOCATION: EKTA NAGAR COLONY			SAMPLING DATE: 13-07-2023		
					IS 10500:2012	
SL. NO.	PARAMETER	TEST METHOD	DETECTION LIMIT	ANALYSIS RESULT	REQUIREMENT (ACCEPTABLE LIMIT)	PERMISSIBLE LIMIT IN THE ABSENCE OF ALTERNATE SOURCE
1	Colour (Hazen)	IS 3025 Part-4 Pt-Co Method: 2017	1	2	5	15
2	Odour	IS 3025 Part-5:2014	Qualitative	Unobjectionable	Agreeable	Agreeable
3	Turbidity (NTU)	IS 3025 Part-10 Neplometric Method: 2012	1	3	1	5
4	pH Value	IS 3025 Part-11 Electrometric Method: 2017	2	6.86	6.5 to 8.5	No relaxation
5	Total Hardness (as CaCO ₃) - mg/l	IS 3025 Part-21 EDTA Metod: 2014	4	200	200	600
6	Iron (as Fe) -mg/I	IS 3025 Part-53 AAS Flame Method:2014 IS 3025 Part-32 1988	0.06	BDL	0.3	No relaxation
7	Chlorides (as Cl ⁻)- mg/l	IS 3025 Part-32 1988 Argentometric Method: 2014	2	62	250	1000
8	Residual Chlorine -mg/l	APHA, 23rd Edition 4500-G DPD Colorometric method: 2017	0.02	0.074	0.2	1
9	Fluoride (as F ⁻)- mg/l	APHA, 23rd Edition 4500-F D SPADNS Method: 2017	0.02	0.46	1	1.5
10	TDS -mg/l	IS 3025 Part-16 Gravimetric Method: 2017	25	380	500	2000
11	Calcium (as Ca) -mg/l	IS 3025 Part-40 : 2014	1.6	40	75	200
12	Magnesium (as Mg) -mg/l	APHA (23rd Ed.) 3500 B, Calculation Method:2017	3	24.3	30	100
13	Copper (as Cu) -mg/l	IS 3025 Part-42 AAS Flame Method :2014	0.03	BDL	0.05	1.5
14	Manganese as (Mn)- mg/l	IS 3025 Part-59, AAS Flame Method: 2006	0.02	BDL	0.1	0.3
15	Sulphate (as SO ₄ -2) -mg/l	APHA (23rd Edition) 4500E Turbidimetric Method:2017	2	82.76	200	400
16	Nitrates (as NO3) - mg/l	APHA (23rd Edition) 4500- NO3-B UV Spectrophotometric	0.5	2.37	45	No relaxation
17	Cadmium as (Cd)- mg/l	APHA, 23rd Edition 3113 B AAS GTA Method:2017	0.0005	BDL	0.003	No relaxation
18	Lead as (Pb) -mg/l	APHA, 23rd Edition 3113 B AAS GTA Method:2017	0.005	BDL	0.01	No relaxation
19	Selenium (Se) –mg/l	APHA, 23rd Edition 3114 C AAS-VGA Method:2017	0.005	BDL	0.01	No relaxation
20	Arsenic (As)-mg/l	APHA, 23rd Edition 3114 C AAS-VGA Method:2017	0.005	BDL	0.05	No relaxation
21	Zinc as (Zn) -mg/l	IS 3025 Part-49 AAS Flame Method:2014	0.01	BDL	5	15
22	Total Chromium -mg/l	IS 3025 Part-52 Clause 6, AAS Flame Method:2014	0.03	BDL	0.05	No relaxation
23	Boron as (B) -mg/l	APHA, 23rd Edition 4500 B- C Carmine Method:2017	0.002	BDL	0.5	1
24	Alkalinity -mg/l	IS 3025 Part-23:2014	4	140	200	600
25	Nickel-mg/l	APHA, 23rd Edition 3113 B AAS FLAME Method:2017	0.005	BDL	0.02	No relaxation
26	Aluminum (AI)-mg/I	APHA (23rd Edition) 3113B AAS-GTA Method:2017	0.005	BDL	0.1	0.2

BDL: BELOW DETECTION LIMIT





AUTHORIZED SIGNATORY

SCIENTIFIC ASSISTANT DEEPANSHU SAHU

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WESTERN COALFIELDS LIMITED

(Majri Area)

NEW MAJRI UG TO OPENCAST MINE







Plantation includes the mix of medicinal tree species, timber tree species, Ornamental tree species and fruit bearing species (Arjun, neem, <u>karani</u>, <u>Nilgiri</u>, <u>Sisco</u>, <u>Peltafarm</u>, <u>Guimohar</u>, <u>Kesia</u>, Jamun, Mango, Bei etc.)



Plantation along Mine Boundary



PLANTATIONS

- > Plantation has been undertaken in the mine area as mitigation measure against air pollution, noise pollution and to increase the aesthetic value.
- Currently 34 ha of ML area in safety zone has been planted (with 85000 saplings, 2500 sapling/ha) and 22 ha of top soil dumps has been planted (with 55000 saplings, by Madhya Pradesh Rajya Van Vikas Nigam Ltd with local plant species such as Arjun, Neem, Karanj, Nilgiri, Sisoo, Gulmohar, Kesia, Jamun, Mango, Bel etc.

Existing Plantation Details

Year	Area Planted (in ha)	Saplings Planted
2016-17	8	20000
2018-19	6	15000
2019-20	6	15000
2021-22	20	50000
2022-23	16	40000
Total	56	1,40,000

Plantation at New Majri UG to OC (2019-20)



PLANTATIONS

- ➤ Total 234.34 ha (33%) area will be planted till the end of mine life.
- ➤ The plantation will act as green barrier and tool for air pollution control. The width of the existing green barrier of 34 ha varies from 50 m to 160 m.

Year-wise Status of Plantation done is 2016-17



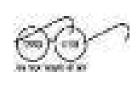
Initial Status

After two years

Survival rate is more than 75 % for the plantation

After three years





WESTERN COALFIELDS LIMITED













Plantation along Mine Boundary



AVENUE PLANTATION





Air Pollution Control Measures

Installation of Fixed Sprinklers / Rain Guns at / along / around the dust generating sources viz Haul roads, Stock yard, Railway siding, Coal Handling Plants etc.

Mobile Mist/ Fogg Cannons, Water Sprinklers deployed along haul roads & other transportation roads

Black-topping of Roads, tarpaulin covering of trucks and road side avenue plantation is undertaken.

Tree Plantation as Green belt

Dust Suppression Measures To Control Dust Emissions

Name of the Mine	Fixed Sprinklers / Rain Guns	Location	Mobile Tankers (Nos)
New Majri UG to OC	42	CHP, Coal transportation road, Way bridge	04

- **→** 3 Nos. Trolley Mounted Mist Foggers
- ➤ 42 no of sprinklers are provided along Coal transport road, approach road to weighbridge and Coal stock yard.
- ➤ Mist spray arrangement at Mobile Crushers
- > 10 nos. of Rain guns are provided in railway Siding
- > Side cladding provided at Mobile Crusher

Air Quality Pollution Mitigation Measures

Blanketing of exposed coal face by overburden

- ➤ The existing New Majri UG to OC is conversion of underground mine into the opencast coal mine.
- ➤ The underground mining operations have involved development in two sections of 3m each by Bord & Pillar method and depillaring by split & stowing or slicing & stowing.
- > The face of underground galleries containing coal is opened up, leading to free flow of air inside.
- > As the fires got exposed to the open air, its speedy spread becomes an issue.
- ➤ Coal face are being blanketed by overburden material to prevent fire in exposed coal galleries. Blanketing of coal face will be continued during the expansion also as required.



Dust Suppression Measures To Control Dust Emissions



Fixed Water Sprinklers at Coal Stockyard

Air Quality Pollution Mitigation Measures



Fixed Sprinklers at Coal Stockyard



Mobile Water Sprinkler



Dust Suppression Measures To Control Dust Emissions

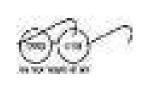




Trolley Mounted Mist Fogger Canon System: 3 nos.

LOCATION	Nos.
MOBILE CRUSHER 1	1
MOBILE CRUSHER 2	1
RAILWAY SIDING	1





WESTERN COALFIELDS LIMITED

(Majri Area)

NEW MAJRI UG TO OPENCAST MINE







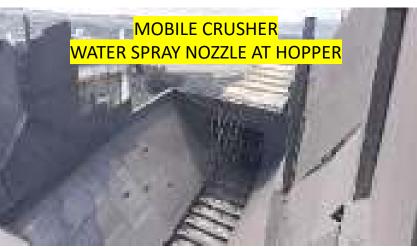


Mist Spray & Wetting of Coal on conveyor Arrangements in Mobile Crusher



NEW MAJRI UG TO OC MINE: FIXED & MIST SPRINKLERS









MIST SPRAY ARRANGEMENT IN MOBILE

CRUSHER

STATUS OF DUST BARRIER

AREA COVERED	HEIGHT	LENGTH	REMARKS
RAILWAY SIDING	10 FEET	300 MTRS	FROM SCRAP SHEETING



DUST BARRIER FOR RAILWAY SIDING HEIGHT: 10 FTS, TOTAL LENGTH: 300 mtrs

STATUS OF SHEETING OF CHP & MOBILE CRUSHERS

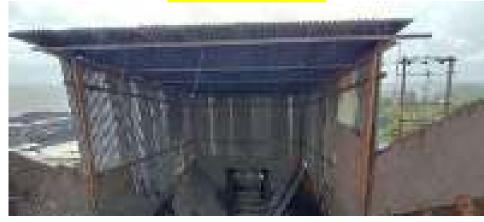


BELT CURTAINS AT DISCHARGE POINT OF NMOC CHP



GI SHEETING ENCLOSURE FOR MOBILE CRUSHERS

NMUG TO OC MINE



Continuous Ambient Air Quality Monitoring Station (CAAQMS) at New

Majri UG to OC



CAAQMS Building



Display Board



Computer for report generation



Analyzer Racks



ROOF MOUNTED SAMPLING UNIT & WEATHER ANALYSERS

CAAQMS Data

Name of M	-	TRANS Special	Fed. Service	HAZA.	200	24	oola	200	Trans.	Sept.	Scale Secretary	Heyer Switzer	712 7.28	TER		Africano
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PME-IME REPORT 2018-19

UNIT WISE PIME STATUS

UNIT	PIME
NEW MAIR II A OC MINE	290
NEW MAJR US TO DE MINE	182
YEKONA OC MINE	34
AHO	52
NAVIN KUNADA DO MINE	0.0
JUNA KUNADA GC MINE	05
TELWASA OCIVINE	76
DHORWASA OC MINE	06
AREA STORES	00
TOTAL	551
PME BELOW 45 YRS OF AGE	83
PME ABOVE 45 YPS OF AGE	568

DEPARTMENTAL EMPLOYET IME STATUS

TOTAL MATERIAL ACTION AND ACTION ACTION AND ACTION ACTION AND ACTION ACTION AND ACTION ACTI	CONTRACTOR AND ADDRESS OF THE PARTY OF THE P	
CONTRACTOR OF CO	VCL MAJRI AREA	67

CONTRACTOR WISE IME DETAILS

NAME OF CONTRACTOR 2018	TEAL
MAHALAKMI CONT.NMOC MINE	52
MANSA TRAVELS AREA SECURITY OFFICE/ MA	3
HANSA TRAVELS ASO/MA	2
HANSA TRAVELS NMGC	14
SUHAMI TRAVELS YEKONA	4
SHIVAM TRAVELS INMUG TO OC	2
SURDDAY CONTINMOC	56
KING TRAVELS TOC	2
KANDALA CONT YEKONA	75
SUHANI TRAVELS MINUS TO DC	I-
MANSA TRAVELS YERONA	6
SHANKAR TOTAWAR TOC	8
HANSA TRAVEL YEKOMA	1
KINGS TRAVEL YEKONA	2
SANUAY TRAVELS TOC	2
HANSA TRAVELS IKOC	
KING TRAVELS CM/MA	2
K BAPU CIVIL YEKONA	
MANSA TRAVELS	2 8

Majri Area, WCL

SHIVAM TRAVELS NIMOC	1
DASMESH CONTINUOS	5
HAJ TRAVELS WACC	2
SANDIP SINGH TRAVELS NIMOC	1
SVIRI BALAJI TRAVELS YEKONA	1
GANESH DICHAWALE CONTIYERONA	4
R.K.DIESE: CONT.YEKONA YEKUNA	1
MANSACANI BUS CONT. NMOC	2
HANSA TRAVELS NMUG TO CC	1
TOTAL	263

Majri Area, WCL

PIME-IME REPORT 2019-20

UNIT WISE PIME STATUS

UNIT	PME
NEW MARCH A OC MINE	361
NEW MAJRIUG TO DE MINE	183
YEKONA OC MINE	47
AHQ.	75
NAVIN KUNADA OC MINE	04
JUNA KUNADA OC MINE	06
TELWASA OC MINE	33
DHORWASA OC MINE	01
AREA STORES	00
TOTAL	710
PIME BELOW 45 YHS OF AGE	148
FIVE ABOVE 45 YRS OF AGE	563

DEPARTMENTAL EMPLOYEE IMESTATUS

Annual Control of the	
THE REPORT OF THE PARTY OF THE	411
IME WCL MAIR! AREA	99
The state of the s	

CONTILACTOR WISE IME DETAILS

NAME OF CONTRACTOR 2019	IME
SHIV TRAVELS NIVIOC MINE	03
MAHALAXMI CONT. MNIOC MINE	55
GANESH CHAWALE YERONA MINE	01
VIMAL CHAWALE SMCC MINE	06
KANGLA CONT. YEKONA MINE	174
COAL TESTING LABORATORY/MA	-01
KING TRAVELS CONT. YEKONA	00
MANSATRAVELS CONT.NMCC	03
MANSA TRAVELS CONT. YEKDINA MINE	02
K BAPU CONT YEKONA	03
HANSA TRAVELS US TO OC	04
SONU TRAVELES YEROMA	12
CALIBER MERCONTI CONT YEKONA	06
MyS KULDEEP PRASAD SINGH	67
SURYDDAY CONTINUOC	25



SHREE BALAJI TRAVELS YEKONA	03
SUHANI TRAVELS YEKONA.	02
GLOBE TRANSPORT CONTIUG TO OC	09
AWATAR SING CONT HIS TO OC	51
MERBOR TRAVELS US TO OC	- 01
SHREE BALAH THAVELS NIMDE	02
SRP-UHALPL-JV CONT UG TO CX.	04
RAKESH KUMAR SINGH YEKONA	- Ot
TOTAL	377

AMO Majri Area, WCL

PIME-IMIE REPORT 2020-21

UNIT WISE PME STATUS

UNIT	PME
NEW MARRIERA OC MENT	178
REW MACHING TO DO MINE	219
VENDRA DE MINI	7/3
AHO	-11
NAVIN BUNADA DE MINE	- 04
JUNA KUNUDA OC MINE	- 01
TELWASA OC MINE	21
DHORWASA OC MINE	00
AREA STORES	00
TOTAL	438
PME IIII OW 15 YES OF ASS	134
PMS AROVE 45 YRS DF AGE.	340

DEPARTMENTAL EMPLOYEE IME STATUS

IME WCL MAIRI AREA	16
THE WILL HANDEN PURCH	10

CONTRACTOR WISE IME DETAILS

NAME OF CONTRACTOR 2020	IME
TURDONY CONT. NMOC MINE	0.7
NUCHALAXIAN CONTINUADO MINE	01
SUBMINITEMELS CONT. YOU DISA	0.5
KANDALA CONTI YEKONA MINE	151
NAGRAL TRAVELS CONT. LEKONA.	07
K BAPU CONT JROC MINE	09
SHRI BALAII TRAVELS CONT YEKONA	01
HARTEAM GODARA CONTYCKONA	- 68
HAPPY TOURS & TRAVELS ASO/MA	DI
GAMERI DIAWALE TRAVELS YEKONA	- 01
HANSA TILWELL DON'T MINOC MINE	.01
SHAWAM TRAVELS CONT YOKONA	0.3
SHIVAM TRAVELS CONT. YEKONA UG TO DE	.0.1
DOTECNA CONTI AND MA	000
SHP UT-ALFIV CONT. UG TO GC ATINE	03
AWATAA SINSH WANCE CONTINUE TO JO KNINE	04
GLDBAL TRAVELS CONT. US TO DE MINE	101
TOTAL	254



PIME-HME REPORT 2021-22

UNIT WISE PME STATUS

UNIT	PME
NEW MAIRLILA OC MINE	163
NEW MAJE US TO DO MINE	196
AMALG. YEKONA LIL II GC MINE	56
AHO	00
NAVIN KUNADA OC MINE	10
JUNA SUNADA OC MINE	- 00
TELWASA DE MINE	1/7
DHORWASA OC MINE	00
AREA STORES	-00
TOTAL	463
PIME BELOW 45 YRS OF AGE	129
PME ASOVE 45 YRS OF AGE	334

DEPARTMENTAL EMPLOYEE IME STATUS

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LA AND TAXABLE AND A TRUE AND A PART AS	87
IME WEL MAJREAREA	
111000 10000 1000 1000 1000 1000 1	

CONTRACTOR WISE IME DETAILS

NAME OF CONTRACTOR	IME
SHIVAM TRAVELS CONTUGITO OF MINE	01
SHREE ENTERPRISES CONTINUOCIMINE	01
HANSA TRAVELS CONTINUED MINE	02
BALAJI TRAVELS CONT NMSA	- 01
KARAMIEET SINGH CONT NMOC MINE	33
MANSA TRAVELS CONT HANSA US TO/OU MINE	02
COTECNA INSPECTION TESTING LAB MAJIN CONT ANG(OC) MA	23
MERBOOR CONTUGITO OC MINE	2
M/S SINGH SHREE ENTERPRISES DY GM/MA	.02
SRP-UI-ALPL-IV CONT (IG TO CIC MINE	04
MAMERS AVINAGH LOGISTRIES PVT LTD MA	06
M/S SINGH CONSTRUCTION CONT SAE/NMSA	95
MAMERS HANSA TRAVELS CONTING TO OC	01
SH WAM TRAVELS CONT YEKONA MINE	D1
TOTAL	80

Majri Area, WCL

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Water Quality Control Measures

i) Workshop Effluent

The waste-water from workshop and CHP, which normally remain laden with oil and grease, suspended and dissolved solids

etc. is treated in the Effluent Treatment Plant (ETP). A 100 KL Effluent Treatment plant has been constructed at New Mairi UG

to OC.







Water Quality Control Measures

ii) Mine Water

- ➤ The mine is conversion of underground coal mine to opencast coal mine. At present the water accumulates in the underground galleries. No mine discharge is being done from the opencast working area. However in future the pumps will be installed in the quarry for discharge of mine water.
- ➤ Most of the suspended particles will be settled in the sump located in the quarry and the supernatant water will be pumped out to the sedimentation tank present on surface. This water is to be passed through sedimentation pond on surface, before being reused or discharged in to River.
- A sedimentation tank has been constructed at New Majri UG to OC with dimension of 28 mtr x 8 mtr x 1.20 mtr (with 2 nos. baffle walls). For the expansion proposal an additional sedimentation tank has been proposed. Provision of Rs 25.00 Lakhs has been made in the approved Project Report for the construction of additional sedimentation tank.



Tel: (603)-363-4500 THOMAS INSTRUMENTS INC. Fax: (603)-363-4249

Vibration Report

Peak Measurements

EventName: V4AI118023-090222-164659

Recording Time: 16:46:59 Recording Date: 09-02-22

Project: NMUG to OC Mine, Majri Area, WCL

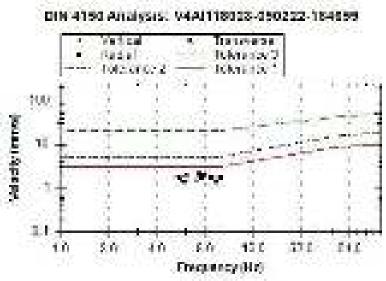
Location: OB HOE Face.

Operator: Blasting Officer, NMUG to OC Mine Total Hole :- 55, Burden X Spacing :- 3.5m X 4.5m

Blast to Sensor Distance (m): 100m Distance from Naglone Village :- 910m Maximum Weight per Delay (Kg): 42.00 Kg

Hole Length :- 5.5m

	Vertical	Transverse	Radial
PPV (mm/s)	1.691	2.096	2.103
Freq (Hz)	5.3	7.4	7.5
Time (ms)	660	250	230
PPA (g)	0.01	0.01	0.01
PPD (mm)	0.05078	0.04508	0.04463
PVS (mm/s)	2.943 @ 301.8ms		
PSPL (PA)	0.11 (74.942 dB) @ 296.9ms		
PSPL Freq	512.0Hz		
Sensor Test	Passed	Passed	Passed



Extraction of Sector Polymer

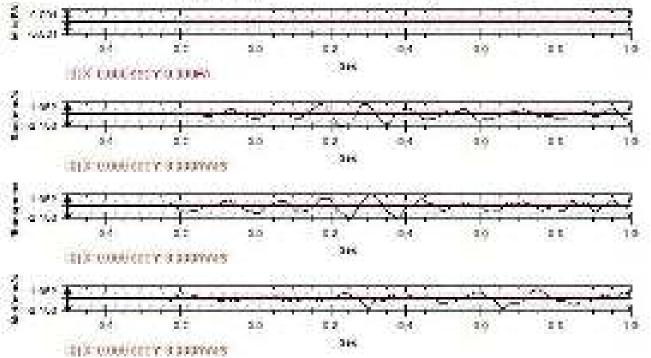
System Configuration

Serial Number: V4AI118023

Calibration Date: December 21, 2021

Model: VMS-4000 Geo Trigger: 1.27 (mm/s) Mic Trigger: Disabled Manual Trigger: Disabled Record Time: 1 seconds(s)

SeisWare Version Used For Download: 02.03.0000



P.O. BOX 50 ROUTE 9

Peak Measurements

Fax: (603)-363-4249

EventName: V4AI118023-090222-164702

Recording Time: 16:47:02 Recording Date: 09-02-22

Project: NMUG to OC Mine, Majri Area, WCL

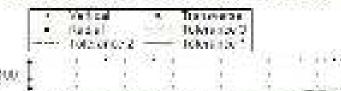
Location: Coal Face, Dept.

Operator: Blasting Officer, NMUG to OC Mine Total Hole: - 18, Burden X Spacing: - 4.0m X 4.0m

Blast to Sensor Distance (m): 100m Distance from Naglone village: - 920m Maximum Weight per Delay (Kg): 31.25 Kg

Hole Length :- 5.0m

	Vertical	Transverse	Radial
PPV (mm/s)	1.565	1.293	1.300
Freq (Hz)	8.4	6.7	7.1
Time (ms)	26	657	322
PPA (g)	0.01	0.01	0.01
PPD (mm)	0.02965	0.03071	0.02914
PVS (mm/s)	1.632 @ 29.3ms		
PSPL (PA)	0.12 (75.412 dB) @ 506.8ms		
PSPL Freq	512.0Hz		
Sensor Test	Passed	Passed	Passed



DIN 4150 AABIYSIS. V4AI118003-050222-184702.



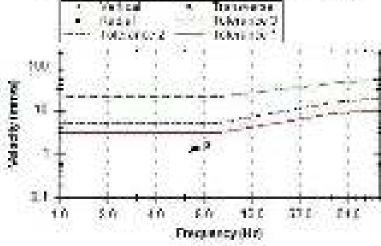
System Configuration

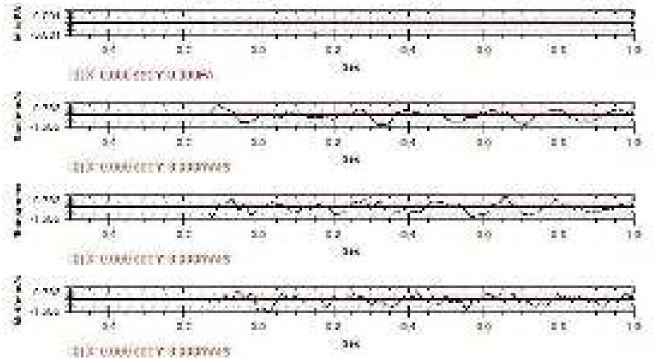
Serial Number: V4AI118023

Calibration Date: December 21, 2021

Model: VMS-4000 Geo Trigger: 1.27 (mm/s) Mic Trigger: Disabled Manual Trigger: Disabled Record Time: 1 seconds(s)

SeisWare Version Used For Download: 02.03.0000





Peak Measurements

Fax: (603)-363-4249

EventName: V4AI118023-090222-164656

Recording Time: 16:46:56 Recording Date: 09-02-22

Project: NMUG to OC Mine, Majri Area, WCL

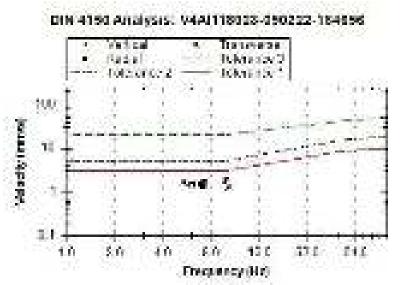
Location: OB HOE Face.

Operator: Blasting Officer, NMUG to OC Mine Total Hole: - 55, Burden X Spacing: - 3.5 X 4.5

Blast to Sensor Distance (m): 100m Distance from Patala Village :- 1430m Maximum Weight per Delay (Kg): 42.00 Kg

Hole Length :- 5.5m

	Vertical	Transverse	Radial
PPV (mm/s)	1.670	1.838	1.188
Freq (Hz)	7.3	9.8	8.0
Time (ms)	510	430	72
PPA (g)	0.01	0.01	0.01
PPD (mm)	0.03641	0.02985	0.02363
PVS (mm/s)	2.106 @ 369.1ms		
PSPL (PA)	0.11 (74.942 dB) @ 67.4ms		
PSPL Freq	512.0Hz		
Sensor Test	Passed	Passed	Passed



Secolows

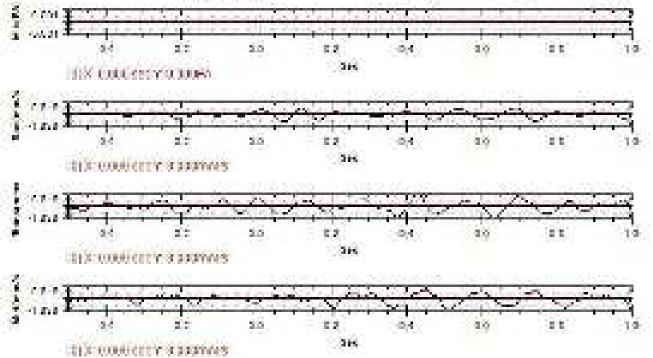
System Configuration

Serial Number: V4AI118023

Calibration Date: December 21, 2021

Model: VMS-4000 Geo Trigger: 1.27 (mm/s) Mic Trigger: Disabled Manual Trigger: Disabled Record Time: 1 seconds(s)

SeisWare Version Used For Download: 02.03.0000



Peak Measurements

Fax: (603)-363-4249

EventName: V4AI118023-100222-162041

Recording Time: 16:20:41 Recording Date: 10-02-22

Project: NMUG to OC Mine, Majri Area, WCL

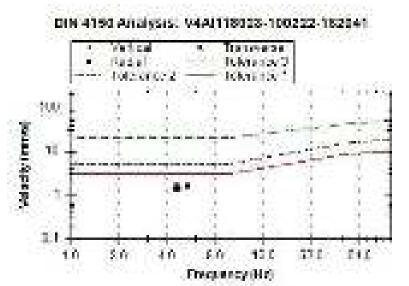
Location: OB HOE Face.

Operator: Blasting Officer, NMUG to OC Mine Total Hole :- 50, Burden X Spacing :- 3.5m X 4.5m

Blast to Sensor Distance (m): 100m Distance from Patala Village :- 1400m Maximum Weight per Delay (Kg): 46.875 Kg

Hole Length :- 5.5m

	Vertical	Transverse	Radial
PPV (mm/s)	1.614	1.712	1.558
Freq (Hz)	4.6	4.5	5.4
Time (ms)	917	953	700
PPA (g)	0.00	0.00	0.01
PPD (mm)	0.05584	0.06055	0.04592
PVS (mm/s)	2.242 @ 942.4ms		
PSPL (PA)	6.44 (110.161 dB) @ 956.1ms		
PSPL Freq	23.3Hz		
Sensor Test	Passed	Passed	Passed



THOMAS A

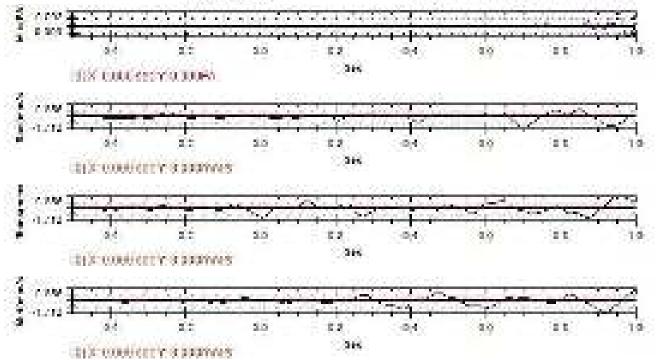
System Configuration

Serial Number: V4AI118023

Calibration Date: December 21, 2021

Model: VMS-4000 Geo Trigger: 1.27 (mm/s) Mic Trigger: Disabled Manual Trigger: Disabled Record Time: 1 seconds(s)

SeisWare Version Used For Download: 02.03.0000



Peak Measurements

Fax: (603)-363-4249

EventName: V4AI118023-090722-163426

Recording Time: 16:34:26 Recording Date: 09-07-22

Project: NMUG to OC Mine, Majri Area, WCL

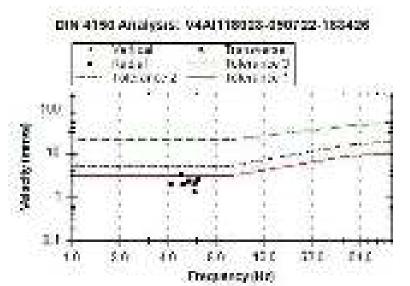
Location: OB HOE Face.

Operator: Blasting Officer, NMUG to OC Mine Total Hole: - 39, Burden X Spacing: - 3.5m X 4.5m

Blast to Sensor Distance (m): 100m Distance from Shivji Nagar :- 1100m Maximum Weight per Delay (Kg): 48.00 Kg

Hole Length :- 5.5m

	Vertical	Transverse	Radial
PPV (mm/s)	1.384	2.103	3.159
Freq (Hz)	8.8	5.9	4.8
Time (ms)	18	244	52
PPA (g)	0.01	0.01	0.01
PPD (mm)	0.02503	0.05673	0.10474
PVS (mm/s)	3.411 @ 46.9ms		
PSPL (PA)	4.90 (107.778 dB) @ 39.1ms		
PSPL Freq	12.8Hz		
Sensor Test	Passed	Passed	Passed



Seddlere

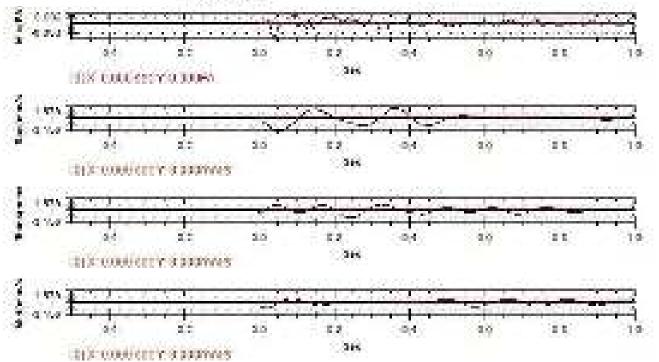
System Configuration

Serial Number: V4AI118023

Calibration Date: December 21, 2021

Model: VMS-4000 Geo Trigger: 1.27 (mm/s) Mic Trigger: Disabled Manual Trigger: Disabled Record Time: 1 seconds(s)

SeisWare Version Used For Download: 02.03.0000



Peak Measurements

Fax: (603)-363-4249

EventName: V4AI118023-091022-161322

Recording Time: 16:13:22 Recording Date: 09-10-22

Project: NMUG to OC Mine, Majri Area, WCL

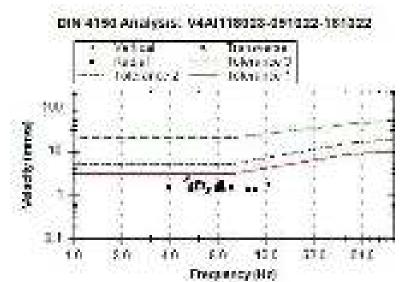
Location: OB HOE Face.

Operator: Blasting Officer, NMUG to OC Mine Total Hole :- 67, Burden X Spacing :- 3.5m X 4.5m

Blast to Sensor Distance (m): 100m Distance from Patala Village :- 1400m Maximum Weight per Delay (Kg): 45.00 Kg

Hole Length :- 5.5m

	Vertical	Transverse	Radial
PPV (mm/s)	1.335	2.390	1.964
Freq (Hz)	5.3	5.2	8.4
Time (ms)	457	361	743
PPA (g)	0.00	0.01	0.01
PPD (mm)	0.04009	0.07315	0.03721
PVS (mm/s)	2.505 @ 358.4ms		
PSPL (PA)	7.02 (110.914 dB) @ 977.5ms		
PSPL Freq	21.3Hz		
Sensor Test	Passed	Passed	Passed



INCOMES TO SECONDARY

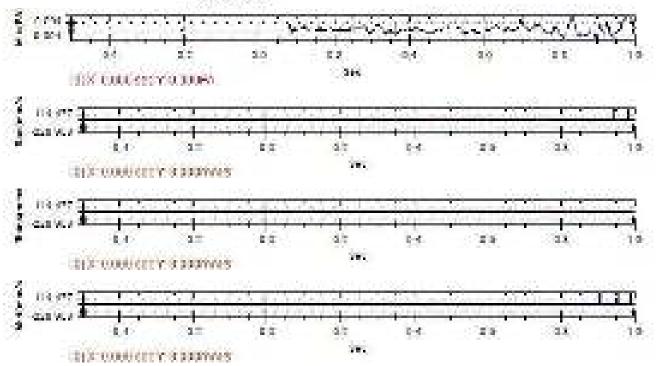
System Configuration

Serial Number: V4AI118023

Calibration Date: December 21, 2021

Model: VMS-4000 Geo Trigger: 1.27 (mm/s) Mic Trigger: Disabled Manual Trigger: Disabled Record Time: 1 seconds(s)

SeisWare Version Used For Download: 02.03.0000



Peak Measurements

Fax: (603)-363-4249

EventName: V4AI118023-091822-170032

Recording Time: 17:00:32 Recording Date: 09-18-22

Project: NMUG to OC Mine, Majri Area, WCL

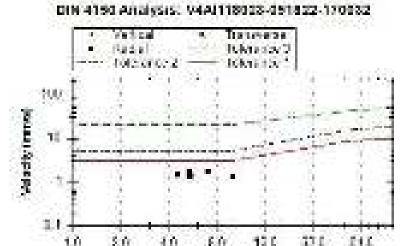
Location: Coal Face, Dept.

Operator: Blasting Officer, NMUG to OC Mine Total Hole :- 24, Burden X Spacing :- 3.5m X 4.5m

Blast to Sensor Distance (m): 100m Distance from Patala village :- 1420m Maximum Weight per Delay (Kg): 46.875 Kg

Hole Length :- 5.0m

	Vertical	Transverse	Radial
PPV (mm/s)	0.783	1.335	1.726
Freq (Hz)	10.0	5.6	5.4
Time (ms)	270	291	107
PPA (g)	0.01	0.00	0.01
PPD (mm)	0.01246	0.03794	0.05087
PVS (mm/s)	1.802 @ 107.4ms		
PSPL (PA)	12.70 (116.059 dB) @ 253.9ms		
PSPL Freq	9.8Hz		
Sensor Test	Passed	Passed	Passed



Seddlere

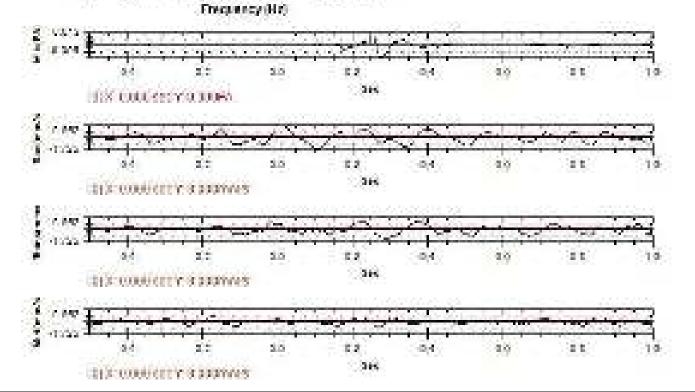
System Configuration

Serial Number: V4AI118023

Calibration Date: December 21, 2021

Model: VMS-4000 Geo Trigger: 1.27 (mm/s) Mic Trigger: Disabled Manual Trigger: Disabled Record Time: 1 seconds(s)

SeisWare Version Used For Download: 02.03.0000



Peak Measurements

Fax: (603)-363-4249

EventName: V4AI118023-091922-164601

Recording Time: 16:46:01 Recording Date: 09-19-22

Project: NMUG to OC Mine, Majri Area, WCL

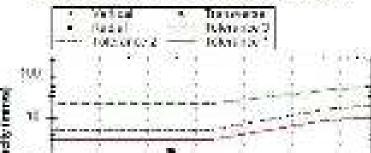
Location: OB HOE Face.

Operator: Blasting Officer, NMUG to OC Mine Total Hole: - 43, Burden X Spacing: - 3.5m X 4.5m

Blast to Sensor Distance (m): 100m Distance from Patala Village :- 1450m Maximum Weight per Delay (Kg): 46.875 Kg

Hole Length :- 5.5m

	Vertical	Transverse	Radial
PPV (mm/s)	0.755	1.377	1.712
Freq (Hz)	7.5	5.8	5.4
Time (ms)	423	10	74
PPA (g)	0.00	0.01	0.01
PPD (mm)	0.01602	0.03779	0.05046
PVS (mm/s)	1.895 @ 77.1ms		
PSPL (PA)	8.83 (112.901 dB) @ 653.3ms		
PSPL Freq	14.6Hz		
Sensor Test	Passed	Passed	Passed



DIN 4150 AABIySIS, V4AI118028-051522-184801



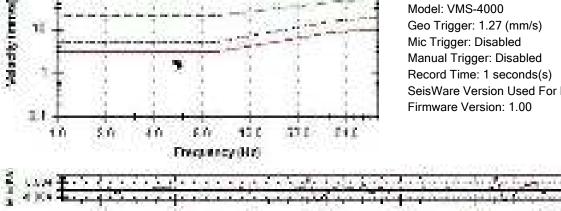
System Configuration

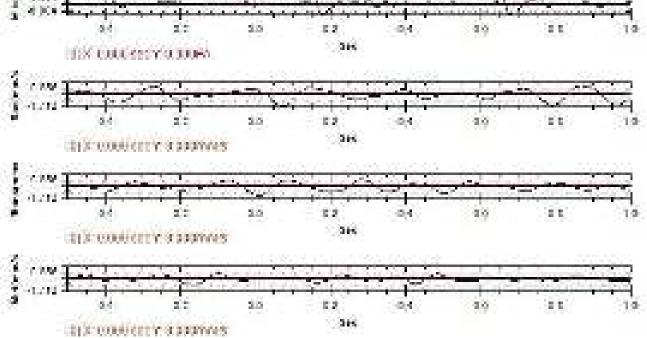
Serial Number: V4AI118023

Calibration Date: December 21, 2021

Model: VMS-4000 Geo Trigger: 1.27 (mm/s) Mic Trigger: Disabled Manual Trigger: Disabled

SeisWare Version Used For Download: 02.03.0000





Peak Measurements

Fax: (603)-363-4249

EventName: V4AI118023-092022-162820

Recording Time: 16:28:20 Recording Date: 09-20-22

Project: NMUG to OC Mine, Majri Area, WCL

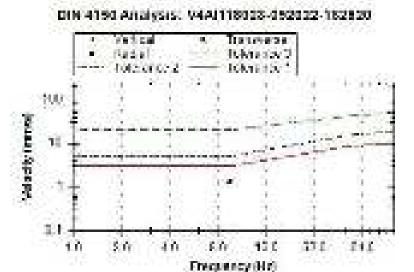
Location: OB HOE Face.

Operator: Blasting Officer, NMUG to OC Mine Total Hole :- 50, Burden X Spacing :- 3.5m X 4.5m

Blast to Sensor Distance (m): 100m Distance from Naglone Village :- 910m Maximum Weight per Delay (Kg): 46.875 Kg

Hole Length :- 5.5m

	Vertical	Transverse	Radial
PPV (mm/s)	1.230	1.356	1.195
Freq (Hz)	5.2	9.5	6.5
Time (ms)	175	4	452
PPA (g)	0.00	0.01	0.00
PPD (mm)	0.03765	0.02272	0.02926
PVS (mm/s)	1.807 @ 2.9ms		
PSPL (PA)	3.15 (103.954 dB) @ 101.6ms		
PSPL Freq	12.5Hz		
Sensor Test	Passed	Passed	Passed



Sections

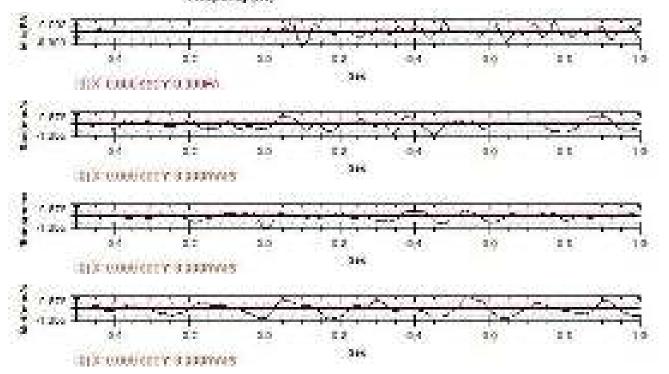
System Configuration

Serial Number: V4AI118023

Calibration Date: December 21, 2021

Model: VMS-4000 Geo Trigger: 1.27 (mm/s) Mic Trigger: Disabled Manual Trigger: Disabled Record Time: 1 seconds(s)

SeisWare Version Used For Download: 02.03.0000



Peak Measurements

Fax: (603)-363-4249

EventName: V4AI118023-092722-161207

Recording Time: 16:12:07 Recording Date: 09-27-22

Project: NMUG to OC Mine, Majri Area, WCL

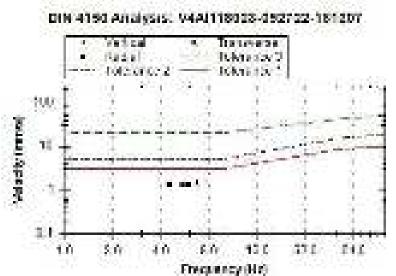
Location: OB HOE Face.

Operator: Blasting Officer, NMUG to OC Mine Total Hole :- 60, Burden X Spacing :- 3.5 mX 4.5m

Blast to Sensor Distance (m): 100m Distance from Naglone Village :- 920m Maximum Weight per Delay (Kg): 50.00 Kg

Hole Length :- 5.5m

	Vertical	Transverse	Radial
PPV (mm/s)	0.783	1.509	1.349
Freq (Hz)	6.0	6.6	4.5
Time (ms)	217	34	498
PPA (g)	0.00	0.01	0.00
PPD (mm)	0.02077	0.03639	0.04771
PVS (mm/s)	1.814 @ 26.4ms		
PSPL (PA)	3.74 (105.429 dB) @ 894.5ms		
PSPL Freq	12.5Hz		
Sensor Test	Passed	Passed	Passed





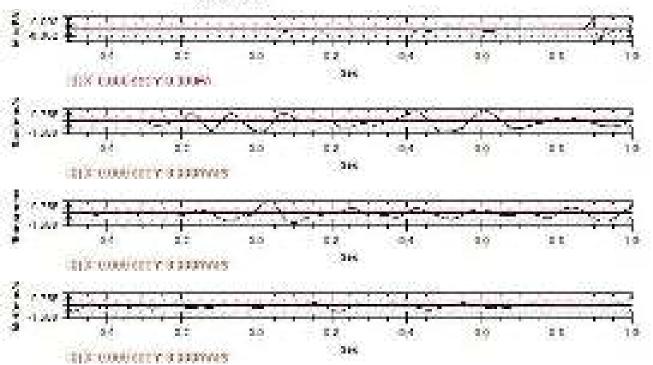
System Configuration

Serial Number: V4AI118023

Calibration Date: December 21, 2021

Model: VMS-4000 Geo Trigger: 1.27 (mm/s) Mic Trigger: Disabled Manual Trigger: Disabled Record Time: 1 seconds(s)

SeisWare Version Used For Download: 02.03.0000



Peak Measurements

Fax: (603)-363-4249

EventName: V4AI118023-083122-165255

Recording Time: 16:52:55 Recording Date: 08-31-22

Project: NMUG to OC Mine, Majri Area, WCL

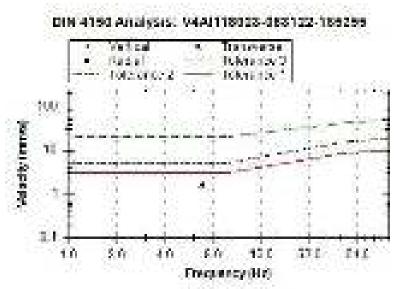
Location: OB HOE Face,

Operator: Blasting Officer, NMUG to OC Mine Total Hole :- 50, Burden X Spacing :- 3.5m X 4.5m

Blast to Sensor Distance (m): 100m Distance from Patala Village :- 1450m Maximum Weight per Delay (Kg): 46.875 Kg

Hole Length :- 5.5m

	Vertical	Transverse	Radial				
PPV (mm/s)	1.027	1.593	0.999				
Freq (Hz)	7.2	6.8	5.6				
Time (ms)	56	15	737				
PPA (g)	0.00	0.01	0.00				
PPD (mm)	0.02270	0.03728	0.02839				
PVS (mm/s)	1	.596 @ 16.6ms	3				
PSPL (PA)	6.30 (109.966 dB) @ 769.5ms						
PSPL Freq	24.4Hz						
Sensor Test	Passed	Passed	Passed				



Seddeline

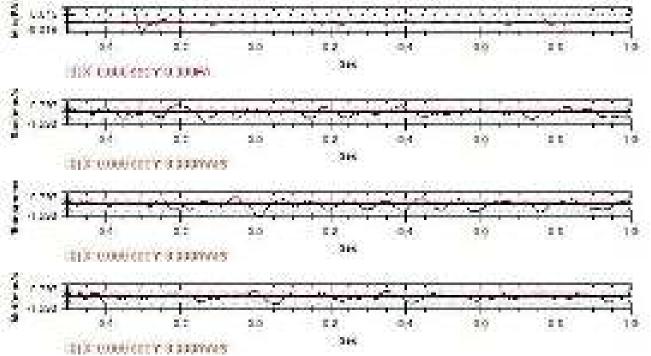
System Configuration

Serial Number: V4AI118023

Calibration Date: December 21, 2021

Model: VMS-4000 Geo Trigger: 1.27 (mm/s) Mic Trigger: Disabled Manual Trigger: Disabled Record Time: 1 seconds(s)

SeisWare Version Used For Download: 02.03.0000



Peak Measurements

Fax: (603)-363-4249

EventName: V4AI118023-120222-164337

Recording Time: 16:43:37 Recording Date: 12-02-22

Project: NMUG to OC Mine, Majri Area, WCL

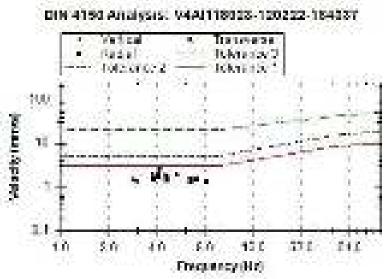
Location: OB HOE Face.

Operator: Blasting Officer, NMUG to OC Mine Total Hole :- 60, Burden X Spacing :- 3.5m X 4.5m

Blast to Sensor Distance (m): 100m Distance from Patala village :- 1400m Maximum Weight per Delay (Kg): 50.00 Kg

Hole Length :- 5.5m

	Vertical	Transverse	Radial			
PPV (mm/s)	1.160	2.411	1.726			
Freq (Hz)	5.2	4.2	4.1			
Time (ms)	747	724	863			
PPA (g)	0.00	0.01	0.00			
PPD (mm)	0.03550	0.09136	0.06700			
PVS (mm/s)	2	.587 @ 731.4m	s			
PSPL (PA)	6.65 (11	10.433 dB) @ 69	99.2ms			
PSPL Freq	14.6Hz					
Sensor Test	Passed	Passed	Passed			



HOMAS Sections

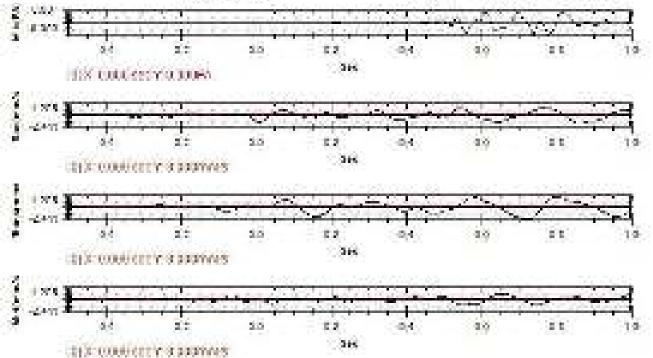
System Configuration

Serial Number: V4AI118023

Calibration Date: December 21, 2021

Model: VMS-4000 Geo Trigger: 1.27 (mm/s) Mic Trigger: Disabled Manual Trigger: Disabled Record Time: 1 seconds(s)

SeisWare Version Used For Download: 02.03.0000



Peak Measurements

Fax: (603)-363-4249

EventName: V4AI118023-100722-161507

Recording Time: 16:15:07 Recording Date: 10-07-22

Project: NMUG to OC Mine, Majri Area, WCL

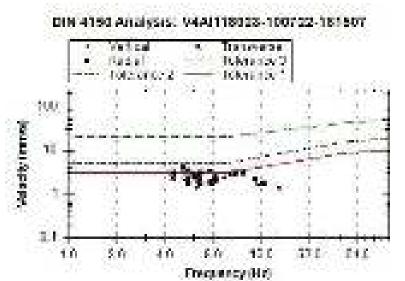
Location: OB HOE Face.

Operator: Blasting Officer, NMUG to OC Mine Total Hole :- 49, Burden X Spacing :- 3.5m X 4.5m

Blast to Sensor Distance (m): 100m Distance from Naglone village :- 900m Maximum Weight per Delay (Kg): 50.00 Kg

Hole Length :- 5.5m

	Vertical	Transverse	Radial			
PPV (mm/s)	3.704	3.934	3.829			
Freq (Hz)	23.3	5.5	5.2			
Time (ms)	3	956	344			
PPA (g)	0.06	0.01	0.01			
PPD (mm)	0.02530	0.11384	0.11719			
PVS (mm/s)	4	.084 @ 344.7m	s			
PSPL (PA)	8.61 (11	(2.678 dB) @ 10	68.9ms			
PSPL Freq	6.7Hz					
Sensor Test	Passed	Passed	Passed			



Seld Ware

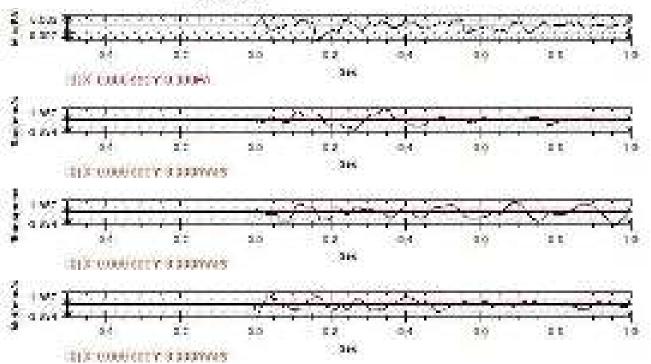
System Configuration

Serial Number: V4AI118023

Calibration Date: December 21, 2021

Model: VMS-4000 Geo Trigger: 1.27 (mm/s) Mic Trigger: Disabled Manual Trigger: Disabled Record Time: 1 seconds(s)

SeisWare Version Used For Download: 02.03.0000



Peak Measurements

Fax: (603)-363-4249

EventName: V4AI118023-111322-164208

Recording Time: 16:42:08 Recording Date: 11-13-22

Project: NMUG to OC Mine, Majri Area, WCL

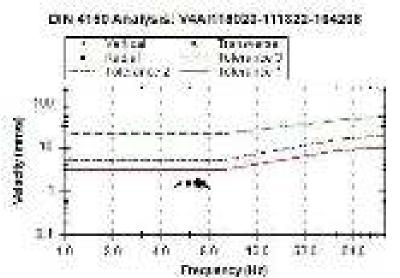
Location: OB HOE Face.

Operator: Blasting Officer, NMUG to OC Mine Total Hole: - 54, Burden X Spacing: - 3.5m X 4.5m

Blast to Sensor Distance (m): 100m Distance from Patala village :- 1400m Maximum Weight per Delay (Kg): 47.00 Kg

Hole Length :- 5.5m

	Vertical	Transverse	Radial			
PPV (mm/s)	1.216	1.740	1.440			
Freq (Hz)	7.8	6.8	7.4			
Time (ms)	734	387	185			
PPA (g)	0.01	0.01	0.01			
PPD (mm)	0.02481	0.04072	0.03097			
PVS (mm/s)	1	.898 @ 400.4m	s			
PSPL (PA)	22.61 (1	21.066 dB) @ 2	45.1ms			
PSPL Freq	9.8Hz					
Sensor Test	Passed	Passed	Passed			



Extraction of Sector Polymer

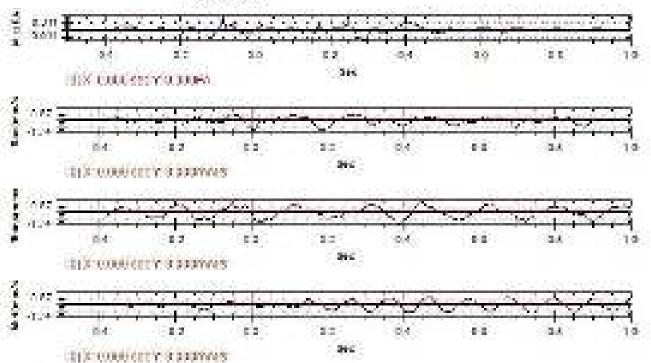
System Configuration

Serial Number: V4AI118023

Calibration Date: December 21, 2021

Model: VMS-4000 Geo Trigger: 1.27 (mm/s) Mic Trigger: Disabled Manual Trigger: Disabled Record Time: 1 seconds(s)

SeisWare Version Used For Download: 02.03.0000



Peak Measurements

Fax: (603)-363-4249

EventName: V4AI118023-101422-162312

Recording Time: 16:23:12 Recording Date: 10-14-22

Project: NMUG to OC Mine, Majri Area

Location: OB HOE Face.

Operator: Blasting Officer, NMUG to OC Mine Total Hole :- 48, Burden X Spacing :- 3.5m X 4.5m

Blast to Sensor Distance (m): 100m

Distance from Shivji Nagar village :- 1100m Maximum Weight per Delay (Kg): 46.00 Kg

Hole Length :- 5.5m

	Vertical	Transverse	Radial			
PPV (mm/s)	1.384	2.634	3.620			
Freq (Hz)	7.5	6.8	7.9			
Time (ms)	767	905	971			
PPA (g)	0.01	0.01	0.02			
PPD (mm)	0.02937	0.06165	0.07293			
PVS (mm/s)	4	.176 @ 912.1m	s			
PSPL (PA)	58.08 (1	29.261 dB) @ 5	33.2ms			
PSPL Freq	14.6Hz					
Sensor Test	Passed	Passed	Passed			

THOMAS

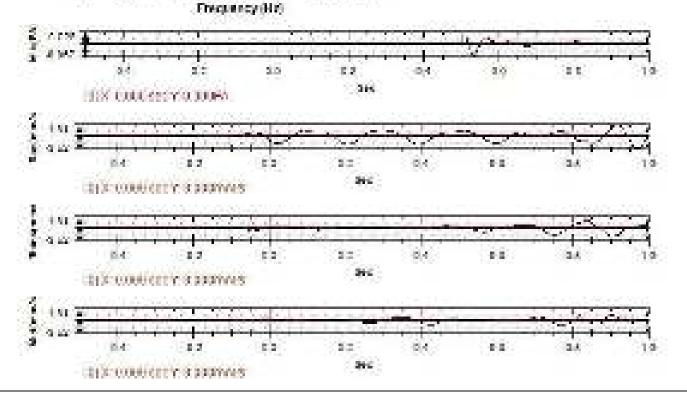
System Configuration

Serial Number: V4AI118023

Calibration Date: December 21, 2021

Model: VMS-4000 Geo Trigger: 1.27 (mm/s) Mic Trigger: Disabled Manual Trigger: Disabled Record Time: 1 seconds(s)

SeisWare Version Used For Download: 02.03.0000



Peak Measurements

Fax: (603)-363-4249

EventName: V4AI118023-121922-163148

Recording Time: 16:31:48 Recording Date: 12-19-22

Project: NMUG to OC Mine, Majri Area, WCL

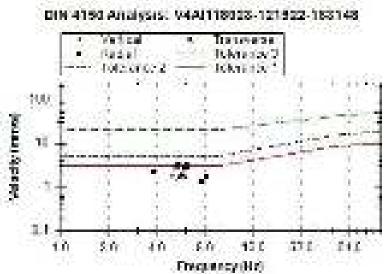
Location: OB HOE Face.

Operator: Blasting Officer, NMUG to OC Mine Total Hole :- 62, Burden X Spacing :- 3.5m X 4.5m

Blast to Sensor Distance (m): 100m Distance from Naglone village :- 900m Maximum Weight per Delay (Kg): 46.00Kg

Hole Length :- 5.5m

	Vertical	Transverse	Radial			
PPV (mm/s)	1.712	3.361	2.851			
Freq (Hz)	5.0	6.2	6.2			
Time (ms)	524	841	589			
PPA (g)	0.01	0.01	0.01			
PPD (mm)	0.05449	0.08628	0.07319			
PVS (mm/s)	3	.383 @ 754.9m	s			
PSPL (PA)	41.24 (1	26.288 dB) @ 8	83.8ms			
PSPL Freq	9.3Hz					
Sensor Test	Passed	Passed	Passed			



THOMAS ...

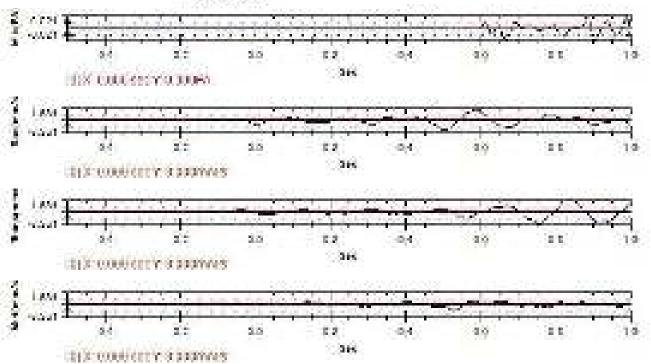
System Configuration

Serial Number: V4AI118023

Calibration Date: December 21, 2021

Model: VMS-4000 Geo Trigger: 1.27 (mm/s) Mic Trigger: Disabled Manual Trigger: Disabled Record Time: 1 seconds(s)

SeisWare Version Used For Download: 02.03.0000



Peak Measurements

Fax: (603)-363-4249

EventName: V4AI118023-122122-172028

Recording Time: 17:20:28 Recording Date: 12-21-22

Project: NMUG to OC Mine, Majri Area, WCL

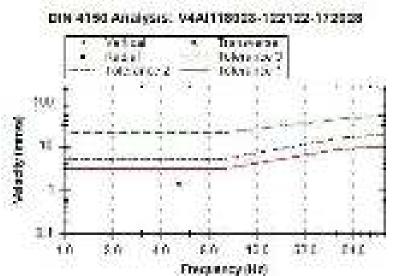
Location: OB HOE Face

Operator: Blasting Officer, NMUG to OC Mine Total Hole :- 55, Burden X Spacing :- 3.5m X 4.5m

Blast to Sensor Distance (m): 100m Distance from Naglone village :- 900m Maximum Weight per Delay (Kg): 45.00 Kg

Hole Length :- 5.5m

	Vertical	Transverse	Radial				
PPV (mm/s)	0.671	1.328	1.453				
Freq (Hz)	4.7	5.2	12.5				
Time (ms)	173	158	0				
PPA (g)	0.00	0.00	0.01				
PPD (mm)	0.02272	0.04065	0.01850				
PVS (mm/s)		1.739 @ 0.0ms					
PSPL (PA)	4.76 (10	4.76 (107.533 dB) @ 217.8ms					
PSPL Freq	18.3Hz						
Sensor Test	ensor Test Passed		Passed				





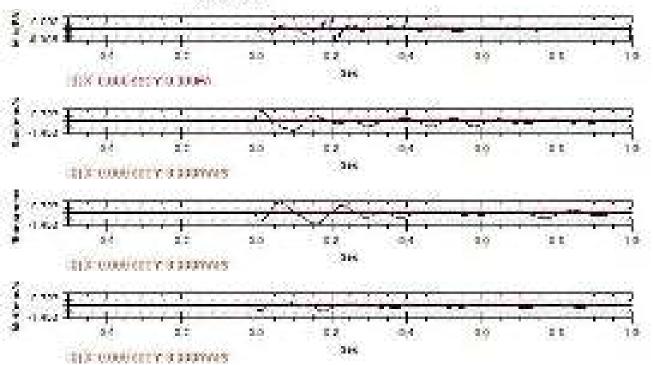
System Configuration

Serial Number: V4AI118023

Calibration Date: December 21, 2021

Model: VMS-4000 Geo Trigger: 1.27 (mm/s) Mic Trigger: Disabled Manual Trigger: Disabled Record Time: 1 seconds(s)

SeisWare Version Used For Download: 02.03.0000



Peak Measurements

Fax: (603)-363-4249

EventName: V4AI118023-122222-170353

Recording Time: 17:03:53 Recording Date: 12-22-22

Project: NMUG to OC Mine, Majri Area, WCL

Location: OB HOE Face.

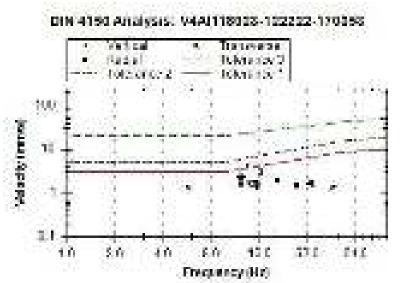
Operator: Blasting Officer, NMUG to OC Mine Total Hole: - 60, Burden X Spacing: - 3.5m X 4.5m

Blast to Sensor Distance (m): 100m

Distance from Shivji Nagar Village :- 1100m Maximum Weight per Delay (Kg): 50.00 Kg

Hole Length :- 5.5m

	Vertical	Transverse	Radial			
PPV (mm/s)	4.165	2.243	1.992			
Freq (Hz)	13.8	11.9	20.5			
Time (ms)	156	186	165			
PPA (g)	0.04	0.02	0.03			
PPD (mm)	0.04803	0.03000	0.01547			
PVS (mm/s)	4	.693 @ 187.5m	s			
PSPL (PA)	9.52 (11	13.553 dB) @ 68	89.5ms			
PSPL Freq	39.4Hz					
Sensor Test	Passed	Passed	Passed			



Secologies

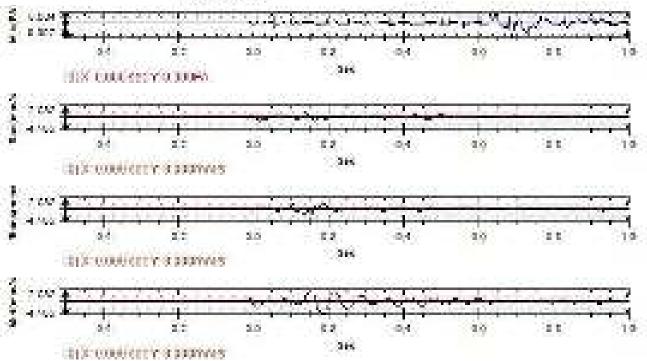
System Configuration

Serial Number: V4AI118023

Calibration Date: December 21, 2021

Model: VMS-4000 Geo Trigger: 1.27 (mm/s) Mic Trigger: Disabled Manual Trigger: Disabled Record Time: 1 seconds(s)

SeisWare Version Used For Download: 02.03.0000



GROUP VOCATIONAL TRAINING CENTER, MAJRI AREA TRAINING PERFORMANCE (CALADER YEAR) 2022

Year	Gaste Training			P	Refresher Training			-VT Ruie Spl. Trai		Area Based Training				
	D	lept	Cont	tractor	D	ept	Cont	ractor	D	ept	Dept		Contractor	
	T	A	T	A	T	A	T	A	T	A	T	A	T	A
2015	18	18	950	250	465	395	0	0	64	14	549	652	113	113
2016	333	333	623	623	471	547	2	2	45	10	360	361	0	0
7917	100	100	552	552	307	349	12		30	39	420	422	39	39
2018	43	43	214	214	270	333	0	8	21	36	445	313	49	49
2019	26	26	250	250	246	321	0	0	24	43	395	257	35	107
1020	16	16	347	347	250	250	200	0	0	20	0	450	505	0
021	11	11	649	649	236	231	0	0	10	18	371	231	0	0
621	44	44	544	544	210	221	1	1	16	16	306	290	79	100



SLAMARY OF SHILL DEVIS, OPHICAT TRANSPICS CONDUCTED AT GUTCHICAD DURINGERY - 2016-2017

S.Mo	SKEL DEVELOPMENT TRANSPER INVASTER	Fatod of TRANSMIT (20 Output)	No. of PARTICIPANTS	EVOLUMENTS END (No.)	OTHER MEGGLERO/SOP BREINER	VILLAGES COVERED
	COURSE COMPLITER NYTYCHOROS	Officement 20132016	30	68,000.00	18.800/80	
-	COURSECN'S SYTHY OF SALION				(For facility)	
	at Sim Year Phone	-4-	33	10,000,00	50,000,00	
	COURSE: HOSILE RIGHARING		20	46,080,00	20.000.00	Peralt Nagorio Principios Mariora
	VOTERS RECORD SERVICES	6911 (COTO NO EXCEDENCE)	20	RC SEXOC	x,len.to	www.Kuchya.Mayli Collany.KuchesColoney
5 6	COURSE TRICOMINOS DESIGN. A Plancharactura		Nr.	60,600,06	\$5,000.00	
10.0	COUPSE RE-FORMS ASSESSMENT		36	60,000,00		
- 1	COURSE PARA MEDICAL		:00	60,000 00		
		Teros (6)	2,10	Ped 51,000.00	194.7,214,730.00	
aur.	COURSE LAWRENCE SECURITY GUARDS For Rural Youth TWAS etc. Consulted by MSDC	05/02/05/17 to 02/03/05/17	45	Part by WCL340	4,800.00 0,600.00 2,240.00	
60	COURSE : UNWINED SECURITY QUAROS For INCLs Newly Recruite Quards Garducied by INSIG		40	Field by WCI_HO	700.00 6,530.00 2,600.06	Polisis, Pocorgico, Naja.
25	Course Universed Scoally Guards Trypke WCLs Havdy Recorded Security Guards.	18/03/2017 to 17/04/50/17	38	Palet by WCLHG	1,750.00 5,34,500.00	Kovadi, Majn Colley, Nuchro
80	COURSE Unamed Security Guide Trg/or WCLs Newly Recruited Secrets.	09/05/2017 to 06/05/55 17	32	Med by Med Hig	28,000,00 18,000,00 1,845,00 8,000,00	
		Total (II)	548		2,11,545.00	
9	CONCRET ACCOUNTING WITH DALLY Concustor by MSME	590059017 to 200059017	36	Paleby WOLHQ	41.250.00	Patain Pedangson Maphillowed Major Colliery, Raction
	SELECTION OF TAXABLE	Total (C)	30	- White Text	81,290,00	The state of the s
		Total (AHBHC)	300	4,20,000,00	E.D1.495.00	

AND PRINTING CHECK SHEETER SHE

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SUMMARY OF SKILL DEVELOPMENT TRAININGS CONDUCTED AT CVTC.MAJRI DURING BY SCHESORS

5,50.	SKILL DEVELOPMENT TRAINING IMPARTER	Period of Tron N NO (25 Days)	nic. of PARTICIPANTS	PAID (Rx.)	OTHER MISCELLENOUSE MPENSES(Rs)	COVERED
	GOURSE BEWUTY PARLOUR a) Set KW. Kastar	FIRST BATCH 11/8/00/8 to 11/10/2015	25	75,000.00	2,750.00 590.00	Patrick Hopkom Packs agent May (Kawasia Kac ting May Collegy Kud in a Colomby
2	COURSE TALOR NOL DESIGN. QMis.Kritisidon		25	75,000.00	50 566 00	
	A constant and a cons	TOTAL(A)	30	Ra 1,50,000 00	Re 35,750.00	
9	COURSE: BEAUTY PARLOUR ((Shift K M Kirker) (of Mangala M Konkie	8600N0 8410H 28/100936-26/2/2018	-30	24,750.00 63,266.06		
	COURSE TAILORINGS DESIGN (CONL KartaSidare to Rajat Beniu di Renusa Talando		30	24,758.00 12,750.00 87,300.30		
5	COURSE DATA ENTRY OPERATOR c) Shri Vijes Phrtss b) Shri Ashuton Parlakin		36	37,500.00 37,500.00		15
172		TOTAL (B)	10	Hs.2.25.000.00	(to 2,23,940.00	
	SRANO	TOTAL (A+B)		F0. 6.	34,690.00	

Actor Training Officer

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AREA TRAINING OFFICER जाकर (श्रेक्ष

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SUMMARY OF DIGIT DEVELOPMENT TRAININGS CONDUCTED AT OVER, MAJESCHIERD FY -2019-2020.

S.Mo.	SKILLDEVELOPMENT TRAINING MOASTENPACIALTY	Period of TRUMPING (20 Deye)	Ho.e/ IWITIGIWMTB	EMOQUMENTS PARD (Dis.)	DOMER WASON LENGTH CHARGE SERVICES OF THE CONTROL OF T	VILLAGES COVERED
1	Topic - Brauty Partor A) Mrs. Nexto III Kalker III Sau Seat M VeryA C) Sau Shibe S Depent	F9RST - BATCH 12 12 1919 (94.01.20	313	20,000,00 95,000,00 30,000,00	2 13,700.00 3,100.00 3,160.00	
2	The state of the s	F3F5T BATCH 12:12:10:16:09:01:29	30	50,000.00 15,000.00 50,006.00	150,00 1,000,00 1,286,00 9,000,06	Palate Negligie Pass- egen Muschberg Kuchn a Med Gollery
8	Tigler - Asta Entry Operator A) Shri Ashabash D Partielos B) San Mukash D Meshram D) San Hernard M Koths	P.RST BATCH 12.121616-0901722	380	38,000.00 15,000.00 30,000.00	2,350 90	
		Total (A)	00	\$28,000.00	2.25.760,00	
8	Topic - Seauty Parker D) New Kerde M Kodus E) Sept. Seat 14 Veldye F) Sept. Supple 5 Kerde	SECOND BATCH 94.02.20 to 21.02.28	26	90,000.00 15,000.00 30,000.00	2,12,750,00 2,950,60 1,850,00	Please Negative Paca- legani, May Joseph Noth & Negative Collegy
-2	Topic - Telluring & Appendi Dodge (i) Mrs. KartaSidem F) San Chanda N Gorde F) San Doge A Drewes	\$800MD RATCH 24 (M 20 to 21 00 20	30	38,580,00 15,680,80 30,000,68	1,000,00 3,180,00 3,100,00 3,600,00	
ŧ.	Topio - data Entry Operator (i) Sed Astrutore D Portellin (ii) Sed May K Broyer (ii) She Acet D Partellin	8600ND 6ATCH 84 62 20 to 21 63 20	30	38,000 30 16,000,00 30,000,00		
	TY COMPONENT OF THE SECOND	Total (B)	90	2,25,000.60	3,28,750.00	
		TOTAL (AHD)	100	Bh. 4,50,000 00	ReA.57,501.00	
-		GRAND TOTAL IA HE			Pa. 9.07 500.00	AAT OF BE

Eroo Tasining Cities

SUMMERY OF SIGHL DEVELOPMENT PROGRAMME

FOR FRW, WHE DUODUNE CLAWLOF NEW NAURIUS WINE

Year	Type of Tryining	Name of Programme	No. of benefit whee	Serefitiary villages	Anouni Speni
		Beauty Particul. Telloring & Apparol dusig stery Data Entry Operator	180	Patieto (Angleses Pacier ageon: MagiCkawado (Austria: Unit Califory	1,67,600.00
2018-19		Beauty Pastour. Tallaring & Reperol designing Data Every Operator	145	Petriah spore,Pedi- spece Mapt Hawait/Austria, May 10 oll ery, Kuchru Galany	6,34,66C DO
3016-17		Computer Networking, Nobile Repetring, Numbry weakstense, Furamedical Beauty Partour Tailoring & Agourst designing Sets Entry Operator, Unarmed Security Gueral Accounting with Tailoy	ME	Provis Podrogeco Main Kewedi. Muji Galleri Kuchna	9,21,456,06
20/15-15		Youthe (Street) ander "UDANN, Woman (Street) ander "SHAKT) " and farmer (Street) ander " SHAKT) "	120	Commend instruct Notifi Area	2,40,000.00
				Total	27,03,665,00

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1 in Principle Science and the last Science of the Control of the

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	Control of the contro	ROSE TOTAL	-	1177	-	1000 1000 1000 1000
H		Or the Street Co.	The state		100	
H		Marketa territoria Secultaria e e e e e e e e e e e e e e e e e e e	-	-	100	
	Marie Avenue	NAME OF TAXABLE PARTY.	100.00		-	1
	ACT	Street In Name Street Ball St	198100	-	904	
ы		of Section Control	East.	90.	999	
Č,	STREET STREET	Frederick Spiriter Frederick Brist Lamber	roman roman	-	400	SEC.
2.	With Substitute	MATRICES.		1	ALM:	Application of the Parket
	March 1855 AND	According to the con-	Henry		***	777
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Finall Letter

Annexure 14

Letter No. 111 (5)WZN agour Region No. (6)Permi2020[N+1]PLCommon. CMR2013[2].



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Ministry of Labour & Employment Directorals Corners of Marine Sofety



Dotte: 12/03/2021

NO: 11115 WZ[Nagper Region No.III]Perro[2020]7041

सर्गाद कुमार एम अह.

खान सुरक्षा निवेकक,

नागपुर क्षेत्र संख्या 🛚

चला में.

अधिकली

New Mart Ug to OC mire.

मेसर्स वेस्टर्न कोलफील्डम लिमिटेड

Chinarapur -442563

RMU: Permission under regulation 195(3) of the Coal Street Regulations, 2017 to conduct controlled deep hole blocking within 500m but beyond 100m of the dwellings/permanent buildings or structures of permanent nature not belonging to the owner in the area bounded by 1, 1A, 1B, 2, 2A, 2B, 2C, 2D, 5, 6, 7, 8, 9, 10, 11, 12, 13 and 1 at New Majri UG to OC Mine of M/s Western Coalificits Limited.

Please refer to your orders application 10- 140177 dated 22/10/2000 and offline details consisted vide letter no. WCLdMA/SMO05 to OC/Agent/2025 715 dated: 04.10.2023, enclosing therewith the plans and acations and sciencetic study report submitted by HT Klastogors, Javed May 2019 on the subject mentioned above.

The matter has stace been examined on the basis of the information formation and shows on the plantal flection(s) submitted by you. By virtue of the power destineed on the Clast Inspector of Mines (also designated as Director-formeral of Mines Select) under Regulation 196(1) of the Coal Mines Regulations, 2017 and by virtue of the authorization general to me by the Chief Inspector of Mines (also designated to Director-General of Mines Safety) under Section 6(1) of the Mines Act, 1952, I hereby goant you permission under regulation 196(3) of the Cred Mines Regulations, 2017 to corry cut controlled deep hole bleating within 500m introduced of surface structures in Shirtj Nagar village, Parata village, Nastone village, 66KV members line of MSEB in a working area bounded by 1, LA, IB, 2, 2A, JB, 2C, 2D, 5, 6, 7, 8, 3, 10, 11, 12, 11 and 1, as shown on plan to. No WCL MANNAIL G to OCC BECEROODES date 04/16/2020 submitted with the application of New Major EG to OC Mine of Min Western Coalfields Limited, Subject to strict compliance of the Sillowing conditions:

- 1.0 No blasting shall be carried out in the mine within 100m of the audice structures, Sarvji Negar Va. Panda village, Nagdone softage, 66KV overhead line of MSEB and other surface structures not belonging it. Owner The biosting within 500m for beyond 100m of any building of Shivji Negar village, Patrix village Nagdone village, 66KV overhead line of MSEB and other surface structures etc., shall be carried as per the blasting parameters fixed, pettorns enabledted and the processions suggested by HT Kharagpur in their reports on Control Blasting study at New Mejoi UG to OC Mine dated May 2019.
- 2.0 The manager of the name shall personally work out the pottern of holes to be drilled and conduct all, blesting operations as recommended by BT Charagear wide project No. BT-SRIC-MESNVG-0018.154963 dated May 2015 so as to minimize ground vibration and ment occurrence of fly mick to any dangerous extent.
- In the entire operations of transport of the explosive of the sate of its use, deiling, stemming and binsting operations shall be carried out under direct personal supervisors of an Assistant Manager having first class with specially manned supervisors and workers in accordance with the guadelines and directions of the Manager. The mine manager shall ensure that the recommendations of the controlled doublest blasting are similar followed.
- 4.0 The suggregate charge of explosive in a series of size holes unspected to a particular delay deterator with the same number shall not exceed 37.00 kg and aggregate charge per round not exceed 428 kg. The peak particle velocity (PPV) shall not exceed Sunn per second at 100m distance from any of the blasted bales in a round.
- 5.0 Non-electric immating device: (such as shock take initiation system) shall be used in blasting to limit the vibration and six pressure. Purp 25 milli-seconds about delay deterators shall be used and jumping of delay deterators shall not be from:
- 6.0 The zone of 100m from the sax of blasting shall be eleasty department in the operator workings and on the shartness plans and sections. The statutory plans shall be kept up-to-date to a period of one (1) month.
- 7.0 No person including start firer shall take shelter except in the name beyond 100m of the quarry opening, situ of blasting and such shelter shall be adequately strong to protect the person flam suppress by flying fragment.
- 3.0 The cartridge of explosive shall be inwared carefully to avoid sticking of cartridges. The length of the stemming hole shall be measured to ascertain that the cartridges are in close contact and there is no arrapace. In case, the length of cartaining hole is not as per calculation, indicating the presence of air space, extense that be made to pack down the charge in case of slarry cartridges. The remaining hole shall than be stemmed with most used.
- 0.5 The place where drilling is to be core, shall be thoroughly elemed so that loose debris or loose roofs lying over the area are removed.
- 10.0 Sand shall be used at stemming material and shall be tamped hard into the blast hole to resolut the fly of rock:
- 11.0 A free face should always be maintened to achieve the existing levels of ground vibration and all leave stone pieces from blast site shall be desired off before blasting to restrict the fly of rock.
- 12.0 Details of every blast giving plasting parameters, charge, delay, sequence, depth of hole, number of boles, suggregate charge per sound, charge per delay, spacing, hurden, type of explosives used, determing system independ, distance from the surface structures etc. shall be received in a bound paged book kept for the purpose and signed by the blaster and counterageted by the Mariages.
- 13.6 Ground vibration of all the deep hate blasts shall be monitored, by a suitable and calibrated Vibragraph and record of the same shall be kept in a bound paged book kept for the purpose and be signed by the Blasts; and Manager of the mine. A copy of the said record shall be submitted to this Directurate in every month.

- 40 All blasting operations within 300m of surface structure not belonging to the owner shall be consisted by asing multiling with old conseque belowing much of 25mm in a gold of 1.2 x 1.8m in size weather by 4.5 bags chilled with sand.
- 15.0 In case of flying inspirents due to biasting travelling for more than 50 m from site of biasting or in case of complaint of rattling of deconventions sharing blacking is received, further blacking operations shall be unparated tentowith and infirmation sant to the Director of Mines Safety, Nagpur Region-il and Brasting operations shall not be resumed without a fresh permission from this Directorate.
- 16.0 Filancing operation shall be done at fixed boars during day time only, preferably in and-attentions. The time of blasting shall be an arranged that there is no traffic movement on any public sead fixing blasting operations.
- 17.0 The numagement shall informitly the occupants of busice(s), other houses, dwellings against damage to their property or injury to them or others present arising out of this blassing permission.
- 15:0 Controlled blasting shall be done in conjunction with Effective mullling of shots with old ware rope severs, sandbags and old conveyor belts shall be done for prevention of flying fragments to a distance not more than 10m.
- 19.0 The deep hole blasting in the mine shall be contied out complying with the originations of DGMS (Tech) Original No. 7 of 1897, DGMS Circular No. 3 of 1985 and DGMS Circular No. 4 of 1983 and the conditions specified for Chapter resification GSR 985(E) dated 1st October 2018 under Regulation 199 of Cont Manus Regulations 2017.
- 20.1 The condition of blusting in the areas in open case mind, specified to the Guzzue notification GSR 986 (E) dated 1th October 2018 under tengulation 202 of Coal Minus Regulations 2017 shall be strictly adhered to.
- 20.2 Conditions for transport of explosive at bell: to open and mine, specified in the Gazette notification GSR 982 (fi) dated 1st October 2018 under Regulation 188 of Coal Mines Regulations 2017 shall be strictly adhered to:
- 20.3 DGMS Circular No. 14 of 2020 regarding precaution against the premature blast of Site Mixed Enveloped Site Mixed Story explosives shall be strictly adhered to.
- 21.0 The place where driffing is to be done shall be thoroughly cleaned to that loose debets or loose make tying over the area are comoved. No blassing shall be done in crushed, broken or sliceri ground.
- 22.0 Please note that this permission is subject to the following additional conditions:
- 12.1 In the event of any change in the communicates connected with this permission which is likely to authorise the life of the workmen employed in the mine or entanger the mine, the mining operations for which this permission has been granted shall be stopped freshwith and artifaction thereof sent to this Dispressive. The said mining operation shall not be resurted without an express and fresh permission in writing from this Directionate.
- 22.2 This permission is being issued specifically under the Regulation remains and allower and without projudice to any other provision of law which may become applicable at any time.
- 22.3 If at any time any one of the combinent subject to which this permusion has been granted is violated or not complied with, this permusion shall be deer of to have been revoked with immediate effect.
- 22.4 The above permission may be amended or withdrawn at any time of considered necessary in the interest of safety.
- 24.5. This Directorate shall be informed as soon as mining operations are commenced in accombance with the above parameters within seven days from the start of the operations. The information above completion of the

mining operations shall also be sent promptly and it any case not later than one mouth thereof.

22.6 This permission shall remain valid for a parted of 5 (Five) years than the date of some of this letter.

Year Sincerely.

SAGRSH'S UMAR M. R. (DIRECTOR - NAGPUR REGION NO.10)

THIS IS A SYSTEM GENERATED DOCUMENT, DOES NOT REQUIRE ANY SIGNATURE.



Project Name:

Village:

Project Address:

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**

Bhadrawati

(भूजल निकासी हेतु अनापत्ति प्रमाण पत्र)

M/s New Majri UG to OC Mine

Majari

NO OBJECTION CERTIFICATE (NOC) FOR GROUND WATER ABSTRACTION

Near Majri Village, Wardha Valley Coalfield, Majri Area of WCL

Block:

	3 -	, inajan						2.00						
Di	strict:	trict: Chandrapur						State:	Mahar	ashtra				
Pi	Pin Code: 442503													
C	Communication Address: General Manager				nager	(env),	Wcl (hq),	, N	lagpur, Na	gpur, Mal	narash	tra - 4400	01	
Address of CGWB Regional Office : Central Ground W Maharashtra – 44						oard Cen	tral	Region, N	S. Buildi	ng, Civ	ril Lines, N	lagpur,		
1.	1. NOC No.: CGWA/NOC/MIN/ORIG/2020/7125													
2.	Application	No.:	21-4/509/MH	H/MIN/20	016	COL	D. W	W. 474	3.	Category		Mi	ining	
4.	Project Sta	itus:	Existing Pro	ject	/35		Total.	-39	5.	NOC Typ	e:	Ne	ew	
6.	Valid from	1:	09/01/2020	- 1	37				7.	Valid up	to:	08	3/01/2022	
8.	Ground Wa	ater Abstra	ction Permitte	ed:	7					(3)				
	Fresh	n Water		Saliı	ne Wate	er		1	Dewatering				Total	
	m³/day	m³/ye	ear m	³ /day		m³/yea	ır	m³/da	ay	m ³	/year	m	1 ³ /day	m³/year
				107		-		4293.	00	1566	945.00	42	293.00	1566945.00
9.	Details of g	ground wat	er abstraction	/Dewate	ering st	ructure	es			1.1		•		
		То	tal Existing N	No.:4					Total Proposed No.:0					
			DW	DCB	BW	TW	MP	DW		DCB	BW	TW		MP
	Abstraction	Structure	* 0	0	0	0	4	0		0	0	0		0
*DV	V- Dug Well	; DCB-Dug	-cum-Bore W	ell; BW-l	Bore W	ell; TV	V-Tube	Well; MF	P-M	line Pit	I			
10.	Quantum o	of ground w	vater recharge	/harvest	ting(m³/	year):				7/2	35493	.00		
11.	Number of Piezometers (Observation wells) to be constructed/ monitored & Monitoring mechanism.				No. of Monitoring Mechanism ezometers		า							
									N	Manual	DWLR'	**	DWLR V	Vith Telemetry
	**DWLR - I	Digital Wat	er Level Reco	rder				2		0	1			1
				(C	omplia	nce C	ondition	ons give	n o	verleaf)				

Digitally signed by NANDAKUMARAN P

Date: 2020.01.28 11:14:38 +05'30'

सदस्य (केन्द्रीय भूमि जल प्राधिकरण) Member (CGWA)

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

- 1. 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).
- 2. 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).
- 3. All new as well as existing ground water abstraction/ de-watering structures shall be fitted with digital water flow meters by the firm at its own cost immediately on completion of their construction or grant of NOC as the case may be. In case of renewal of NOCs, all existing ground water abstraction structures shall continue to be fitted with digital water flow meters. Intimation of installation of flow meters shall be sent by the proponent to the Regional Director of CGWB within 6 months of grant of NOC. Daily ground water abstraction data shall be monitored / continue to be monitored (in case of renewal) by the firm and recorded in a log book. Details of month-wise ground water abstraction shall be submitted to the Regional Director, CGWB, once every year.
- 4. In case the ground water abstraction is more than 10 m³/day, monthly water level monitoring data shall be maintained and submitted annually to the Regional Office of CGWB. Wherever groundwater withdrawal is more than 500 m³/day, the firm shall install telemetry system in one of the piezometers and share USER ID and password of the telemetry system with the Regional Director, CGWB.
- 5. In case ground water abstraction is more than 10 m³/day, ground water quality shall be monitored once in a year (during pre- monsoon period) and the report submitted to the Regional Office, CGWB. Wherever the extraction is less than 10 m³/day, ground water quality report shall be submitted by the proponent at the time of submission of self-compliance report.
- 6. Ground water augmentation/harvesting measures, as stipulated in the NOC, shall be implemented (in new cases) / continue to be maintained (in case of renewal) in consultation with the concerned Regional Director, CGWB.
- 7. Proof of recharge/water harvesting structures constructed (photographs of structures) shall be submitted to the concerned Regional Director, CGWB within 6 months from the date of issue of NOC. The firm shall also undertake periodic maintenance of recharge/water harvesting structures at its own cost.
- 8. The firm shall submit a report on the Impact of ground water withdrawal on the ground water regime in and around the project area within six months.
- 9. 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.
- 10. 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.
- 11. The firm shall optimize water use through recycling/ reuse of waste water after proper treatment.
- 12. 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.
- 13. 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.
- 14. 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.
- 15. 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.
- 16. 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.
- 17. This NOC does not absolve the proponents of their obligation / requirement to obtain other statutory and administrative clearances from appropriate authorities.
- 18. 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.
- 19. 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.
- 20. 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.
- 21. In case of any violation of NOC conditions or illegal extraction of Ground water the firm shall be liable to pay "Environmental Compensation"/ "Penalty", if any under Sec 15 of EPA 1986 as and when decided by statutory authorities.

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

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)

Application for Renewal of NOC to Dewater Ground Water for Mining Industry (Save As Draft Application for Renewal of NOC)

Application Number: 21-4/509/MH/MIN/2016

Applied For Renewal: 1st

NEW MAJRI UG	TO OC MINE		
·			
NEAR MAJRI VIL COALFIELD	NEAR MAJRI VILLAGE, WARDHA VALLEY COALFIELD		
MAJRI AREA OF	WCL		
MAHARASHTRA	MAHARASHTRA		
CHANDRAPUR	CHANDRAPUR		
BHADRAWATI			
Majari			
m3/day	m3/year		
5551.00	2026115.00		
Non-Notified	Non-Notified		
	NEAR MAJRI VILICOALFIELD MAJRI AREA OF MAHARASHTRA CHANDRAPUR BHADRAWATI Majari m3/day 5551.00		

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 misleading at any stage, the 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/ wrong submission /uploading 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 of ground water withdrawal/ 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.

में यह प्रमाणित करता हूं कि ऊपर प्रस्तुत किये गऐ आँकड़े और जानकारी मेरे ज्ञान और विश्वास के अनुसार सही हैं और मुझे पता है कि यदि प्रस्तुत आँकड़े / सूचना का कोई भी भाग किसी भी स्तर पर गलत या भ्रामक पाया जाता है, तो आवेदन बिना किसी पूर्व सूचना के निरस्त कर दिया जाएगा।

मैं इसके द्वारा घोषित करता हूं कि आवेदन पत्र में निर्धारित सभी अनिवार्य दस्तावेजों को अपलोड किया गया है और कोई रिक्त / अप्रासंगिक दस्तावेज अपलोड नहीं किया गया है। मुझे यह भी पता है कि कोई भी गलत दस्तावेज अपलोड करने पर मेरे आवेदन को बिना किसी सूचना के निरस्त कर दिया जाएगा।

यह प्रमाणित करता हूँ कि उद्योग / परियोजना / इकाई के खिलाफ आज तक भूजल निकासी / प्रदूषण से संबंधित कोई भी मामला किसी भी न्यायालय में लंबित नहीं है। इस आवेदन की प्रक्रिया के दौरान भूजल निकासी / प्रदूषण के संबंध में कंपनी / परियोजना / इकाई के खिलाफ दायर किसी भी मामले को तुरंत के. भू. ज. प्राधिकरण के ध्यान में लाउंगा।

मैं इस बात का वचन देता हूं कि यदि किसी भी वैधानिक प्राधिकरण द्वारा फर्म पर कोई पर्यावरणीय क्षतिपूर्ति / जुर्माना लगाया जाता है,तो मैं प्राधिकरण के उस निर्णय का पालन करूंगा।

Date : Name & Signature of the applicant

Place: (With official seal)

Associated User: gmwcl

^{*} In case signed by any authorized signatory, the details of the signatory with the authorization shall be enclosed.

Third party Assessment of EC compliance Expansion of New Majri UG to OC Mine

Sponsor



WESTERN COALFIELDS LIMITED

MAJRI AREA



CSIR-National Environmental Engineering Research Institute, Nagpur-440020

WESTERN COALFIELDS LIMITED

ENVIRONMENTAL CLEARANCE COMPLIANCE REPORT

Clearance letter No.: J-11015/25/2008-IA.II(M)

Date : 1st January 2021

SR.NO.	Condition	Compliance Status	NEERI Remarks
4(i)	The project proponent shall obtain consent to Establish/operate from the state pollution control boards for the proposed capacity of MTPA prior to commencement.	Consent to Operate has been obtained vide letter no. Format1.0/CAC/UAN No.0000101444 /CO-2102000370 dated 05.02.2021 for capacity 3 MTY valid upto 31.03.2022	Verified from document
(ii)	Third party monitoring (by NEERI/CIMFR/IIT/NITs) for air quality shall be carried out at identified locations. Both ambient and the process area, to arrive at impact of the proposed expansion at regular interval of 3 years.	Noted. Third party monitoring (by NEERI/CIMFR/IIT/NITs) for air quality will be done within the 3 yrs of grant of EC i.e. before 01.01.2024 and same will be repeated thereafter every 3 years	No remark
(iii)	Top soil should be stored separately at marked area and necessary vegetation shall be maintained to avoid any entrainment of dust.	Top soil is being stored at designated Top Soil dump with an area of 23.50 Ha & height of 40 mtrs. Grass seeding is being done to avoid fugitive dust from dump	Verified during site visit
(i∨)	PP shall construct embankment leaving 100 mtrs away from HFL of Wardha river and the same shall be taken prior approval from DGMS	Noted. However, Embankment is constructed along the diverted Koradi Nala (Length: 6.40 kms, Height: 10 mtrs, Width at top: 30 mtrs and width at bottom: 50 mtrs)	No remark
(∨)	Transportation of coal from coal handling plant shall be through mechanized covered trucks for 3 years. No transportation by trucks after 3 years and proposed railway siding/pipe conveyor system.	Mechanically closed trucks are not provided by any truck maker for coal in India. However, tarpaulin covering is being ensured for all the coal transportation trucks.	Tarpaulin covered trucks are observed during site visit.
(∨i)	All the villages coming under the zone of influence as in hydrology study shall be provided with suitable water supply along with sanitation	Water supply arrangements will be made for all the villages coming under zone of influence, if there is any water scarcity reported in any of the village	Verified

	facility		
(vii)	public consultation process	Noted. The work of Rs 7.48 Lakhs for providing tubewell at Palasgaon village is completed as per the commitment made during public hearing	Verified
(∨iii)	Water quality and bioassay test of Wardha River shall be monitored quarterly and submitted to State Pollution Control Board. No water shall be discharged in river. Any deviation from limits as stipulated in norms by CPCB for quality shall be informed and necessary action shall be taken.	Water quality and bioassay test of Wardha River is being monitored quarterly. (copy of reports of the month July 2021, Oct 2021 & Jan 2022 enclosed) Report of same is being submitted to MPCB, MOEF Regional offices along with six monthly EC Compliance report.	Verified

(ix)	Quarterly monitoring of quality of water from bore hole used for drinking purpose shall be conducted and report thereof shall be submitted to SPCB. Any deviation from limits as stipulated in norms by CPCB for quality shall be informed and necessary action shall be taken	Drinking water monitoring is being done on quarterly basis through CMPDIL. (copy of reports of the sampling of July 2021 & Jan 2022 enclosed) Report of same is being submitted to MPCB, MOEF Regional offices along with six monthly EC Compliance report.	Verified from report
(x)	Progressive backfilling of mine and progressive reclamation of dump shall be done	Noted and same is being done as per mining plan	No remark
(xi)	To control the production of dust at source, the crusher and in-pit belt conveyors shall be provided with mist type sprinklers. Permanent water sprinkler shall be installed instead to water sprinkling by water tankers on the haul road.	Mobile crushers are being provided with Mist Nozzles for dust suppression at source. Also, fixed sprinklers are provided at coal stockyards. Supply Order of Mist Cannon of 100 mtrs throw is issued and same are installed at near mobile crushers.	Verified during site visit
(xii)	Mitigating measures shall be undertaken to control dust and other fugitive emissions all along the roads by providing sufficient	30 nos. fixed sprinklers at coal transportation road (work in progress)	Verified during site visit

	fixed type water sprinklers. Adequate corrective measures shall be undertaken to control dust emissions, which would include mechanized sweeping, water sprinkling/mist spraying on haul roads and loading sites, long range misting/fogging arrangement, wind barrier wall and vertical greenery system, green belt, dust suppression arrangement at loading and unloading points, etc.	12 nos. fixed sprinklers installed & operational at coal stockyard. 2 nos. mist cannon of 100 mtrs throw with 320 deg rotation Mist spray arrangement in all mobile crushers 1 no. mechanised road sweeping machine (Supply Order issued) 85,000 nos. trees planted with more than 90 % survival rate as wind barrier and green belt between mine and Naglone & Palasgaon village and 15,000 nos. planted on dump.	
(xiii)	Continuous monitoring of occupational safety and other health hazards, and the corrective actions need to be ensured.	FY Nos. Area (2016-17 20,000 Nos. 8 Ha 2018-19 15,000 Nos. 6 Ha 2019-20 15,000 Nos. 6 Ha 2021-22 50,000 Nos. 20 Ha Regular PME of departmental as well as contractual worker is being done for Occupational and other health hazards. PME during Year 2020 of 217	Verified from record
		Deptt. Worker and IME during Year 2020 of 58 Contractual worker	
(xiv)	The total industrial water demand (peak) in operation phase shall be met by utilizing treated mine discharge water. If require, necessary arrangement shall be made to reuse treated water from STP&ETP to nearby TPP or coal washery /or future coal washery by entering suitable agreement. No wastewater (treated or untreated) shall be discharged into the river or any other water body.	Water demand for fire-fighting, dust suppression etc is met through mine discharge only. ETP effluent is being recycled for washing of HEMM & STP effluent is being used for gardening purpose. Modular STP (MBBR based) of 5 KLD capacity is provided for mine premises/ canteen and same is in acclimatization stage	ETP is constructed and use as an when required due lack of wastewater. The vehicles used in the mining process are outsourced. Treated water is being recycled and used for washing of HEMM. 5KLD MBBR based STP installed to treat the canteen sewage. Presently, STP under microbial cultural acclimatization stage with generated sewage as organic load.

(xv)	Blasting effect on patala village should minimised by using latest technology and quarterly health survey shall be conducted by project proponent.	Controlled blasting is being done to minimise the effect of blasting on patala village. Health survey will also be conducted once the COVID -19 pandemic will be over (as per GoM guidelines, industry is not allowed to conduct health camps etc.). Moreover, no such complaint is received from any of nearby village.	Verified
(xvi)	PP shall take permission of state public works Department before the proposed diversion of Road. Road shall be considered as per PWD requirement and plantation of trees and street light shall be provided by project proponent.	Noted. PWD Permission will be sought before the diversion of road.	No remark
(xvii)	STP for proposed colony shall be constructed within one year of implementation of colony	Noted. Modular STP of 5 KLD is provided for mine premises & same is in acclimatization stage. However, there is no colony for this mine, STP for colony will be provided whenever the colony will be constructed	No remark
(xviii)	Toe wall of atleast 15 mts height should be constructed along the OB dump.	Toe wall of adequate height wherever necessary will be constructed along OB dump	No remark
(xix)	5 Fog canon shall be installed to reduce the impact of air pollution for nearby villages.	Mist cannon of 100 mtrs throw with 320 deg rotation are provided near mobile crushers	Verified during site visit
(xx)	Water storage ponds shall be constructed of appropriate depth in nearby villages in collaboration with Gram Panchayats.	Noted. Water storage pond will be constructed if any nearby village demand for the same.	No remark
(xxi)	Peripheral tree plantation of local species in nearby village in collaboration with Gram Panchayats. 3-tier plantation with atleast 50000 trees along the patala village and nearby villages wherein no R &R is proposed shall be done within 3 years.	85,000 nos. trees of native species over an area of 34 Ha as green belt/ wind barrier between mine and nearby villages (Palasgaon, naglone) is done till October 2021. 15,000 nos. trees planted over an area of 6 Ha on Top Soil dump	Verified during site visit

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(xxii)	3-tier Green belt along the boundary should be developed on priority basis preferably within first 3 years.	85,000 nos. trees of native species over an area of 34 Ha as green belt/ wind barrier between mine and nearby villages (Palasgaon, Naglone) are planted as on date on plain land. 15,000 nos. over an area of 6 Ha is planted on Top Soil dump in FY 2021-22			Plantation done over an area of 6 Ha is observed during site visit.
		FY	Nos.	Area (
		2016-17	20,000 Nos.	8 Ha	
		2018-19	15,000 Nos.	6 Ha	
		2019-20	15,000 Nos.	6 На	
		2021-22	50,000 Nos.	20 Ha	
(xxiii)	Persons of nearby villages shall be given training on livelihood and skill development to make them employable.	being orgar as Tailoring Computer	opment train nised regularly g, Beauty I education, S for persons I ges	Verified from records	
(xxiv)	Drinking water supply shall be given to all villages coming under zone of influence by extraction of ground water.	Drinking water facility will be provided in nearby village wherever the water scarcity/drinking water requirement problem noted.			No remark
(xxv)	Active OB Dump should not be kept barren/open and should be covered by Temporary grass to avoid air born of particles.	Noted Grass seeding is done over embankment, Top Soil dump & OB Dump			No remark Grass seeding is observed during site visit
(xxvi)	Project proponent to plant 150,000 nos of native trees with broad leaves along the transportation route in three years to prevent the effect of air pollution. After completion of tree plantation. Number of trees shall be duly endorsed from District Forest Officer.	85,000 nos. trees of native species over an area of 34 Ha as green belt/ wind barrier between mine and nearby villages (Palasgaon, Naglone) are planted as on date on plain land. 15,000 nos. over an area of 6 Ha is planted on Top Soil dump in FY 2021-22			Plantation done over an area of 6 Ha is observed during site visit.
		FY 2016-17	Nos. 20,000	Area (
		2018-17	Nos. 15,000	6 Ha	
			Nos.		
		2019-20	15,000 Nos.	6 Ha	
		2021-22	50,000	20 Ha	

		Nos.	
		Tree Plantation work is being undertaken by Madhya Pradesh Rajya Van Vikas Nigam Ltd.	
(xxvii)	Project Proponent shall obtain blasting permission from DGMS for conducting mining operation near villages and also explore development of rock breakers of suitable capacity in the project to avoid blasting very near to villages. There shall be no damages caused to habitation/structures due to blasting activity.	Blasting permission is obtained from DGMS vide letter no. 11115/WZ/Nagpur Region No. II/Perm/2020/7041 dated 12.01.2021.	Verified
(xxviii)	The project proponent shall complies with all the statutory requirements and judgment of Hon'ble Supreme Court dated the 2 nd August 2017 in Writ petition (Civil) No.114 of 2014 in the matter of Common Cause versus Union of India and Ors. State Government shall ensure that the entire compensation levied. If any, for illegal mining paid by the project proponent through their respective Department in strict compliance of judgment of Hon'ble Supreme Court dated the 2 nd August 2017 in writ petition (Civil) No. 114 of 2014 in the matter of common Cause versus Union of India and Ors.	Noted.	No remark
(xxix)	Project Proponent shall obtain the necessary prior permission from the Central Ground Water Authority (CGWA) in case of intersecting the Ground water table.	CGWA NOC Obtained vide NOC no. CGWA/NOC/MIN/ORIG/2020/7 125 dtd 09.01.2020 valid upto 08.01.2022 and renewal of same is also applied	Verified from document
(xxx)	Proponent shall appoint an Occupational Health Specialist for Regular and Periodical medical examination of the workers engaged in the Project and maintain records accordingly; also, Occupational health check-ups for workers having some ailments like BP, diabetes, habitual smoking, etc. shall be undertaken once in six	Regular and Periodical medical examination (IME and PME) of the workers (Departmental as well as contractual workers) has been undertaken at Majri Area Hospital of WCL. Area Hospital is headed by Chief Medical Officer. There is 1 No. PME incharge and	Verified from record

	months and necessary remedial/preventive measures taken accordingly. The Recommendations of National Institute for ensuring good occupational environment for mine workers shall be implemented; The prevention measure for burns, malaria and provision of anti-snake venom including all other paramedical safeguards may be ensured before initiating the mining activities	1 No. PME co-in charge with appropriate medical qualifications. There are five assisting Doctors. In addition, there is 1 No. PME Clerk and 2 Nos assisting category workers.	
(xxxi)	Project Proponent shall follow the mitigation measures provided in office memorandum No.Z-11013/57/2014-IA.II (M), dated 29october, 2014, titled "Impact of mining activities on Habitations-Issues related to the mining Projects wherein Habitations and villages are the part of mine lease areas or Habitations and villages are surrounded by the mine lease area".	Noted and is being complied	No remark
(xxxii)	The illumination and sound at night at project sites disturb the villages in respect of both human and animal population. Consequent sleeping disorders and stress may affect the health in the villages located close to mining operations. Habitations have a right for darkness and minimal noise levels at night. PPs must ensure that the biological clock of the villages is not disturbed; by orienting the floodlights/ masks away from the villagers and keeping the noise levels well within the prescribed limits for day light/ night hours.		Verified report
(xxxiii)	The project proponent shall take all precautionary measures during mining operation for conservation and protection of endangered fauna, spotted in the study area. Action plan for conservation of flora and fauna shall be implemented in consultation with the State Forest and Wildlife Department. A copy	There is no endangered fauna & flora species observed during the Biodiversity study in the study area	Report verified

	of action plan shall be submitted to the Ministry of Environment, Forest and Climate Change and its Regional Office.		
(xxxiv)	Hon'ble Supreme Court in an writ petition (s) Civil No. 114/2014, Common Cause vs Union on India & Ors vide its judgement dated 8th January, 2020 has directed the union of India to impose a condition in the mining lease and a similar condition in the environmental clearance and the mining plan to the effect that the mining lease holders shall, after ceasing mining operations, undertake regrassing the mining area and any other area which may have been disturb due to their mining activities and restore the land to a condition which is fit for growth of fodder, flora, fauna etc. Compliance of this condition after the mining activity is over at the cost of the mining lease holders/Project Proponent". The implementation report of the above said condition shall be sent to the Regional Office of the MoEFCC.	Noted. Grass seeding of embankment is already been done. Also, grass seeding of top soil dump and OB dump will be done once dump become inactive.	Grass seeding is observed during site visit
(xxxv)	PP shall submit mine closure report/activity of Telwasa OC (2.00 MTPA) and Dhorwasa OC (2.00 MTPA) and status to ministry regional office within six months.	Progressive mine closure claim is audited by NEERI (as third party auditing agency) and CCO team during 2020-21	Verified report

	T	T	
(i)	CTE/CTO for the project shall be obtained from the SPCB as required under the Air(Prevention and control of pollution) Act,1981 and the water (Prevention of control of Pollution) Act,1974, and the SPCB shall follow the mechanism/protocol issued by the Ministry vide letter no.Q-16017/38/2018-CPA dated 24october,2019 while issuing the CTE/CTO for the project, for improvement of environment of environment of environment of environmental quality in the area.	Consent to Operate for capacity 3 MTY has been obtained vide letter no. Format1.0/CAC/UAN No.0000101444 /CO-2102000370 dated 05.02.2021 valid upto 31.03.2022.	Verified from document
(ii)	The green belt of at least 5-10 m width shall be developed in more than 40% of the total project area, mainly along the periphery of mine boundary, in downward wind direction, and along road sides etc. Selection of plant species shall be as per the CPCB guidelines in consultation with the State Forest Department.	Green belt of more than 10 mtrs has been developed on Western boundary of mine between Mine and Naglone & Palasgaon village. As on date 85,000 nos. trees of native species planted over an area of 34 Ha on plain land and 15,000 nos. over an area of 6 Ha on Top Soil Dump.	Verified during site visit
(iii)	In addition, the project proponent shall develop greenbelt outside the plant premises such as avenue plantation, plantation in vacant areas, social forestry etc.	Noted Avenue/ Road side plantation is being done Plants distribution to nearby villages (such as Majri, Vislon, Naglone, Patala etc) as steps towards collaboration with nearby villages and increasing green cover in nearby village area	No remark
(iv)	Monitoring of compliance of EC condition may be submitted with third party audit every year.	Noted and Work for same is awarded to NEERI, Nagpur vide award letter no. WCL/HQ/ENV/16-J/73-81 dated 26.10.2021 and NEERI team visited the mines for inspection on 29.03.2022	This is report for the same
(v)	Fund allocation for Corporate Environment Responsibility (CER) which is atleast 2 times as per OM of 1 st May,2014 may now be considered as 2 time of fund	Noted and same will be spent over the coming years	No remark

	allocated on commitment made during public consultation process for incorporating in EIA-EMP for deliberation of EAC and item-wise details along with time bound action plan shall be prepared and submitted to the Ministry's Regional Office.		
(vi)	Effective fugitive emission control measures should be imposed in the process, transportation, packing etc.	Complied. 12 nos. fixed sprinklers are provided to control fugitive emission from Coal stockyard 30 nos. fixed sprinklers to control fugitive emission on coal transportation road (work in progress) 2 nos. 28 KL and 2 nos. 15 KL Mobile water tankers are deployed on Coal transportation road and haul	Verified during site visit
		road 2 nos. mist cannon of 100 mtrs throw with 320 deg rotation Mist spray arrangement in all mobile crushers 1 no. mechanised road sweeping machine (Supply Order issued) Grass seeding over embankment, green belt between mine OB dumps and mine boundary	
(vii)	Transportation of materials by rail/ conveyor belt to be implemented with the implementation of stipulation given in EC.	Noted and is being complied All the coal from mine is dispatched through Rail mode as per Coal Supply Agreement with Thermal power plants	No remark
(viii)	A detailed water harvesting plan may be submitted by the project proponent	Rain Water Harvesting Pond of dimension 88 mtr x 18 mtr x 1.20 m costing Rs 7.62 Lakhs has been constructed by considering the long term benefits. It helps in augmenting ground water resources.	Verified during site visit

		Moreover, the galleries of old abandoned Underground mine (New Majri UG mine no. III) acts as a ground water recharge structure also.	
(ix)	In case, domestic waste water generation is more than 10 KLD, the industry may install STP.	Modular STP for mine premises of 5 KLD Capacity is provided for canteen and other domestic waste and same is in acclimatization stage.	canteen sewage. Presently, STP under
(x)	Monitoring of compliance of EC conditions may be submitted with third party audit every year	Noted and is being complied. Inspection of NEERI team held on 29.03.2022	This is report for the same

4.1 The grant of environmental clearance is further subject to compliance of the Standard EC conditions as under:

(A) Statutory Compliance

4(i)	The project proponent shall obtain forest clearance under the provisions of forest (Conservation) Act,1986,in case of the diversion of forest land for non-forest purpose involved in the project.	Not Applicable	No remark
(ii)	The project proponent shall obtain clearance from the National Board Wildlife, if applicable.	Not Applicable	No remark
(iii)	The project proponent shall prepare a site-specific conservation plan/ wildlife management plan and approved by the chief wildlife warden. The recommendation of the approved site-specific conservation plan/wildlife management plan shall be implemented in consultation with the state forest department. The implementation report shall be furnished along with the six monthly compliance report (in	Not Applicable as the mine and its surrounding area does not have any schedule-I species	No remark

	case of the presence of schedule-1 species in the study area).		
(iv)	The project proponent shall obtain consent to establish/operate under the provisions of Air (Prevention & Control of Pollution) Act,1981 and the water (Prevention& Control of Pollution) Act,1974 from the concerned State pollution Control Board/Committee.	capacity 3 MTY has been obtained vide letter no. Format1.0/CAC/UAN No.0000101444 /CO-2102000370 dated 05.02.2021	
(v)	The project proponent shall obtain the necessary permission from the Central Ground Water Authority.	CGWA NOC Obtained vide NOC no. CGWA/NOC/MIN/ORIG/2020 /7125 dtd 09.01.2020 valid upto 08.01.2022 and renewal of same is also applied	Verified renewal application
(vi)	Solid/hazardous waste generated in the mines needs to addressed to the solid waste management rules,2016/hazardous & other waste management rules,2016.	Noted and is being complied. Hazardous waste such as Oil filter/ hose pipes, ETP Sludge and Burnt Oil is being disposed off as per Hazardous waste Management rules	Verified

(B) Air Quality Monitoring And Preservation

AQMS along with MET operational in mine ne and same was in consultation with om this 4 nos. AAQ g stations are also set AAQ monitoring on basis. Metal monitoring is onitored on half yearly ough CMPDIL (NABL)

	to be carried out at least once					
	in six months.					
(ii)	The Ambient Air Quality monitoring in the core zone shall be carried out to ensure the Coal Industry Standards notified vide GSR 742 € dated 25th September, 2000 and as amended from time to time by the Central Pollution Control Board. Data on ambient air quality and heavy metals such as Hg, As, Ni, Cd, Cr and other monitoring data shall be regularly reported to the Ministry/ Regional Office and to the CPCB/SPCB.	Monitoring of Ambient Air Quality is being carried out as per GSR 742 (E) dated 25.09.2000. Data on ambient air quality is being monitored on fortnightly basis and heavy metals such as Hg, As, Ni, Cd, Cr is being monitored on half yearly basis and same is being reported to the Ministry/ Regional Office and to the MPCB along with six monthly EC Compliance report The ambient air quality monitoring stations are established in consultation with officials of Maharashtra Pollution Control Board, Chandrapur. Monitoring reports for the period from April 2021 to September 2021 is enclosed. It can be seen that all the parameters are within the prescribed standards. Monitoring of Heavy metals has also been carried out by		ality is hightly such being basis ted to Office with six report quality are n with ashtra 30 ard, the 21 to ed.	Verified du	ring site visit
		Nov 2021				
		(PM10) Valu			Manager	
		Date	Contractor camp	Patala Magazin	e office	
		APR 21 (1st FN)	109	105	102	
		APR 21 (2 nd FN) MAY 21 (1 st FN)	118 105	120 115	91	
		MAY 21 (2 nd FN)	110	125	106	
		JUNE 21 (1st FN)	127	150	106	
		JUNE 21 (2 nd FN)	120	135	115	
		JULY 21 (1 st FN) JULY 21 (2 nd FN)	100	110 123	133 142	
		AUG 21 (1st FN)	147	121	127	
		AUG 21 (2 nd FN)	131	133	155	
		SEPT 21 (1st FN)	137	115	133	
		SEPT 21 (2 nd FN) 120 103 Std 250 250			117 250	
		Std250250(PM2.5) Values of μg/m³DateContractorPatala			230	
					Manager	
			camp	Magazin	e office	
		APR 21 (1st FN)	32	34	28	
		APR 21 (2 nd FN) MAY 21 (1 st FN)	36 28	36 31	33 24	
		MAY 21 (13 FN) MAY 21 (2nd FN)	33	38	30	
		JUNE 21 (1st FN)	32	40	26	
		JUNE 21 (2 nd FN)	30	36	28	
		JULY 21 (1st FN)	30	36	40	

	T		T	T -	T	
		JULY 21 (2 nd FN)	35	30	44	
		AUG 21 (1st FN)	40	32	36	
		AUG 21 (2 nd FN)	33	38	39	
		SEPT 21 (1st FN)	32	34	40	
		SEPT 21 (2 nd FN)	28	30	36	
		Std	60	60	60	
(iii)	Transportation of coal, to the extent permitted by road, shall be carried out by covered trucks/conveyors. Effective control measures such as regular water/ mist sprinkling/ rain gun etc shall be carried out in critical areas prone to air pollution (with higher values of PM10/PM2.5) such as haul road, loading/ unloading and transfer points. Fugitive dust emissions from all sources shall be controlled regularly. It shall be ensured that the Ambient Air Quality parameters conform to the norms prescribed by the Central/ State Pollution Control Board.	road is being mine to co Siding (which mine boundarine) and same through tarp coal transported. 10 nos. fixed mtrs throw a common Railway Dust suppression on Coal transport through mobile done. And way of 30 nos. fixed coal transport progress. 1 no. Mod machine for accumulated transportation order issued). 12 nos. fixed provided to emission from Coal transportation order issued. All the mobil provided with Machine water deployed transportation road. 2 nos. Mist care throw with 320.	done only mmon R comes ry of action truck sprinklers are instally ay Siding on arrange sportation of tankers is ork of instally attain root of the control o	y from dailway under lailway under lijacent grant gran		ring site visit
(i∨)	The transportation of coal shall be carried out as per the provisions and route envisaged in the approved Mining Plan or environment monitoring plan. Transportation of the coal through the existing road passing through any village shall be avoided. In case, it is proposed to construct the bypass road, it should be	Noted and is b	eing com _l	olied	No remark	

	constructed so that the impact of sound, dust and accidents could be appropriately mitigated.		
(∨)	Vehicular emissions shall be kept under control and regularly monitored. All the vehicles engaged in mining and allied activities shall operate only after obtaining 'PUC' certificate from the authorized pollution testing centres.	,	Verified from record
(vi)	Coal stock pile/ crusher/ feeder and breaker material transfer points shall invariable be provided with dust suppression system. Belt-conveyor shall be fully covered to avoid air borne dust. Side cladding all along the conveyor gantry should be made to avoid air borne dust. Drills shall be wet operated or fitted with dust extractors.	· · · · · · · · · · · · · · · · · · ·	Verified during site visit
(vii)	Coal handling plant shall be operated with effective control, measures w.r. t. various environmental parameters. Environmental friendly sustainable technology should be implemented for mitigating such parameters.	•	Verified during site visit

(i)	The effluent discharge (mine waste water, workshop effluent) shall be monitored in terms of the parameters notified under the water Act,	Mine Water Workshop ETP being monitored 742 E dated 25 th S 2000.	Verified report		
	1974 Coal Industry Standards	MAINIE MATED DIS	CHADCE		
	vide GSR 742 € dated 25 th	MINE WATER DIS		T00	
	September, 2000 and as	Date pH	COD	TSS	O&G
	amended from time to time by	APR 21 (1st FN) 7.32	24	32	BDL
	the Central Pollution Control	APR 21 (2 nd FN) 7.56	26	28	BDL
		MAY 21 (1st FN) 7.30	20	36	BDL
	Board.	MAY 21 (2 nd FN) 7.25	18	40	BDL
		JUNE 21 (1st			
		FN) 8.10	30	48	BDL
		JUNE 21 (2 nd F) 8.05	34	40	BDL
		JULY 21 (1st FN) 7.44	36	20	<2
		JULY 21 (2 nd			
		FN) 7.59	40	24	<2
		AUG 21 (1st FN) 7.32	36	22	BDL
1		AUG 21 (2 nd			
1		FN) 7.56	40	28	BDL
1		SEPT 21 (1st FN) 7.73	24	20	BDL
1		SEPT 21 (2 nd 7.94	36	26	
		FN)			BDL
		WORKSHOP ETP	EFFLUENT		
		Date pH	COD	TSS	O&G
		APR 21 (1st FN) 7.66	28	40	BDL
		APR 21 (2 nd FN) 7.54	30	44	BDL
		MAY 21 (1st FN) 7.44	20	24	BDL
		MAY 21 (2 nd			
		FN) 7.30 JUNE 21 (1st	22	32	BDL
		FN) 7.77	20	44	BDL
		JUNE 21 (2 nd F) 7.90	22	40	BDL
		JULY 21 (1st FN) 7.72	32	26	<2
		JULY 21 (2 nd	102		1 -
		FN) 7.90	28	20	<2
		AUG 21 (1st FN) 7.45	32	20	BDL
		AUG 21 (2 nd			
		FN) 7.69	28	18	BDL
		SEPT 21 (1st FN) 7.56	48	32	BDL
		SEPT 21 (2 nd 7.70	40	30	
		FN)			BDL
(ii)	The monitoring data shall be uploaded on the company's website and displayed at the		is being	No rem	ark
	project site at a suitable location. The circular No.J-20012/1/2006-IA.11 (M) dated				
	27 th May, 2009 issued by Ministry of Environment, Forest and Climate Change shall also				
	be referred in this regard for its compliance.				
(iii)	Regular monitoring of ground water level and quality shall be carried out in and around the	Regular monitorial ground water quality is being co	level and	Verified	report

	mine lease area by establishing a network of existing wells constructing new piezometers during the mining operations. The monitoring of ground water levels shall be carried out four times a year i.e. pre-monsoon, monsoon, post-monsoon and winter. The ground water quality shall be monitored once a year, and the data thus collected shall be sent regularly to MOEFCC/RO.	and around the mine lease. The monitoring is carried out four times in a year premonsoon (April-May), monsoon (August), postmonsoon (November) and winter (January) and the data thus collected is being sent regularly to Ministry of Environment, Forest and Climate Change and its Regional Office, Central Ground Water Authority and Regional Director, Central Ground Water Board Report of the monitoring (December 2019 to July 2021) has been submitted to CGWB and MoEF vide e.mail dated 18.11.2021	
(iv)	Monitoring of water quality upstream and downstream of water bodies shall be carried out once in six months and record of monitoring data shall be maintained and submitted to the Ministry of Environment, Forest and Climate Change/Regional Office.	Monitoring of water quality upstream and downstream of water bodies is being carried out regularly and report of same is also submitted to MPCB & MoEF on regular basis. Copy of latest report (Jan 2022) enclosed	Verified from report
(v)	Ground water, excluding mine water, shall not be used for mining operations. Rainwater harvesting shall be implemented for conservation and augmentation of ground water resources.	Complied Ground water excluding mine water is not being used for mining operations. Rain Water Harvesting Pond of dimension 88 mtr x 18 mtr x 1.20 m has been constructed by considering the long term benefits. It helps in augmenting ground water resources.	Verified during site visit
(vi)	Catch and/ or garland drains and siltation ponds in adequate numbers and appropriate size shall be constructed around the mine working, coal helps & OB dumps to prevent run off of water and flow of sediments directly into the river and water bodies, further, dump material shall be properly consolidated/	Garland drains of dimension (Length: 3000 mtr, Avg. width: 2.50 mtr, Avg. Depth: 2.00 mtr) is provided around the mine. Catch drain of dimension (Length: 1000 mtr, Avg. width: 2.50 mtr, Avg. Depth: 2.00 mtr) provided around OB dumps.	Verified during site visit

	compacted and accumulation of water over dumps shall be avoided by providing adequate channels for flow of sit into the drains. The drains/ ponds so constructed shall by regularly de-silted particularly before onset of monsoon and maintained properly. Sump capacity should provide adequate retention period to allow proper settling of silt material. The water so collected in the sump shall be utilised for dust suppression and green belt development and other industrial use. Dimension of the retaining wall constructed, if any, at the toe of the OB dumps within the mine to check run-off and siltation should be based on the rainfall data. The plantation of native species to be made between toe of the dump and adjacent field/habitation/water bodies.	Desilting of catch drains and garland drains is done every year before onset of monsoon departmentally. The catch drains provided all around the OB Dump acts as an arrestor against any flow of silt and sediments into the nearby fields/ nalla. As such specifically, at present there is no requirement of retaining wall at the toe of the dump. Moreover, grass seeding has been placed over the slopes which further protects the flow of silts and sediments.	
(vii)	Adequate groundwater recharge measures shall be taken up for augmentation of ground water. The project authorities shall meet water requirements of nearby village(s) after due treatment conforming to the specific requirements(standards).		Verified during site visit
(viii)	Industrial waste water generated from CHP, workshop and other waste water, shall be properly collected and treated so as to conform to the standards prescribed under the standards prescribed under water Act, 1974 and Environment (Protection) Act,1986 and the rules made there under, and as amended from time to time. Adequate	ETP of 100 KLD capacity with Oil Skimmer is provided for treating the effluent generated from washing of HEMM ETP Effluent Date pH COD APR 21 (1st FN) 7.66 28 APR 21 (2nd FN) 7.54 30 MAY 21 (1st FN) 7.44 20 MAY 21 (2nd FN) 7.30 22 JUNE 21 (1st FN) 7.77 20 JUNE 21 (2nd FN) 7.90 22 JULY 21 (1st FN) 7.72 32	Verified during site visit TSS

	CTD/CTD as a sale to the commenciate of	ALIC 21 /1st ENI)	7.45	20	20	DDI	
	ETP/STP needs to be provided.	AUG 21 (1st FN)	7.45	32	20	BDL	
		AUG 21 (2 nd FN)	7.69	28	18	BDL	
		SEPT 21 (1st FN)	7.56	48	32	BDL	
		SEPT 21 (2 nd FN)	7.70	40	30	BDL	
		At present all this mine are recolony of emajori UG Mine the sewage treated through a Soak Pits. So	esiding rstwhill no. III gener th Sep TP of e consectors w Maj	g at old e New wherein rated is otic tank suitable structed struction for the ri UG to for mine is also ne is in			
(ix)	The water pumped out from the mine, after siltation, shall be utilised for industrial purpose viz. watering the mine area, roads, green belt development etc. The drains shall be regularly desilted particularly after monsoon and maintained properly.	Water pumped galleries afte being used suppression, fire	r silta for	ation is dust	Verified visit	during	site
(x)	The surface drainage plan including surface water conservation plan for the area of influence affected by the said mining operations, considering the presence of rive/ rivulet/pond/lake etc, shall be prepared and implemented by the project proponent. The surface drainage plan and/or any diversion of natural water courses shall be as per the approved Mining Plan/EIA/EMP report and with due approval of the concerned State/Gol Authority. The construction of embankment to prevent any danger against inrush of surface water into the mine should be as per the approved Mining Plan and as per the permission of DGMS or any other authority as prescribed by the law.	Noted and A con riverine economic prepared same enclosed. The Mining accarried out approved Minwith due pour the above. There is no succany nullah. The prepared arimplemented.	o- systed. Colling Placements of the colling Placement of the coll	tem has copy of sis strictly per the lan and sion of the will rated as ersion of	Report v	erified	

(xi) The project proponent shall Noted. Report verified precautionary take all Rivarine/ riparian ecosystem to measures ensure conservation riverine/riparian ecosystem in management plan is and around the coal mine up prepared and same will be to a distance od 5 km. A implemented in consultation rivarine/riparian ecosystem with the irrigation/water conservation resources department in the management plan should be state government. Copy of prepared and implemented in same is enclosed consultation with the irrigation/water resources department state in the government.

(D) Noise And Vibration Monitoring And Prevention

(i)	Adequate measures shall be taken for control of noise levels as per Noise Pollution Rules, 2016 in the work environment. Workers engaged in blasting and drilling operations, operation of HEMM, etc shall be provided with personal protective equipments (PPE) like ear plugs/muffs in conformity with the prescribed norms and guidelines in this regard, Adequate awareness programme for users to be conducted. Progress in usage of such accessories to be monitored.	Adequate measures namely proper maintenance of HEMM and controlled blasting is being done so as to control noise levels below 85 dB(A). The workers engaged in noisy environment are provided with ear plugs/muffs. Noise Monitoring stations are established for monitoring the noise level data and regularly monitored.		Verified report		from
	Thormorea.	Noise levels	in dB (A) Pit Office		Colony	
		Date			Colony	Night
		APR 21 (1st FN)	Day	Night	Day 44.70	Night
		APR 21 (2 nd FN)	54.50 53.50	54.20 52.70		43.70
		MAY 21 (1st FN)	65.40	64.20	43.40 48.20	42.70 47.90
		MAY 21 (2 nd FN)	48.20	47.90	47.30	46.80
		JUNE 21 (1st FN)	63.40	62.10	45.90	44.30
		JUNE 21 (2 nd F)	62.40	61.90	44.80	43.20
		JULY 21 (1st FN)	48.70	45.40	46.50	44.70
		JULY 21 (2 nd FN)	45.40	42.70	46.70	43.80
		AUG 21 (1st FN)	52.60	49.80	45.20	44.40
		AUG 21 (2 nd FN)	48.90	47.40	43.60	42.40
		SEPT 21 (1st FN)	50.70	49.60	44.50	43.20
		SEPT 21 (2 nd FN)	52.70	50.50	44.30	42.30
		STD	75	70	55	45
(ii)	Controlled blasting techniques shall be practised in order to mitigate ground vibrations, fly rocks, noise and air blast etc., as per the guidelines prescribed by the DGMS.	Controlled being done of guidelines with and shock tub	h cord relay	Verified	d from re	eport

RO on six-monthly basis.		(iii)	The noise level survey shall be carried out as per the prescribed guidelines to access noise exposure of the workman at vulnerable points in the mine premises, and report in this regard shall be submitted to the ministry/RO on six-monthly basis.	carried out as per the DGMS guidelines to access noise exposure of the workman at vulnerable points in the	Verified
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(E) Mining Plan

(i)	Mining shall be carried out under strict adherence to provisions of the Mines Act 1952 and subordinate legislations made there-under as applicable.	Noted and is being complied	No remark
(ii)	Mining shall be carried out as per the approved mining plan (including Mine Closure Plan) abiding by mining laws related to coal mining and the relevant circulars issued by Directorate General Mines Safety (DGMS).	Noted and is being complied	No remark
(iii)	No mining shall be carried out in forest land without obtaining Forestry Clearance as per Forest (Conservation) Act,1980.	Noted and complied There is no forest land involved in this project	No remark
(i∨)	Efforts should be made to reduce energy and consumption by conservation, efficiency improvements and use of renewable energy.	Noted. Steps of energy conservation such as energy efficient lighting are being taken in mines	No remark

(F) Land Reclamation

(i)	Digital survey if entire lease hold area/ core zone using Satellite Remote Sensing survey shall be carried out at least once in three years for monitoring land use pattern and report in 1;50,000 scale or as notified by Ministry of Environment, Forest and Climate Change (MOEFCC) from time to time shall be	mine is studied every 3 year through Satellite imagery. Monitoring of same has been done by CMPDIL in 2021. Report of same is uploaded on WCL Website (http://www.westerncoal.in/	Verified from website
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	submitted to MOEFCC/Regional Office (RO).								
(ii)	The final mine void depth should preferably be as per the approved Mine Closure Plan, and in case it exceeds 40 m, adequate engineering interventions shall be provided for sustenance of aquatic life therein. The remaining area shall be backfilled and covered with thick and alive top soil. Post-mining land be rendered usable for agricultural/ forestry purposes and shall be diverted. Further action will be treated as specified in the guidelines for preparation of Mine Closure Plan issued by the Ministry of coal dated 27th August,2009 and subsequent amendments.	Adequate taken to suas the volumine closur mine is closured ackfilled reclaimed other useful Mine acguidelines of the columns	ustain ad id dept n 40 m re plan red. area by plar l purpos	will be tr as per once the will be ntation or ses.	No rem	nark			
(iii)	The entire excavated area, backfilling, external OB dumping (including top soil) and afforestation plan shall be in conformity with the "during mining"/"post mining" landuse pattern, which is an integral part of the approved Mining Plan and the EIA/ EMP submitted to this Ministry. Progressive compliance status vis-à-vis the post mining land use pattern shall be submitted to the MOEFCC/RO.	PLANTATION PROG. AS PER EMP							
		Year		umps		ckfilled		hers	
and in a mir use inte Mir			Area (Ha)	Nos.	Area (Ha)	Nos.	A re a (H a)	No s.	
		1 st yr	0	0	0	0	2 0	50 00 0	
		5 th yr	0	0	0	0	5 0. 2	12 55 00	
		10 th yr	60	150000	0	0	7 0. 2	17 55 00	
	15 th yr	84.6	211500	0	0	9 0. 2	22 55 00		
		End of life	84.6	211500	0	0	1 5 0. 2	37 55 00	
			ANTATIC DATE	no sa na					
		2016-17 = an area of							
			,	•					

F			
		an area of 6 Ha (PLAIN)	
		2019-20 = 15,000 Nos. over an area of 6 Ha (PLAIN)	
		2021-22 = 35,000 Nos. over an area of 14 Ha (PLAIN) & 15,000 Nos. over an area of 6 Ha (TOP SOIL DUMP)	
(iv)	Fly ash shall be used for external dump of overburden, backfilling or stowing of mine as per provisions contained in clause (i) and (ii) of subparagraph (8) of fly ash notification issued vide SO 2804 (E) dated 3rd November,2009 as amended from time to time. Efforts shall be made to utilize gypsum generated from Flue Gas Desulfurization (FGD),if any, along with fly ash for external dump.	As per the notification, fly ash backfilling is to be done in abandoned coal mines. Fly ash for backfilling will be utilised as per notification at the end of mine life when the mine gets abandoned.	No remark
	dump of overburden, backfilling of mines. Compliance report shall be submitted to Regional Office of MoEFCC, CPCB and SPCB.		
(v)	Further, it may be ensured that as per the time schedule specified in mine closure plan it should remain live till the point of utilization. The topsoil shall temporarily be stored at earmarked site (s) only and shall not be kept unutilized. The topsoil shall be used for land reclamation and plantation purposes. Active OB dumps shall be stabilised with native grass species to prevent erosion and surface run off. The other overburden dumps shall be vegetated with native flora species. The excavated area shall be backfilled and afforested in line with the approved Mine Closure Plan. Monitoring and management of rehabilitated areas shall continue until the vegetation becomes self-sustaining. Compliance status shall be submitted to the ministry of	6.573 Mm³ Top soil has been excavated till 30.09.2021 and is being stored in the earmarked site and will be utilized as per the plantation programme. 18.066 Mm³ OB (excl. top soil) has been excavated till 30.09.2021 and is being stacked at the earmarked dump site only. However, as per the approved mining plan & Mine closure plan, the entire de-coaled area will be converted into water body as no backfilling is proposed for excavated area of NMUG to OC mine quarry. Backfilling of adjacent mine will be done from OB of this mine.	Verified
	Environment, Forest and Climate Change/ Regional	Regarding Monitoring and management of	

	Office.	rehabilitated areas, it is submitted that, the same in respect of external OB dump is yet to start as the dump is active. But after vegetation / plantation, the monitoring and management will be continued till it becomes self-sustaining. Compliance against this condition is a part of Six monthly EC Compliance report which is submitted to RO, MoEF&CC regularly and will continue to be submitted.	
(vi)	The project proponent shall make necessary alternative arrangements, if grazing land is involved on core zone, in consultation with the State government to provide alternate areas for livestock grazing, if any. In this context, the project proponent shall implemented the directions of Hon'ble Supreme Court with regard to acquiring grazing land.	Not Applicable, as no separate land is acquired for grazing land.	No remark

(G) Green Belt

(i)	The project proponent shall take all precautionary measures during mining operation for conservation and protection of endangered/endemic flora/fauna, if any, spotted/reported in the study area. The Action plan in this regard, if any, shall be prepared and implemented in consultation with the State Forest and Wildlife Department.	Not Applicable	No remark
(ii)	Greenbelt consisting of 3-tier plantation of width not less than 7.5 m shall be developed all along the mine lease area as soon as possible. The green belt comprising a mix of native species (endemic species should be given priority) shall be developed all	9	No remark

Top Soil dump		mine and 15,000 nos. over an area of 6 Ha on
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(H) Public Hearing and Human Health Issues

(i)	Adequate illumination shall be ensured in all mine locations (as per DGMS standards) and monitored weekly. The report on the same shall be submitted to this ministry & it's RO on six-monthly basis.	Noted and same is being complied	No remark
(ii)	The project proponent shall undertake occupational health survey for initial and periodical medical examination of the personnel engaged in the project and maintain records accordingly as per the provisions of the Mines Rules, 1995 and DGMS circulars. Besides regular periodic health check-up,20% of the personnel identified from workforce engaged in active mining operations shall be subjected to health check-up for occupational diseases and hearing impairment time to time.	Complied Regular and Periodical medical examination (IME and PME) of the workers (Departmental as well as contractual workers) has been undertaken at Majri Area Hospital of WCL. Area Hospital is headed by Chief Medical Officer. Health check-up to detect for occupational diseases and hearing impairment is also being done	Verified
(iii)	Personnel (including outsourced employees) working in core zone shall wear protective respiratory devices and shall also be provided with adequate training and information on safety and health aspects.	Personnel (including outsourced employees) working in mine is provided with protective respiratory devices and adequate training and information on safety and health aspects is also provided at GVTC Majri on inducting in mining activity as well as on regular basis till they work in mines of WCL MAJRI AREA.	Verified from records
(iv)	Implementation of the action plan on the issues raised during the public hearing shall be ensured. The project proponent shall undertake all the tasks/measures as per the action plan submitted with budgetary provisions during the public hearing. Land oustees shall be compensated as per the norms laid down in the R&R policy of the company/State Government/Central	Noted and is being complied	No remark

	Government, as applicable.		
(*)	The project proponent shall follow the mitigation measures provided in this Ministry's OM No.Z-11013/5712014-IA.II (M) dated 29 th October, 2014 titled 'Impact of mining activities on habitationsissues related to the mining projects wherein habitations and villages are the part of mine lease areas or habitations and villages are surrounded by the mine lease area.	Noted and is being complied	No remark

(I) Corporate Environment Responsibility

(i)	The project proponent shall comply with the provisions contained in this Ministry's OM vide F.No.22-65/2017-IA.III dated 1st May 2018, as applicable, regarding Corporate Environment Responsibility.	Noted and is being complied	No remark
(ii)	The company shall have a well laid down environmental policy duly approve by the Board of Directors. The environmental policy should prescribe for standard operating procedures to have proper checks and balances and to bring into focus any infringements/ deviation/violation of the environmental/forest/wildlife norms/ conditions. The company shall have defined system of reporting infringements/ deviation/violation of the environmental/forest/wildlife norms/ conditions and/ or shareholders/stake holders.	Coal India Limited has its well laid down environmental policy duly approve by the CIL Board. The Environment Policy prescribes for standard operating process/ procedures to bring into focus any infringements/deviation/violation of the environmental or forest norms/conditions. The company has a well laid down system of reporting of noncompliances/ violations of environmental norms to the Board of Directors of the company and/or shareholders or stakeholders at large.	Verified
(iii)	A separate Environmental Cell both at the project and company head quarter level, with qualified personnel shall be set up under the control of senior Executive, who will directly to the head of the organization.	Environment Cell exists at HQ, Area, & project level. GM (Environment) directly reports to the head of the Organization. GM (ENVIRONMENT) Area Nodal Officer (ENV)/ Asstt Mgr (Env	Verified

		Nodal Officer (ENV)/ Asst. Mgr (C)	
(iv)	Action plan for implementing EMP and environmental conditions along with responsibility matrix of the company shall be prepared and shall be duly approved by competent authority. The year wise funds earmarked for environmental protection measures shall be kept in separate account and not to be diverted for any other purpose. Year wise progress of implementation of action plan shall be reported to the Ministry/Regional Office along with the Six Monthly Report.	Noted and is being complied	No remark
(v)	Self environmental audit shall be conducted annually. Every three years third party environmental audit shall be carried out.	Environmental Audit Cell has been formulated to ensure implementation of all the EC Conditions vide letter no. WCL/HQ/ENV/20-B & 25-I/71-81 dated 18.02.2017.	System exists in WCL

(J) Miscellaneous

(i)	The project proponent shall make public the environmental clearance granted for their project along with the environmental conditions and safeguards at their cost by prominently advertising it at least in two local newspapers of the District or State, of which one shall be in the vernacular language within seven days and in addition this shall also be displayed in the project proponent's website permanently.	Complied. Advertisement given in following 2 Newspapers:- 1) Chandrapur Samachar (Marathi) dated 06.01.2021 2) Mahavidharbha (Hindi) dated 06.01.2021	Verified
(ii)	The copies of the environmental clearance shall be submitted by the project proponent to the heads of local bodies, Panchayats and Municipal Bodies in addition to the relevant offices of the Government who in turn has to display the same for 30 days from the date of receipt.	Copies of the environmental clearance is submitted to the heads of local bodies, Panchayats and Municipal Bodies and relevant offices of the Government between 02.01.21 to 05.01.21	Verified
(iii)	The project proponent shall upload the status of compliance of the stipulated environment clearance	Compliance of the stipulated environment clearance conditions,	Verified from website

	conditions, including result of monitored data on their website and update the same on half-yearly basis.	including result of monitored data are uploaded on WCL website regularly (http://www.westerncoal.in/?q=node/270).	
(iv)	The project proponent shall monitor the criteria, pollutants level namely; PM10, SO2, NOx (ambient levels) or critical sectoral parameters, indicated for the projects and display the same at a convenient location for disclosure to the public and put on the website of the company.	Noted and is being complied	No remark
(v)	The project proponent shall submit six-monthly reports on the status of the compliance of the stipulated environmental conditions on the website of the ministry of environment, Forest and Climate Change at environment clearance portal.	reports are uploaded on	Verified
(vi)	The project proponent shall follow the mitigation measures provided in this Ministry's OM No. Z-11013/5712014-IA. II (M) dated 29th Ocober,2014, titled 'Impact of mining activities on habitations-issues related to the mining projects wherein habitations and villages are the part of mine lease areas or habitations and villages are surrounded by the mine lease area'.	=	No remark
(vii)	The project proponent shall submit the environmental statement for each financial year in Form-v to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently and put on the website of the company.	2020-21 has been submitted to MPCB vide UAN No. 34463 on dated 28.08.2021 as prescribed under the Environment (Protection)	Verified
(viii)	The project authorities shall inform to the Regional Office of the MOEFCC	Information to the Regional Office of the MOEF&CC	Verified

	regarding commencement of mining operations.	regarding commencement of mining operations has been given via e.mail dated 31.01.2021	
(ix)	The project authorities must strictly adhere to the stipulations made by the State Pollution Control Board and the State Government.	_	No remark
(x)	The project proponent shall abide by all the commitments and recommendations made in the EIA/EMP report, commitment made during Public Hearing and also that during their presentation to the Expert Appraisal Committee.	Noted and is being complied	No remark
(xi)	No further expansion or modifications in the plant shall be carried out without prior approval of the Ministry of Environment, Forests and Climate Change.	Noted	No remark
(xii)	Concealing factual data or submission of false/ fabricated data may result in revocation of this environmental clearance and attract action under the provisions of Environment (Protection) Act,1986.	Noted	No remark
(xiii)	The ministry may revoke or suspend the clearance, if implementation of any of the above condition is not satisfactory.	Noted	No remark
(xiv)	The Ministry reserves the right to stipulate additional conditions if found necessary. The Company in a time bound manner shall implement these conditions.	Noted	No remark
(xv)	The regional office of this ministry shall monitor compliance of the stipulated conditions. The project authorities should extend full cooperation to the officer (s) of the Regional Office by furnishing the requisite data/ information/monitoring reports.	Noted	No remark
(xvi)	The above conditions shall be enforced. Inter-alia under the provisions of the water (Prevention & Control of pollution) Act,1974, the Air	Noted	No remark

	(Prevention & Control of pollution) Act, 1981, the Environment (Protection) Act,1986, Hazardous and Other Wastes (Management and Trans-boundary Movement) Rules, 2016 and the public liability insurance Act, 1991 along with their amendments and rules and any other orders passed by the Hon'ble supreme court of india/ High courts and any other court of law relating to the subject matter.		
5.	The proponent shall abide by all the commitment and recommendations made in the EIA/ EMP report and also that during presentation to the EAC. All the commitments made on the issues raised during public hearing shall also be implemented in letter and spirit.	Noted	No remark
6.	The proponent shall obtain all necessary clearances/ approvals that may be required before the start of the project. The Ministry or any other competent authority may stipulate any further condition for environmental protection. The Ministry or any other competent authority may stipulate any further condition for environmental protection.	Noted and complied	No remark
7.	Any appeal against this environmental clearance shall lie with the National Green Tribunal. If preferred, within a period of 30 days as prescribed under section 16 of the National Green Tribunal Act,2010.	Noted	No remark
8.	The coal company/ project proponent shall be liable to pay the compensation against the illegal mining, if any, and as raised by the respective State Governments at any point of time. In terms of the orders dated 2 nd August, 2017 of Hon'ble Supreme Court in WP(Civil) No.114/2014 in the matter of 'Common Cause Vs Union of india & other.	Noted	No remark
9.	The concerned State Government shall ensure no mining operations to commence till the entire	Noted	No remark

	compensation for illegal mining, if any, is paid by the project proponent through their respective Department of mining & Geology, in strict compliance of the judgment of Hon'ble Supreme Court.		
10.	This environmental compliance shall not be operational till such time the project proponent complies with the above said judgment of Hon'ble Supreme Court, as applicable, and other statutory requirements.	Noted	No remark

STATUS OF RAIN WATER HARVESTING SYSTEMS

SI. No.	Location	Туре	Dimension	Area (m2)	No. of recharge pit	Depth of Bore	Dia of Bore	Depth of Recharge Pit	Dia / width of Recharge Pit
NEV	NEW MAJRI SUB AREA								
1	Rain Water harvesting Pond	Pond type	88m x 18m x 1.2m	1584 m²					
2	AREA HOSPITAL	Roof Top		2250 m ²	3 nos.	10 m	150 mm	1.5 m	2 m
3	VTC BUILDING	Roof Top		200 m ²	1 no.	10 m	150 mm	1.5 m	2 m
4	AUDITORIUM	Roof Top				10 m	150 mm	1.5 m	2 m
5	COAL TESTING LAB	Roof Top		150 m ²	1 no.	10 m	150 mm	1.5 m	2 m
6	FILTER PLANT	Roof Top		91 m ²		10 m	150 mm	1.5 m	2 m
7	RESCUE ROOM	Roof Top		177 m ²		10 m	150 mm	1.5 m	2 m

ROOF TOP RAIN WATER HARVESTING





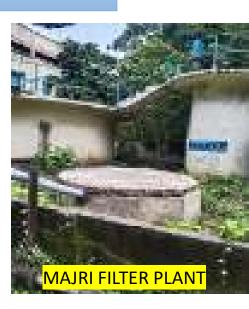




RAIN WATER HARVESTING POND









Form 4

See rules 6(5),13(8),16(6) and 20(2) of Hazardous and other wastes 2016

FORM FOR FILING ANNUAL RETURNS

[To be submitted to state pollution control board/pollution control committee by 30th June of every year for the preceeding period April to march]

Unique Application Number: Submitted On: Industry Type

MPCB-HW ANNUAL RETURN-0000039951 29-06-2023 Generator

Submitted for Year:

April 2022 to March 2023

2. Name of the authorised person

1. Name of the generator/operator of facility Address of the unit/facility

New Majri UG to OC Mine

Office of Sub Area Manager, PO: Shivjinagar,
Tahsil: Bhadrawati,District: Chandrapur

1b. Authorization Number Date of issue Date of

validity of consent

Mar 31, 2024

format1.0/CAC/UAN No. MPCB-CONSENT-0000160648/CR/2305000846 May 12, 2023

official, of CAC, OAN NO. 111 CB CONSENT 0000100040/CN 2505000040 Play 12, 202.

R.B. Verma Office of Sub Area Manager, PO: Shivjinagar,

Tahsil: Bhadrawati, District: Chandrapur

Full address of authorised person

Telephone Fax Email

07175285086 07175285088 newmajriugtooc@gmail.com

3. Production during the year (product wise), wherever applicable

Product Type *Product Name *Consented QuantityActual QuantityUOMMiningCoal3.00001.864MT/A

PART A: To be filled by hazardous waste generators

1. Total Quantity of waste generated category wise

Type of hazardous waste 5.1 Used or spent oil	Wate Name Used Oil	Consented Quantity 90.000	Quantity 56.266	UOM KL/Anum
5.2 Wastes or residues containing oil	Oil filter, hose pipe, oil contaminated waste	2.000	1	MTA
2.2 Sludge containing oil	ETP Sludge	9.000	4	MTA

2. Quantity dispatched category wise.

Type of Waste	Quantity of waste	иом	Dispatched to	Facility Name
5.1 Used or spent oil	77.58	KL/Anum	Recycler or Actual user	Ranjana Group o Industries Nagpur Maharashtra
5.2 Wastes or residues containing oil	0	MTA	Disposal Facility	CHWTSDF Butibori
2.2 Sludge containing oil	0	MTA	Disposal Facility	CHWTSDF Butibori

3. Quantity Utilised in-house, If any

Type of Waste Name of Waste Quantity of Waste UOM

	NA	0	VI /Anum	
A Constitution to stone on at the conduct		U	KL/Anum	
4. Quantity in storage at the end of	the year			
Type of Waste	Name of Waste	Quantity of Waste	UOM	
2.2 Sludge containing oil	ETP Sludge	4	KL/Anum	
5.2 Wastes or residues containing oil	Oil filter hose pipe	1	MTA	
5. Quantity disposed in landfills as s	such and after treatment			
Туре	Quantity	UOM		
Direct landfilling	NA	KL/Anum		
Landfill after treatment	NA	KL/Anum		
6. Quantity incinerated (if applicable)	UOM			
NA	KL/Anum			
PART B: To be filled bt Tre		nd disposal facility o	perators	
1.Total Quantity received		U	ЮМ	State Name

NA	KL/Anum	Maharashtra
2. Quantity in stock at the beginning of the year	UOM	
NA	KL/Anum	
3. Quantity treated	UOM	
NA	KL/Anum	
4. Quantity disposed in landfills as such and after treatment		
Type Direct landfilling	Quantity NA	UOM KL/Anum
Landfill after treatment	NA	KL/Anum
5. Quantity incinerated (if applicable)	UOM	
NA	KL/Anum	
6. Quantiry processed other than specified above	UOM	
NA	KL/Anum	
7. Quantity in storage at the end of the year.	UOM	
NA	KL/Anum	

PART C: To be filled by recyclers or co-processors or other users

1. Quantity of waste received during the year

Waste Name/Category	Country Name	State Name	domestic sources	Quantity of waste imported(If any)	Units
NA	NULL	Other	NA	NA	KL/Anum
2. Quantity in stock at the	beginning of the	year			
Waste Name/Category			Quantity U	IOM	

KL/Anum

3. Quantity of waste recycled or co-procesed or used

NA

Name of Waste	Type of Waste	Quantity	UOM
NA	NA	NA	KL/Anum

NA

4. Quantity of products dispatched (wherever applicable)

Name of product Quantity UOM

KL/Anum
иом
KL/Anum
UOM
KL/Anum
KL/Anum
Designation
Sub Area Manager

MAHABASHTRA POLLUTION CONTROL SOARD

Phone: 34018450/54014701/24120091 Fire proper societies Months and Professional Association (Association) C-Ran Ham George Cooking



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Government

ENVIRONMENTAL MONITORING REPORT w.r.t. HEAVY METALS IN AMBIENT AIR MAJRI AREA

WESTERN COALFIELDS LTD.



Environment Laboratory **CMPDI**

REGIONAL INSTITUTE-IV, KASTURBA NAGAR, JARIPATKA, NAGPUR, PIN – 440 014

AN ISO 9001:2015 COMPANY

CMPDI RI-IV, NAGPUR

Test Report Ambient Air quality monitoring data for heavy metals

TEST REPORT NO.	RIN/TR/JUNE	/HM99			DATE OF ISSUE
NAME OF CUSTOMER	GM(ENV.),WCL(HQ), NAGPUR				SAMPLE DESCRIPTION
TEST REQUIRED	Heavy metals (As, Pb, Ni, Cr & 0	Cd) in air samples (ASTM D	4185)	
NAME OF AREA	MAJRI				SAMPLING METHOD : LSOP 4
NAME OF PROJECT	NEW MAJRI U	JG TO OC			SAMPLING PLAN : LQR 47
No. of Pages	1		•		

SI No.	Name of location	Location Code	Date of sampling
1	PATALA MAGAZINE	MMUA-1	06-04-2023
2	UG TO OC MANGER OFFICE	MMUA-2	06-04-2023
3	CONTRACTER CAMP	MMUA-3	06-04-2023
4	PRIMARY SCHOOL SAWARLI VILLAGE	MMUA-4	07-04-2023

I SI No. I. Parameter I	Method of	Detection	Observed Value				
	analysis	limit	MMUA-1	MMUA-2	MMUA-3	MMUA-4	
1	Arsenic, µg/m ³	ASTM D 4185	0.0007 μg/m ³	BDL	BDL	BDL	BDL
2	Lead, µg/m3	IS 5182 PART 22	7.0 μg/m ³	BDL	BDL	BDL	BDL
3	Nickle, µg/m ³	ASTM D 4185	0.007 μg/m ³	BDL	BDL	BDL	BDL
4	Total Chromium, µg/m³	ASTM D 4185	0.0045 μg/m ³	BDL	BDL	BDL	BDL
5	Cadmium	ASTM D 4185	0.0015 µg/m ³	BDL	BDL	BDL	BDL
6	Mercury, μg/m3	ASTM D 4185	0.0007 µg/m ³	BDL	BDL	BDL	BDL

BDL: BELOW DETECTIO

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CMPDI RI-IV, NAGPUR

Test Report Ambient Air quality monitoring data for heavy metals

TEST REPORT NO.	RIN/TR/JUNE	/HM108			DATE OF ISSUE
NAME OF CUSTOMER	GM(ENV.),W	CL(HQ), NAGPL	JR		SAMPLE DESCRIPTION
TEST REQUIRED	Heavy metals	(As, Pb, Ni, Cr & (•		
NAME OF AREA	MAJRI				SAMPLING METHOD : LSOP 4
NAME OF PROJECT	YEKONA I & I	I OC			SAMPLING PLAN : LQR 47
No. of Pages	1		-		

	SI No.	Name of location	Location Code	Date of sampling
ſ	1	COAL STOCK YARD	MYOF-1	23-04-2023

	_	Method of	Detection	Observed Value
Sl. No.	Parameter	analysis	limit	MYOF-1
1	Arsenic, µg/m³	ASTM D 4185	0.0007 μg/m ³	BDL
2	Lead, µg/m3	IS 5182 PART 22	7.0 μg/m ³	BDL
3	Nickle, µg/m ³	ASTM D 4185	0.007 μg/m ³	0.0077
4	Total Chromium, µg/m³	ASTM D 4185	0.0045 μg/m ³	0.0046
5	Cadmium, µg/m³	ASTM D 4185	0.0015 μg/m ³	BDL
6	Mercury, μg/m3	ASTM D 4185	0.0007 µg/m ³	BDL

BDL: BELOW DETECTIO

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SCIENTIFIC ASSISTANT

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ENVIRONMENTAL MONITORING REPORT

NEW MAJRI UG TO OC

MAJRI AREA

WESTERN COALFIELDS LTD.

JOB NO. 4094423068



APRIL 2023

Environment Laboratory
NABL Accredited vide Cert. No. TC-7102

CMPDI

REGIONAL INSTITUTE-IV, KASTURBA NAGAR, JARIPATKA, NAGPUR, PIN – 440 014

AN ISO 9001:2015 COMPANY

Test Report



TEST REPORT NO.		RIN/TR/APRIL-23/50 DATE OF ISSUE 30-05				30-05-23	
NAME OF CUSTOMER		GM(ENV.), WCL(HQ), NAGPUR					
ITECT DECILIDED	T REQUIRED SPM: IS 5182 Part-4:1999(RA 2019), PM-10: IS-5182 Part 23:2006(RA 2017), PM2.5: USEPA Quality Assurance guidance document volume-II (part-II)-2.12:2016, NO2: IS 5182 Part-06:2006(2017), SO2:IS 5182 Part-2:2001(RA 2017)						
SAMPLE DESCRIPTION		AIR SAMPLE SAMPLING PLAN : L(LQR 47		
SAMPLING METHOD:	LSOP 4	PERIOD OF PERFORMANCE OF LAB ACTIVITIES:				13-04-23 TO 15-05-23	

PATALA MAGAZINE MMOA2									
DATE/ did management) OF CAMPLING		PARAMETERS	END (IDONIA SENT CONDITIONS					
DATE(dd:mm:yy) OF SAMPLING	SPM	PM ₁₀	PM ₁₀ PM _{2.5} No ₂ So ₂			ENVIRONMENT CONDITIONS (Sky/Wind)		
FROM	TO	5	5	2	6	10	(SKY/WIIIU)		
06-04-23	07-04-23	230	150	58	15	12	Clear sky / Calm		
21-04-23	22-04-23	234	152	62	16	11	Clear sky / Calm		
STANDARDS FOR COAL MINE, GSR 742(E),		600	300		120	120			
dt. 25 TH Sept	dt. 25 TH September 2000		300	-	120	120			

MANAGER OFFICE UG TO OC MMUA2									
DATE/dd.) OF CANADUMC		PARAMETERS	(24 hourly va	ılues in μg/m³))			
DATE(dd:mm:yy) OF SAMPLING	SPM	PM ₁₀	PM _{2.5}	No ₂	So ₂	ENVIRONMENT CONDITIONS (Sky/Wind)		
FROM	TO	5	5	2	6	10	(Sky/ Willu)		
06-04-23	07-04-23	290	180	74	15	BDL	Clear sky / Calm		
21-04-23	22-04-23	268	176	70	14	BDL	Clear sky / Calm		
STANDARDS FOR COAL MINE, GSR 742(E), dt. 25 TH September 2000		600	300	-	120	120			

CONTRACTOR CAMP MMUA3										
DATE/ddamene.u.u	4 OF CAMPLING		PARAMETERS	(24 hourly va	alues in μg/m³;)	540 40 044 454 T 004 D T 044			
DATE(dd:mm:y	DATE(dd:mm:yy) OF SAMPLING		PM ₁₀	PM _{2.5}	No ₂	So ₂	ENVIRONMENT CONDITIONS (Sky/Wind)			
FROM	TO	5	5	2	6	10	(Sky/Willa)			
06-04-23	07-04-23	245	149	54	18	13	Clear sky / Calm			
21-04-23	22-04-23	289	173	60	16	BDL	Clear sky / Calm			
STANDARDS FOR COAL MINE, GSR 742(E), dt. 25 TH September 2000		600	300	-	120	120				

SAWARLA VILLAGE MMUA4									
DATE/ del) OF CAMPUNG		PARAMETERS	(24 hourly va	lues in μg/m³)			
DATE(dd:mm:y	y) OF SAMPLING	SPM	PM ₁₀	PM _{2.5}	No ₂	So ₂	ENVIRONMENT CONDITIONS (Sky/Wind)		
FROM	TO	5	5	2	6	10	(Sky/Willu)		
07-04-23	08-04-23	114	52	30	14	BDL	Clear sky / Calm		
22-04-23	23-04-23	116	64	36	14	BDL	Clear sky / Calm		
NAAQ	S, 2009	-	100	60	80	80			

Analysed by

CMPDI RI-IV, NAGPUR 2 of 5

Environment Laboratory
CMPDI RI-IV, NAGPUR
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Test Report



FUGITIVE DUST MONITORING

TEST REQUIRED S	SPM: IS 5182 Part-4:1999(RA 2019), PM-10: IS-5182 Part 23:2006(RA 2017) & PM2.5: USEPA Quality Assurance guidance					
SAMPLE DESCRIPTION Air sample(Fugitive)						
SAMPLING METHOD : LSOP 4		PERIOD OF PE	RFORMANCE OF LAB ACTIVITIES:		13-04-23 TO 15-05-23	

Railway Siding MJUF1								
DATE/dd.mama.u.u.	\ OF CAMPLING	PARAMETERS (5.11.415.0.11.45.15.00.15.15.15.16.16					
DATE(dd:mm:yy) OF SAMPLING	SPM	PM ₁₀	ENVIRONMENT CONDITIONS (Sky/Wind)				
FROM	то	5	5	(Sky) Willa)				
22-04-23	23-04-23	520	380	Clear Sky / Lightbreeze				

Lugar

Analysed by

CMPDI RI-IV, NAGPUR 3 of 5

Test Report



SAMPLE DESCRIPTION	Water samp	ole					
Test Required		pH: IS 3025 -Part 11:1983(RA 2017),TSS: IS 3025-Part 17:1984(RA 2017),COD: APHA (23rd Edition) 5220 C :2017,O &G: IS 3025-Part 39:1991(RA 2019) & BOD: IS 3025 (Part 44): 1993 (RA 2019)					
SAMPLING METHOD	LSOP 5	PERIOD OF PERFORMANCE OF LAB ACTIVITIES :	13-04-23 TO 15-05-23				

MINE WATE	R DISCHARGE:	MMUW1					
DATE OF SAMPLE		ANALYSIS RESULTS					
COLLECTION	рН	TSS (in mg/l)	COD(in mg/l)	O & G(in mg/l)			
DETECTION LIMIT	2	10	4	2			
06-04-23	7.72	20	32	BDL			
21-04-23	7.54	32	20	BDL			
STANDARDS FOR COAL MINE, GSR 742E, dt. 25/09/2000	5.5 - 9.0	100	250	10			

	ETP:	MMUW2					
DATE OF SAMPLE		ANALYSIS RESULTS					
COLLECTION	pН	TSS (in mg/l)	COD(in mg/l)	O & G(in mg/l)			
DETECTION LIMIT	2	10	4	2			
06-04-23	8.32	22	36	BDL			
21-04-23	7.65	30	44	BDL			
STANDARDS FOR COAL MINE, GSR 742E, dt. 25/09/2000	5.5 - 9.0	100	250	10			

STP: MMUW3						
DATE OF SAMPLE	ANALYSI	S RESULTS				
COLLECTION	TSS (in mg/l)	BOD(in mg/l)				
DETECTION LIMIT	10	2				
06-04-23	32	12				
21-04-23	20	10				
STANDARDS FOR COAL MINE, GSR 742E, dt. 25/09/2000	100	30				



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CMPDI RI-IV, NAGPUR 4 of 5

Test Report



NOISE LEVEL MONITORING DATA

SAMPLE DESCRIPTION	NOISE SAMPLE			
Test Required	CB PROCTOCOL FOR AMBIENT NOISE MEASUREMENT, JUNE-2015			
SAMPLING METHOD	LSOP 6			

	PIT OFFICE:	MMUN1		
	DATE OF SAMPLE	NOISE LEVEL IN dB(A)		
MONTH	COLLECTION	DAY TIME	NIGHT TIME	
	DETECTION LIMIT	20	20	
APRIL'23	12-04-23	61.9	60.8	
APRIL'23	28-04-23	58.8	57.4	
	ON (REGULATION AND TROL) RULES	75	70	

C	OLONY(MAJRI UG TO OC):	MMUN2	
	DATE OF SAMPLE	NOISE LEVEL IN (dB(A)
MONTH	COLLECTION	DAY TIME	NIGHT TIME
	DETECTION LIMIT	20	20
APRIL'23	12-04-23	46.5	45.8
APRIL'23	28-04-23	46.8	45.9
	ON (REGULATION AND TROL) RULES	55	45



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CMPDI RI-IV, NAGPUR 5 of 5



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ENVIRONMENTAL MONITORING REPORT

NEW MAJRI UG TO OC

MAJRI AREA

WESTERN COALFIELDS LTD.

JOB NO. 4094423068



MAY 2023

Environment Laboratory **CMPDI**

REGIONAL INSTITUTE-IV, KASTURBA NAGAR, JARIPATKA, NAGPUR, PIN – 440 014

AN ISO 9001:2015 COMPANY

Test Report



TEST REPORT NO.		RIN/TR/MAY-23/50		DATE OF ISSU	JE	30-06-2023
NAME OF CUSTOMER		GM(ENV.), WCL(HQ), NAGPUR				
ITEST RECHIRED	SPM: IS 5182 Part-4:1999(RA 2019), PM-10: IS-5182 Part 23:2006(RA 2017), PM2.5: USEPA Quality Assurance guidance document volume-II (part-II)-2.12:2016, NO2: IS 5182 Part-06:2006(2017), SO2:IS 5182 Part-2:2001(RA 2017)					
SAMPLE DESCRIPTION	AIR SAMPLE SAMPLING PLAN: LQR 47				LQR 47	
SAMPLING METHOD:	LSOP 4	PERIOD OF PERFORMANCE OF LAB ACTIVITIES: 16-05-23 TO 15-06-2				16-05-23 TO 15-06-23

	PATALA MAGAZINE MMUA1							
DATE/dd) OF CANADUMC		PARAMETERS	5411 (1D0414 454) T 6041D (T10416				
DATE(dd:mm:yy	DATE(dd:mm:yy) OF SAMPLING SPM PM ₁₀		PM _{2.5}	No ₂	So ₂	ENVIRONMENT CONDITIONS (Sky/Wind)		
FROM	TO	5	5	2	6	10	(SKY/ WIIIU)	
07-05-2023	08-05-2023	236	152	52	13	BDL	Cloudy sky /Light Breeze	
21-05-2023	22-05-2023	251	159	58	14	10	Cloudy sky /Calm	
STANDARDS FOR COAL MINE, GSR 742(E),		600	300	_	120	120		
dt. 25 TH Sept	ember 2000	000	300		120	120		

	MANAGER OFFICE UG TO OC MMUA2							
DATE/dd) OF CANADUMC		PARAMETERS					
DATE(dd:mm:yy) OF SAMPLING	SPM	SPM PM ₁₀ PM _{2.5} No ₂ So ₂		ENVIRONMENT CONDITIONS (Sky/Wind)			
FROM	TO	5	5	2	6	10	(Sky/Willu)	
07-05-2023	08-05-2023	272	168	62	16	11	Cloudy sky /Light Breeze	
21-05-2023	22-05-2023	291	210	65	18	13	Cloudy sky /Calm	
STANDARDS FOR COAL MINE, GSR 742(E), dt. 25 TH September 2000		600	300	-	120	120		

		CONT	RACTOR CAMP	MMUA3				
		PARAMETERS (24 hourly values in µg/m³)						
DATE(dd:mm:yy	DATE(dd:mm:yy) OF SAMPLING		PM ₁₀	PM _{2.5}	No ₂	So ₂	ENVIRONMENT CONDITIONS (Sky/Wind)	
FROM	TO	5	5	2	6	10	(SKY/WIIIU)	
07-05-2023	08-05-2023	236	146	48	15	10	Cloudy sky /Light Breeze	
21-05-2023	22-05-2023	264	172	52	16	12	Cloudy sky /Calm	
STANDARDS FOR COAL MINE, GSR 742(E), dt. 25 TH September 2000		600	300	-	120	120		

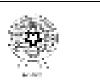
	SAWARLA VILLAGE MMUA4						
DATE/dd.maga.u.u.) OF CANADUMC		PARAMETERS	5411 (1D 0414 454) T 0041D (T10416			
DATE(dd:mm:yy	DATE(dd:mm:yy) OF SAMPLING		PM ₁₀	PM _{2.5}	No ₂	So ₂	ENVIRONMENT CONDITIONS (Sky/Wind)
FROM	TO	5	5	2	6	10	(Sky) Willa)
08-05-2023	09-05-2023	136	76	32	13	BDL	Cloudy sky /Light Breeze
22-05-2023	23-05-2023	120	87	36	9	BDL	Cloudy sky /Calm
NAAQS	5, 2009	ı	100	60	80	80	



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CMPDI RI-IV, NAGPUR 2 of 4

Test Report



SAMPLE DESCRIPTION	Vater sample					
Test Required	pH: IS 3025 -Part 11:1983(RA 2017),TSS: IS 3025-Part 17:1984(RA 2017),COD: APHA (23rd Edition) 5220 C :2017,O &G: IS 3025-Part 39:1991(RA 2019) & BOD: IS 3025 (Part 44): 1993 (RA 2019)					
SAMPLING METHOD	LSOP 5 PERIOD OF PERFORMANCE OF LAB ACTIVITIES : 16-05-23 TO 15-06-23					

MINE WATER DISCHARGE: MMUW1				
DATE OF SAMPLE	ANALYSIS RESULTS			
COLLECTION	рН	TSS (in mg/l)	COD(in mg/l)	O & G(in mg/l)
DETECTION LIMIT	2	10	4	2
08-05-2023	7.84	32	52	BDL
22-05-2023	7.74	38	48	BDL
STANDARDS FOR COAL MINE, GSR 742E, dt. 25/09/2000	5.5 - 9.0	100	250	10

ETP: MMUW2				
DATE OF SAMPLE	ANALYSIS RESULTS			
COLLECTION	pН	TSS (in mg/l)	COD(in mg/l)	O & G(in mg/l)
DETECTION LIMIT	2	10	4	2
08-05-2023	7.65	28	48	BDL
22-05-2023	8.14	40	48	BDL
STANDARDS FOR COAL MINE, GSR 742E, dt. 25/09/2000	5.5 - 9.0	100	250	10

STP: MMUW3			
DATE OF SAMPLE	ANALYSIS RESULTS		
COLLECTION	TSS (in mg/l)	BOD(in mg/l)	
DETECTION LIMIT	10	2	
08-05-2023	32	10.5	
22-05-2023	68	12	
STANDARDS FOR COAL MINE, GSR 742E, dt. 25/09/2000	100	30	

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CMPDI RI-IV, NAGPUR 3 of 4

Test Report



NOISE LEVEL MONITORING DATA

SAMPLE DESCRIPTION	NOISE SAM	1PLE
Test Required	CPCB PROC	CTOCOL FOR AMBIENT NOISE MEASUREMENT, JUNE-2015
SAMPLING METHOD	LSOP 6	

	PIT OFFICE:	MMUN1	
	DATE OF SAMPLE NOISE LEVEL IN		dB(A)
MONTH	COLLECTION	DAY TIME	NIGHT TIME
	DETECTION LIMIT	20	20
MAY'23	12-05-2023	58.1	57.2
MAY'23	28-05-2023	59.5	58.4
NOISE POLLUTION (REGULATION AND CONTROL) RULES		75	70

CO	DLONY(MAJRI UG TO OC):	MMUN2	
	DATE OF SAMPLE	NOISE LEVEL IN dB(A)	
MONTH	COLLECTION	DAY TIME	NIGHT TIME
	DETECTION LIMIT	20	20
MAY'23	12-05-2023	47.5	46.1
MAY'23	28-05-2023	47.3	46.1
NOISE POLLUTION (REGULATION AND CONTROL) RULES		55	45



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ENVIRONMENTAL MONITORING REPORT

NEW MAJRI UG TO OC

MAJRI AREA

WESTERN COALFIELDS LTD.

JOB NO. 4094423068



JUNE - 2023

Environment Laboratory
NABL Accredited vide Cert. No. TC-7102

CMPDI

REGIONAL INSTITUTE-IV, KASTURBA NAGAR, JARIPATKA, NAGPUR, PIN – 440 014

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Test Report



TEST REPORT NO.		RIN/TR/JUNE-23/50 DATE OF ISSUE 15-0			15-04-23	
NAME OF CUSTOMER		GM(ENV.), WCL(HQ), NAGPUR				
ITEST RECHIRED	SPM: IS 5182 Part-4:1999(RA 2019), PM-10: IS-5182 Part 23:2006(RA 2017), PM2.5: USEPA Quality Assurance guidance document volume-II (part-II)-2.12:2016, NO2: IS 5182 Part-06:2006(2017), SO2:IS 5182 Part-2:2001(RA 2017)					
SAMPLE DESCRIPTION		AIR SAMPLE SAMPLING PLAN :		IG PLAN :	LQR 47	
SAMPLING METHOD : LSOP 4		PERIOD OF PERFORMANCE OF LAB ACTIVITIES:			16-06-23 TO 15-07-23	

PATALA MAGAZINE MMUA1								
DATE/ del momo u u	PARAMETERS (24 hourly values in μg/m ³)					END/IDONA AENIT CONDITIONS		
DATE(dd:mm:yy) OF SAMPLING		SPM	PM ₁₀	PM _{2.5}	No ₂	So ₂	ENVIRONMENT CONDITIONS (Sky/Wind)	
FROM	TO	5	5	2	6	10	(Sky/Willu)	
01-06-23	02-06-23	274	156	52	16	10	Clear Calm	
17-06-23	18-06-23	264	165	48	15	10	Clear Calm	
STANDARDS FOR COAL MINE, GSR 742(E),		600	200		120	120		
dt. 25 TH September 2000		600	300	-	120	120		

MANAGER OFFICE UG TO OC MMUA2								
DATE/ diduce see u.u.)	PARAMETERS (24 hourly values in μg/m³)					510 (15 01 15 15 00 15 15 10 1) C		
DATE(dd:mm:yy) OF SAMPLING		SPM	PM ₁₀	PM _{2.5}	No ₂	So ₂	ENVIRONMENT CONDITIONS (Sky/Wind)	
FROM	TO	5	5	2	6	10	(SKY/ WIIIU)	
01-06-23	02-06-23	265	165	65	18	13	Clear Sky Calm	
17-06-23	17-06-23 18-06-23		160	55	16	11	Clear Sky Calm	
STANDARDS FOR COAL MINE, GSR 742(E), dt. 25 TH September 2000		600	300	-	120	120		

	CONTRACTOR CAMP MMUA3								
DATE/ al al mas assum	A OF CAMPLING	PARAMETERS (24 hourly values in μg/m³)					5111 // DOLLA 45117 GOLD (TION)		
DATE(dd:mm:yy) OF SAMPLING		SPM	PM ₁₀	PM _{2.5}	No ₂	So ₂	ENVIRONMENT CONDITIONS (Sky/Wind)		
FROM	TO	5	5	2	6	10	(Sky/Willu)		
01-06-23	02-06-23	278	169	43	15	BDL	Clear Calm		
17-06-23	18-06-23	269	149	50	14	BDL	Clear Calm		
STANDARDS FOR COAL MINE, GSR 742(E), dt. 25 TH September 2000		600	300	-	120	120			

SAWARLA VILLAGE MMUA4								
PARAMETERS (24 hourly values in µg/m³)							ENIVERONINAENT CONDITIONS	
DATE(dd:mm:yy) OF SAMPLING		SPM	PM ₁₀	PM _{2.5}	No ₂	So ₂	ENVIRONMENT CONDITIONS (Sky/Wind)	
FROM	TO	5	5	2	6	10	(Sky/Willd)	
01-06-23	02-06-23	136	75	28	11	BDL	Clear Calm	
17-06-23	18-06-23	142	82	36	12	BDL	Clear Calm	
NAAQS, 2009		-	100	60	80	80		



CMPDI RI-IV, NAGPUR 2 of 4

Test Report



SAMPLE DESCRIPTION	Water sample				
ITest Required	pH: IS 3025 -Part 11:1983(RA 2017),TSS: IS 3025-Part 17:1984(RA 2017),COD: APHA (23rd Edition) 5220 C :2 &G: IS 3025-Part 39:1991(RA 2019) & BOD: IS 3025 (Part 44): 1993 (RA 2019)				
SAMPLING METHOD	LSOP 5 PERIOD OF PERFORMANCE OF LAB ACTIVITIES: 16-06-23 TO 15-07-23				

MINE WATE	MMUW1					
DATE OF SAMPLE	ANALYSIS RESULTS					
COLLECTION	рН	TSS (in mg/l)	COD(in mg/l)	O & G(in mg/l)		
DETECTION LIMIT	2	10	4	2		
02-06-23	7.50	36	48	BDL		
17-06-23	7.95	40	56	BDL		
STANDARDS FOR COAL MINE, GSR 742E, dt. 25/09/2000	5.5 - 9.0	100	250	10		

ETP: MMUW2						
DATE OF SAMPLE	ANALYSIS RESULTS					
COLLECTION	рН	TSS (in mg/l)	COD(in mg/l)	O & G(in mg/l)		
DETECTION LIMIT	2	10	4	2		
02-06-23	7.65	44	52	BDL		
17-06-23	7.56	36	40	BDL		
STANDARDS FOR COAL MINE, GSR 742E, dt. 25/09/2000	5.5 - 9.0	100	250	10		

	STP: MMUW3					
DATE OF SAMPLE	ANALYSIS RESULTS					
COLLECTION	TSS (in mg/l)	BOD(in mg/l)				
DETECTION LIMIT	10	2				
02-06-23	36	10.2				
17-06-23	44	13.5				
STANDARDS FOR COAL MINE, GSR 742E, dt. 25/09/2000	100	30				



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CMPDI RI-IV, NAGPUR 3 of 4

Test Report



NOISE LEVEL MONITORING DATA

SAMPLE DESCRIPTION	NOISE SAMPLE
Test Required	CPCB PROCTOCOL FOR AMBIENT NOISE MEASUREMENT, JUNE-2015
SAMPLING METHOD	ISOP 6

	PIT OFFICE:	MMUN1	
	DATE OF SAMPLE	NOISE LEVEL IN dB(A)	
MONTH	COLLECTION	DAY TIME	NIGHT TIME
	DETECTION LIMIT	20	20
JUNE'23	10-06-23	57.6	56.5
JUNE'23	26-06-23	59.3	58.1
	ON (REGULATION AND TROL) RULES	75	70

C	OLONY(MAJRI UG TO OC):	MMUN2		
	DATE OF SAMPLE	NOISE LEVEL IN dB(A)		
MONTH	COLLECTION	DAY TIME	NIGHT TIME	
	DETECTION LIMIT	20	20	
JUNE'23	10-06-23	47.7	46.1	
JUNE'23	26-06-23	48.7	47.5	
	ON (REGULATION AND TROL) RULES	55	45	



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ENVIRONMENTAL MONITORING REPORT

NEW MAJRI UG TO OC

MAJRI AREA

WESTERN COALFIELDS LTD.

JOB NO. 4094423068



JULY - 2023

Environment Laboratory
NABL Accredited vide Cert. No. TC-7102

CMPDI REGIONAL INSTITUTE-IV, KASTURBA NAGAR, JARIPATKA, NAGPUR, PIN – 440 014

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Test Report



TEST REPORT NO.		RIN/TR/JULY-23/50		DATE OF ISSU	IE	31-08-2023
NAME OF CUSTOMER		GM(ENV.), WCL(HQ), NAGPUR				
TEST REQUIRED		PM: IS 5182 Part-4:1999(RA 2019), PM-10: IS-5182 Part 23:2006(RA 2017), PM2.5: USEPA Quality Assurance guidance document volume-II (part-II)-2.12:2016, NO2: IS 5182 Part-06:2006(2017), SO2:IS 5182 Part-2:2001(RA 2017)				
SAMPLE DESCRIPTION	J	AIR SAMPLE	SAMPLING PLAN : LQR 47		LQR 47	
SAMPLING METHOD :	LSOP 4	PERIOD OF PERFORMANCE OF LAB ACTIVITIES: 16-07-23 TO 14				16-07-23 TO 14-08-23

PATALA MAGAZINE MMUA1								
DATE/ dalum no u u v	OF CANADLING		PARAMETERS	(24 hourly va	alues in μg/m³)	510 (1001) 151 T 001 D T 101 C	
DATE(dd:mm:yy) OF SAMPLING		SPM	PM ₁₀	PM _{2.5}	No ₂	So ₂	ENVIRONMENT CONDITIONS (Sky/Wind)	
FROM	TO	5	5	2	6	10	(Sky/Willd)	
02-07-2023	03-07-2023	266	146	50	14	10	CLEAR / CALM	
17-07-2023	18-07-2023	260	154	46	17	10	CLOUDY / CALM	
STANDARDS FOR COAL MINE, GSR 742(E), dt. 25 TH September 2000		600	300	-	120	120		
dt. 25 " Sept	ember 2000							

MANAGER OFFICE UG TO OC MMUA2								
DATE/ - -	OFCANABLING		PARAMETERS ((24 hourly va	ilues in μg/m³)		
DATE(dd:mm:yy) OF SAMPLING		SPM	PM ₁₀	PM _{2.5}	No ₂	So ₂	ENVIRONMENT CONDITIONS (Sky/Wind)	
FROM	TO	5	5	2	6	10	(Sky) Willa)	
02-07-2023	03-07-2023	272	160	57	16	12	CLEAR / CALM	
18-07-2023	19-07-2023	266	151	63	15	11	CLOUDY / CALM	
STANDARDS FOR COAL MINE, GSR 742(E), dt. 25 TH September 2000		600	300	-	120	120		

CONTRACTOR CAMP MMUA3								
DATE(dd:mm:yy) OF SAMPLING		PARAMETERS (24 hourly values in μg/m³)					ENVIRONMENT CONDITIONS	
		SPM	PM ₁₀	PM _{2.5}	No ₂	So ₂	ENVIRONMENT CONDITIONS (Sky/Wind)	
FROM	TO	5	5	2	6	10	(SKY/WIIIU)	
02-07-2023	03-07-2023	270	155	45	14	BDL	CLEAR / CALM	
19-07-2023	20-07-2023	262	150	53	13	BDL	CLOUDY / CALM	
STANDARDS FOR COAL MINE, GSR 742(E), dt. 25 TH September 2000		600	300	-	120	120		

SAWARLA VILLAGE MMUA4								
DATE/ddynamay) OF CANADLING	PARAMETERS	(24 hourly va	alues in μg/m³)	ENVIRONMENT CONDITIONS		
DATE(dd:mm:yy) OF SAMPLING		PM ₁₀	PM ₁₀ PM _{2.5}		PMaa I Noa I Soa I			
FROM	TO	5	2	6	10	(Sky/Wind)		
02-07-2023	03-07-2023	70	30	10	BDL	CLEAR / CALM		
20-07-2023	21-07-2023	73	38	11	BDL	CLOUDY / CALM		
NAAQS, 2009		100	60	80	80			



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Environment Laboratory	Test Report
CMPDI RI-IV, NAGPUR	rest Keport



FUGITIVE DUST MONITORING

TEST REQUIRED	SPM: IS 5	182 Part-4:	1999(RA 2019), PM-10: IS-5182	Part 23:2006(I	RA 2017)	& PM2.5: USI	EPA Quality Assurance gui	dance
SAMPLE DESCRIPTION		Air sample	(Fugitive)						
SAMPLING METHOD : I	LSOP 4		PERIOD OF PI	RFORMANCE OF	LAB ACTIVITIES	S:		16-07-23 TO 14-08-23	

Railway Siding MJUF1							
DATE (I down on a) OF CANADUNG		PARAMETERS (FAIL (IDONINA FAIT CONDITIONS				
DATE(dd:mm:yy	DATE(dd:mm:yy) OF SAMPLING		PM ₁₀	ENVIRONMENT CONDITIONS (Sky/Wind)			
FROM	то	5	5	(Sky) Willa)			
02-07-2023	03-07-2023	450	253	CLEAR / CALM			

260

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CMPDI RI-IV, NAGPUR 3 of 5



Test Report



SAMPLE DESCRIPTION	Water sample				
Test Required	pH: IS 3025 -Part 11:1983(RA 2017),TSS: IS 3025-Part 17:1984(RA 2017),COD: APHA (23rd Edition) 5220 C :2017,O &G: IS 3025-Part 39:1991(RA 2019) & BOD: IS 3025 (Part 44): 1993 (RA 2019)				
SAMPLING METHOD	LSOP 5 PERIOD OF PERFORMANCE OF LAB ACTIVITIES : 16-07-23 TO 14-08-23				

MINE WATE	R DISCHARGE:	MMUW1				
DATE OF SAMPLE	ANALYSIS RESULTS					
COLLECTION	рН	TSS (in mg/l)	COD(in mg/l)	O & G(in mg/l)		
DETECTION LIMIT	2	10	4	2		
02-07-2023	7.46	40	52	BDL		
17-07-2023	7.2	32	40	BDL		
STANDARDS FOR COAL MINE, GSR 742E, dt. 25/09/2000	5.5 - 9.0	100	250	10		

ETP: MMUW2							
DATE OF SAMPLE		ANALYSIS RESULTS					
COLLECTION	рН	TSS (in mg/l)	COD(in mg/l)	O & G(in mg/l)			
DETECTION LIMIT	2	10	4	2			
10-07-2023	8.01	48	56	BDL			
19-07-2023	7.00	36	44	BDL			
STANDARDS FOR COAL MINE, GSR 742E, dt. 25/09/2000	5.5 - 9.0	100	250	10			

STP: MMUW3							
DATE OF SAMPLE	ANALYSIS RESULTS						
COLLECTION	TSS (in mg/l)	BOD(in mg/l)					
DETECTION LIMIT	10	2					
02-07-2023	40	15					
17-07-2023	30	12.6					
STANDARDS FOR COAL MINE, GSR 742E, dt. 25/09/2000	100	30					



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CMPDI RI-IV, NAGPUR 4 of 5



Test Report



NOISE LEVEL MONITORING DATA

SAMPLE DESCRIPTION	NOISE SAMPLE			
Test Required	CPCB PROCTOCOL FOR AMBIENT NOISE MEASUREMENT, JULY-2015			
SAMPLING METHOD	ISOP 6			

	PIT OFFICE:	MMUN1	
	DATE OF SAMPLE	NOISE LEVEL IN (dB(A)
MONTH	COLLECTION	DAY TIME	NIGHT TIME
	DETECTION LIMIT	20	20
JULY'23	12-07-2023	58.6	57.4
JULY'23	20-07-2023	54.6	52.7
	ON (REGULATION AND	75	70
CON	TROL) RULES		, 0

C	OLONY(MAJRI UG TO OC):	MMUN2	
	DATE OF SAMPLE	NOISE LEVEL IN (dB(A)
MONTH	COLLECTION	DAY TIME	NIGHT TIME
	DETECTION LIMIT	20	20
JULY'23	12-07-2023	46.3	45.1
JULY'23	20-07-2023	43.2	42.2
	ON (REGULATION AND TROL) RULES	55	45



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ENVIRONMENTAL MONITORING REPORT

NEW MAJRI UG TO OC

MAJRI AREA

WESTERN COALFIELDS LTD.

JOB NO. 4094423068



AUGUST - 2023

Environment Laboratory
NABL Accredited vide Cert. No. TC-7102

CMPDI

REGIONAL INSTITUTE-IV, KASTURBA NAGAR, JARIPATKA, NAGPUR, PIN – 440 014

AN ISO 9001:2015 COMPANY

Test Report



TEST REPORT NO.	RIN/TR/AUG-23/50 DATE OF ISSUE 30-09-2023				30-09-2023	
NAME OF CUSTOMER		GM(ENV.), WCL(HQ), NAGPUR				
ITEST RECHIRED	SPM: IS 5182 Part-4:1999(RA 2019), PM-10: IS-5182 Part 23:2006(RA 2017), PM2.5: USEPA Quality Assurance guidance document volume-II (part-II)-2.12:2016, NO2: IS 5182 Part-06:2006(2017), SO2:IS 5182 Part-2:2001(RA 2017)					
SAMPLE DESCRIPTION	E DESCRIPTION AIR SAMPLE SAMPLING PLAN : LQR 47					LQR 47
SAMPLING METHOD: LSOP 4 PERIOD OF PERFORMANCE OF LAB ACTIVITIES: 15-08-23 TO 15-0			15-08-23 TO 15-09-23			

	PATALA MAGAZINE MMUA1							
DATE(-I-I	\ OF CANADUMC	PARAMETERS (24 hourly values in μg/m³)						
DATE(dd:mm:yy) OF SAMPLING		SPM	PM ₁₀	PM _{2.5}	No ₂	So ₂	ENVIRONMENT CONDITIONS (Sky/Wind)	
FROM	TO	5	5	2	6	10	(Sky/Willu)	
01-08-2023	02-08-2023	240	128	42	12	10	RAINY / CALM	
17-08-2023	18-08-2023	230	131	40	14	10	CLOUDY / CALM	
STANDARDS FOR COAL MINE, GSR 742(E),		600	200		120	120		
dt. 25 TH September 2000		600	300	-	120	120		

	MANAGER OFFICE UG TO OC MMUA2							
DATE(III) OF SANADING		PARAMETERS (24 hourly values in μg/m³)					ENVIRONMENT CONDITIONS	
DATE(dd:mm:yy) OF SAMPLING		SPM	PM ₁₀	PM _{2.5}	No ₂	So ₂	ENVIRONMENT CONDITIONS (Sky/Wind)	
FROM	TO	5	5	2	6	10	(SKY) WIIIU)	
01-08-2023	02-08-2023	266	142	50	14	12	RAINY / CALM	
17-08-2023	18-08-2023	258	150	60	13	10	CLOUDY / CALM	
STANDARDS FOR COAL MINE, GSR 742(E), dt. 25 TH September 2000		600	300	-	120	120		

CONTRACTOR CAMP MMUA3							
PARAMETERS (24 hourly values in µg/m³)						ENVIRONMENT CONDITIONS	
DATE(dd:mm:yy) OF SAMPLING		SPM	PM ₁₀	PM _{2.5}	No ₂	So ₂	ENVIRONMENT CONDITIONS (Sky/Wind)
FROM	TO	5	5	2	6	10	(Sky) Willa)
01-08-2023	02-08-2023	260	144	43	14	BDL	RAINY / CALM
17-08-2023	18-08-2023	251	140	42	12	BDL	CLOUDY / CALM
STANDARDS FOR COAL MINE, GSR 742(E), dt. 25 TH September 2000		600	300	-	120	120	

	SAWARLA VILLAGE MMUA4						
DATE/alal-mana-un	A OF CAMPLING	PARAMETERS	END ADDRESS CONTRICTIONS				
DATE(da:mm:y)	DATE(dd:mm:yy) OF SAMPLING		PM _{2.5}	No ₂	So ₂	ENVIRONMENT CONDITIONS (Sky/Wind)	
FROM	TO	5	2	6	10	(SKY/ WIIIU)	
01-08-2023	02-08-2023	60	28	8	BDL	RAINY / CALM	
17-08-2023	18-08-2023	67	30	10	BDL	CLOUDY / CALM	
NAAQ:	s, 2009	100	60	80	80		



Analysed by

CMPDI RI-IV, NAGPUR 2 of 4

Test Report



SAMPLE DESCRIPTION	Water sample			
Test Required	pH: IS 3025 -Part 11:1983(RA 2017),TSS: IS 3025-Part 17:1984(RA 2017),COD: APHA (23rd Edition) 5220 C :2017, &G: IS 3025-Part 39:1991(RA 2019) & BOD: IS 3025 (Part 44): 1993 (RA 2019)			
SAMPLING METHOD	LSOP 5 PERIOD OF PERFORMANCE OF LAB ACTIVITIES: 15-08-23 TO 15-09-23			

MINE WATE	R DISCHARGE:	MMUW1		
DATE OF SAMPLE		ANALYSI	S RESULTS	
COLLECTION	рН	TSS (in mg/l)	COD(in mg/l)	O & G(in mg/l)
DETECTION LIMIT	2	10	4	2
02-08-2023	7.08	48	60	BDL
18-08-2023	7.28	32	44	BDL
STANDARDS FOR COAL MINE, GSR 742E, dt. 25/09/2000	5.5 - 9.0	100	250	10

ETP: MMUW2						
DATE OF SAMPLE		ANALYSI	S RESULTS			
COLLECTION	pН	TSS (in mg/l)	COD(in mg/l)	O & G(in mg/l)		
DETECTION LIMIT	2	10	4	2		
02-08-2023	6.86	36	44	BDL		
18-08-2023	7.08	30	28	BDL		
STANDARDS FOR COAL MINE, GSR 742E, dt. 25/09/2000	5.5 - 9.0	100	250	10		

STP: MMUW3						
DATE OF SAMPLE	ANALYSI	S RESULTS				
COLLECTION	TSS (in mg/l)	BOD(in mg/l)				
DETECTION LIMIT	10	2				
02-08-2023	30	13.2				
18-08-2023	36	14.4				
STANDARDS FOR COAL MINE, GSR 742E, dt. 25/09/2000	100	30				



Analysed by

CMPDI RI-IV, NAGPUR 3 of 4

Test Report



NOISE LEVEL MONITORING DATA

SAMPLE DESCRIPTION	NOISE SAM	NOISE SAMPLE				
Test Required	CPCB PROC	PCB PROCTOCOL FOR AMBIENT NOISE MEASUREMENT, AUG-2015				
SAMPLING METHOD	LSOP 6					

	PIT OFFICE:	MMUN1		
	DATE OF SAMPLE	NOISE LEVEL IN dB(A)		
MONTH	COLLECTION	DAY TIME	NIGHT TIME	
	DETECTION LIMIT	20	20	
AUG'23	08-08-2023	55.6	53.6	
AUG'23	23-08-2023	56.0	55.2	
	ON (REGULATION AND FROL) RULES	75	70	

C	OLONY(MAJRI UG TO OC):	MMUN2	
	DATE OF SAMPLE	NOISE LEVEL IN dB(A)	
MONTH	COLLECTION	DAY TIME	NIGHT TIME
	DETECTION LIMIT	20	20
AUG'23	08-08-2023	42.3	40.2
AUG'23	23-08-2023	43.8	42.5
	ON (REGULATION AND TROL) RULES	55	45



Ashwin B Wasnik Reviewed by



Deepanshu Sahu Authoriesed by

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CMPDI RI-IV, NAGPUR 4 of 4



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ENVIRONMENTAL MONITORING REPORT

NEW MAJRI UG TO OC

MAJRI AREA

WESTERN COALFIELDS LTD.

JOB NO. 4094423068



SEPTEMBER - 2023

Environment Laboratory
NABL Accredited vide Cert. No. TC-7102

CMPDI

REGIONAL INSTITUTE-IV, KASTURBA NAGAR, JARIPATKA, NAGPUR, PIN – 440 014

AN ISO 9001:2015 COMPANY

Test Report



TEST REPORT NO.		RIN/TR/SEPT-23/50 DATE OF ISSUE 27-10-23				27-10-23
NAME OF CUSTOMER GM(ENV.), WCL(HQ), I			IR			
ITECT DECILIDED	SPM: IS 5182 Part-4:1999(RA 2019), PM-10: IS-5182 Part 23:2006(RA 2017), PM2.5: USEPA Quality Assurance guidance document volume-II (part-II)-2.12:2016, NO2: IS 5182 Part-06:2006(2017), SO2:IS 5182 Part-2:2001(RA 2017)					
SAMPLE DESCRIPTION		AIR SAMPLE	SAMPLING PLAN :		IG PLAN :	LQR 47
SAMPLING METHOD: LSOP 4 PERIOD OF PERFORMAN			F LAB ACTIV	ITIES:		15-09-23 TO 15-10-23

PATALA MAGAZINE MMUA1								
DATE/ did more man	PARAMETERS (24 hourly values in μg/m ³)					FAIL (IDONIA FAIT CONIDITIONS		
DATE(dd:mm:yy) OF SAMPLING		SPM	PM ₁₀	PM _{2.5}	No ₂	So ₂	ENVIRONMENT CONDITIONS (Sky/Wind)	
FROM	TO	5	5	2	6	10	(SKY/ WIIIU)	
02-09-23	03-09-23	255	138	46	14	12	cloudy/ calm	
17-09-23	18-09-23	270	145	50	15	11	clear/Moderate breeze	
STANDARDS FOR COA	STANDARDS FOR COAL MINE, GSR 742(E),		200		120	120		
dt. 25 TH Sept	dt. 25 TH September 2000		300	-	120	120		

MANAGER OFFICE UG TO OC MMUA2								
DATE/ diduce see u.u.)	OF CANADLING	PARAMETERS (24 hourly values in μg/m ³)					ENVIRONMENT COMPUTIONS	
DATE(dd:mm:yy) OF SAMPLING		SPM	PM ₁₀	PM _{2.5}	No ₂	So ₂	ENVIRONMENT CONDITIONS (Sky/Wind)	
FROM	TO	5	5	2	6	10	(Sky/ Willu)	
02-09-23	03-09-23	276	150	58	16	14	cloudy/ calm	
17-09-23	18-09-23	260	140	62	14	10	clear/Moderate breeze	
STANDARDS FOR COA		600	300	-	120	120		

CONTRACTOR CAMP MMUA3								
DATE/dd.ma.ma.u.n	-) OF CAMPLING		PARAMETERS (24 hourly values in μg/m³)				5411 (15 GA11 45 A17 GGA15 IT GA16	
DATE(dd:mm:yy) OF SAMPLING		SPM	PM ₁₀	PM _{2.5}	No ₂	So ₂	ENVIRONMENT CONDITIONS (Sky/Wind)	
FROM	TO	5	5	2	6	10	(SKY/WIIIU)	
02-09-23	03-09-23	270	160	50	14	10	cloudy/ calm	
17-09-23	18-09-23	250	132	40	10	BDL	clear/Moderate breeze	
STANDARDS FOR COAL MINE, GSR 742(E), dt. 25 TH September 2000		600	300	-	120	120		

	SAWARLA VILLAGE MMUA4							
DATE/ dalam man) OF CANADUMC	PARAMETER	S (24 hourly va)				
DATE(da:mm:y	y) OF SAMPLING	PM ₁₀	PM _{2.5}	No ₂	So ₂	ENVIRONMENT CONDITIONS (Sky/Wind)		
FROM	TO	5	2	6	10	(Sky/Willu)		
02-09-23	03-09-23	58	34	12	10	cloudy/ calm		
17-09-23	18-09-23	65	36	12	BDL	clear/Moderate breeze		
NAAQ	NAAQS, 2009		60	80	80			



CMPDI RI-IV, NAGPUR 2 of 4

Test Report



SAMPLE DESCRIPTION	Water sam	ple					
Test Required	pH: IS 3025 -Part 11:1983(RA 2017),TSS: IS 3025-Part 17:1984(RA 2017),COD: APHA (23rd Edition) 5220 C :2017,O &G: IS 3025-Part 39:1991(RA 2019) & BOD: IS 3025 (Part 44): 1993 (RA 2019)						
SAMPLING METHOD	LSOP 5	PERIOD OF PERFORMANCE OF LAB ACTIVITIES :	15-09-23 TO 15-10-23				

MINE WATE	R DISCHARGE:	MMUW1				
DATE OF SAMPLE	ANALYSIS RESULTS					
COLLECTION	рН	TSS (in mg/l)	COD(in mg/l)	O & G(in mg/l)		
DETECTION LIMIT	2	10	4	2		
02-09-23	7.06	52	48	BDL		
18-09-23	7.63	40	36	BDL		
STANDARDS FOR COAL MINE, GSR 742E, dt. 25/09/2000	5.5 - 9.0	100	250	10		

ETP: MMUW2									
DATE OF SAMPLE	ANALYSIS RESULTS								
COLLECTION	рН	TSS (in mg/l)	COD(in mg/l)	O & G(in mg/l)					
DETECTION LIMIT	2	10	4	2					
02-09-23	7.40	42	52	BDL					
17-09-23	8.30	36	40	BDL;					
STANDARDS FOR COAL MINE, GSR 742E, dt. 25/09/2000	5.5 - 9.0	100	250	10					

STP: MMUW3							
DATE OF SAMPLE	ANALYSIS RESULTS						
COLLECTION	TSS (in mg/l)	BOD(in mg/l)					
DETECTION LIMIT	10	2					
02-09-23	40	14.4					
17-09-23	34	12					
STANDARDS FOR COAL MINE, GSR 742E, dt. 25/09/2000	100	30					



Analysed by

CMPDI RI-IV, NAGPUR 3 of 4

Test Report



NOISE LEVEL MONITORING DATA

SAMPLE DESCRIPTION	NOISE SAMPLE
Test Required	CPCB PROCTOCOL FOR AMBIENT NOISE MEASUREMENT, AUG-2015
SAMPLING METHOD	LSOP 6

	PIT OFFICE:	MMUN1	
	DATE OF SAMPLE	NOISE LEVEL IN	dB(A)
MONTH	COLLECTION	DAY TIME	NIGHT TIME
	DETECTION LIMIT	20	20
SEPT'23	08-09-23	54.2	53.5
SEPT'23	24-09-23	55.0	54.6
	ION (REGULATION AND TROL) RULES	75	70

C	OLONY(MAJRI UG TO OC):	MMUN2	
	DATE OF SAMPLE	NOISE LEVEL IN (dB(A)
MONTH	COLLECTION	DAY TIME	NIGHT TIME
	DETECTION LIMIT	20	20
SEPT'23	08-09-23	44.3	43.2
SEPT'23	24-09-23	44.7	43.3
	ON (REGULATION AND TROL) RULES	55	45



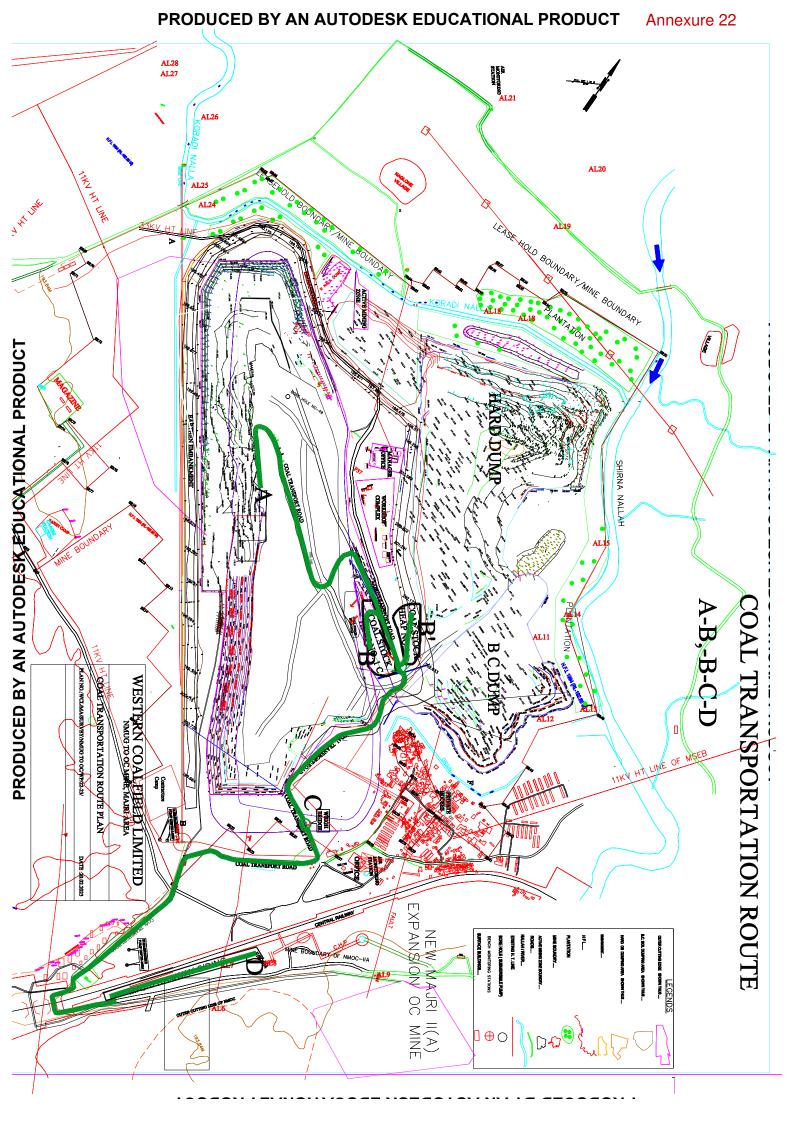
Ashwin B Wasnik Reviewed by



Deepanshu Sahu Authoriesed by

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CMPDI RI-IV, NAGPUR 4 of 4





PUC Certification



PUC Certification



ENVIRONMENT RECORD UPLOADED ON COMPANY'S WEBSITE

http://www.westerncoal.in/index1.php





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Western Coalfields Limited

(Remarks 1/2 Minuster Company) (statistics for discretizate)



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सेट्स विजिया न्य संस्ट्रियन विनिधा,

क्रि- क्रि- क्र- गांवड, विधिन नाईस, नामपुर-440001

Street: Ground Water Level workloring Report for the period December 2022, to August 2023 for the miner of Walf Area, WCL located in Maharoshira State - regarding

HOLES,

in pemplance of condition signification in Environment Clearance of cold nines of Majd Area. WCL pround water loves (GWL) in allogue losing in Butter zone of respective mines of Majd Area located in the store of Managastrice's monitored through M/s Anadon Lab A a copy of the report for the period December 2002, to August 2023 of the mines of Majd Area, WCL is enclosed havewith for your Mina Information & ready references.

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संभेग नेवरण अधिकारी (पार्विकार)

माजरी क्षेत्र

वंद्रकारण : प्रधारको

STREET

- क्षित्रक 10,11 (बीक्स मोदिन विविद्यात, प्राप्त काला, गर्वकाण, यह वर्ष कामानु में करन, विविध वर्षनाय केवल, मानु विविध संस्था कर, और काम, अधीनक, नई दिल्ली, 110,000
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REPORT ON

MONITORING OF GROUND WATER LEVEL

OF

EXPANSION OF NEW MAJRI UG TO OC MINE MAJRI AREA

(M.S)

WESTERN COALFIELDS LTD.



PERIOD- DEC 2022 (POST-MONSOON), JAN-FEB -2023 (WINTER), MAY-2023 (PRE-MONSOON) & AUG-23 (MONSOON)



M/s Anacon Laboratories Pvt. Ltd., Nagpur

MoEF&CC (GOI) and NABL Recognized Laboratory ISO 9001:2015, ISO 14001:2015, ISO 45001:2018
Lab. & Consultancy: FP-34, 35, Food Park,

MIDC, Butibori, Nagpur – 441122 Mob: +91-9372960077

Email: ngp@anacon.in

Website: <u>www.anaconlaboratories.com</u> Report No. ANgr /PD/20A/2023/199

2022-23 & 2023-24

The Ground water Level monitoring & Water Quality Analysis has been carried out with due diligence and the Monitoring of Ground Water Level of all observation wells Report have been prepared as per the scope of work order no. वेकोलि/मुख्यालय/पर्यावरण/14-L/77 on date: 08.12.2022.

The report encompasses the Monitoring of Ground water level & Water Quality Analysis reports of observation wells pertaining to the EXPANSION OF NEW MAJRI UG TO OC MINE, of the Majri area, Chandrapur District, Maharashtra State.

Anacon Laboratories Pvt. Ltd. gratefully acknowledges the full cooperation rendered by concerned WCL Officials for timely completion of the project.

Ajinkya Nakod (Geologist)

Gyanchand BohraNABET Accredited EIA Expert
for Hydrogeology & Geology

Nagpur. September-October-2023 (Dr. D. G. Garway)
Head of Organization
Anacon Laboratories Pvt. Ltd., Nagpur

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TABLE/FIGURE	NAME OF SUB MINE PROJECT	GROUND WATER MONITORING DETAILS OF WELL	Page No.
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I-TABLE	EXPANSION OF NEW MAJRI UG TO OC MINE,	PERIOD- DEC 2022 (POST-MONSOON), JAN-FEB -2023 (WINTER), MAY-2023 (PRE-MONSOON) & AUG-23 (MONSOON)	8
III	EXPANSION OF NEW MAJRI UG TO OC MINE,	ANALYSIS REPORT	11



INTRODUCTION

WCL is one of the eight Subsidiary Companies of Coal India Limited (CIL) which is under administrative control of Ministry of Coal. The Company incorporated under the Companies Act, 1956 has its registered office at Coal Estate, Civil Lines, Nagpur—440001. WCL has been conferred "Mini-ratna" status on 15 March 2008. It has mining operation spread over the states of Maharashtra (in Nagpur, Chandrapur & Yeotmal Districts) and Madhya Pradesh (in Betul and Chhindawara Districts). It has been divided into 10 administrative areas. The Company is a major source of supplies of coal to the industries located in Western India in the States of Maharashtra, Madhya Pradesh, Gujarat and also in Southern India in the States of Andhra Pradesh, Tamil Nadu, Karnataka and Kerala. A large numbers of Power Houses under Maharashtra, Madhya Pradesh, Gujarat, Karnataka, Punjab and Uttar Pradesh - Electricity Boards are major consumers of its coal along with cement, steel, chemical, fertilizer, paper and brick Industries in these states.

The mentally

M/s Anacon Laboratories Pvt. Ltd. has been awarded the Work of "Groundwater level Monitoring (i.e. bore well / piezometer Water levels) and Water quality analysis (as per IS10500) for 76 projects / mines of WCL (situated in the state of Madhya Pradesh — Chhindwara & Betul districts and Maharashtra — Nagpur, Chandrapur & Yeotmal districts) for one year as per condition stipulated in Environmental Clearance letters issued by MoEF & CC & NOC issued by CGWA" vide work order वेकोलि/मुख्यालय/पर्यावरण/14-L/77 on date: 08.12.2022.

This Ground Water Level Monitoring report is prepared for EXPANSION OF NEW MAJRI UG TO OC MINE, of Majri Area of WCL for 4 seasons i.e PERIOD- DEC 2022 (POST-MONSOON), JAN-FEB - 2023 (WINTER), MAY-2023 (PRE-MONSOON) & AUG-23 (MONSOON). These mines are located in Chandrapur District of Maharashtra

GENERAL HYDROGEOLOGICAL CONDITION

The major water bearing formations in the district are Alluvium, Lower Gondwana Sandstones, Deccan Trap Basalt, Vindhyan Limestone and Archean metamorphic. Amongst these, the lower Gondwana Sandstones, particularly Kamthi Sandstone forms the most potential aquifer.

A. HARD ROCK FORMATIONS

ARCHEAN METAMORPHICS

Archeans, which comprise granite and granitic gneiss, occur in most of the eastern part of the district extending north-south from Nagbhid to Gondpipri. 6 These rocks are generally devoid of primary porosity, but weathering, jointing, fracturing, shearing etc., create secondary porosity, within which the ground water generally occurs in phreatic conditions. The depth of weathering ranges from 4 to 12 m bgl and dugwells are generally tapping this zone with yields of up to 30 m3 /day. Contrary to the general perception, the possibility of deep seated fracture zone exists in the area because of tectonic disturbances manifested in the form of dykes observed in the area. Therefore borewells in the depth range of 40-70 m bgl are also successful in this formation at suitable places with yield of 1000 to 35000 lph. High yielding dugwells are generally located in fractured granites.

VINDHYAN LIMESTONE

In Vindhyans, Limestones are water bearing formation while Sandstone due to their hard and compact nature, has poor ground water potential. The Vindhyan sedimentares mainly occur in

north central part of the district around Tadoba and Nagbhid in parts of Chimur, Sindewahi, Bhadravati and Nagbhid talukas and in south eastern part of the district in parts of Chandur and Rajura talukas. Limestones as such are massive but wherever they are cavernous and fractured they are capable of holding water and the ground water generally occurs under phreatic condition in these formations and the discharge in general is poor (up to 15 m3 /day). The borewells drilled by State Govt. agencies in the depth range of 30 to 40 m bgl are successful only at few places where discharge of 10000 lph or above has been observed.

DECCAN TRAP BASALT

Deccan Trap Basalt is observed in small area in the north eastern and south eastern peripheral parts of the district and does not form a promising aquifer in the district. Weathered, jointed and fractured Massive and Vesicular Basalt forms the aquifer in the area. Ground water occurs in phreatic conditions within the depth of 10-15 m, however, borewells drilled have shown presence of fracture zones and thus forming deeper confined and semi-confined aquifers at places. The dugwells yield varies from 15-30 m3 /day when favourably located, whereas borewells yield 1 to 3 lps.

B. SOFT ROCK FORMATIONS

GONDWANA SANDSTONE

Gondwana formation comprising of Kamthi and Barakar Sandstone and Maleri and Talchir Shale occupy north-south extending elongated stretch in cental and southern parts of the district in parts of Warora, Bhadravati, Chandrapur, Ballarpur, Rajura and Gondpipri talukas. Sandstone is usually friable and possesses primary porosity due to its granular nature. They are most productive water bearing formations in the district. The ground water occurs under phreatic as well as confined conditions in Kamthi Sandstone up to the depth of 80 to 120 m bgl with thickness varying from 34 to 102 m. Barakar Sandstone occurs below Kamthi formation and three granular zones are observed with cumulative thickness of about 72 m within a 300 m thick sandstone-shale sequence. Comparatively Kamthi Sandstone has more ground water potential with yields of up to 20 lps. The other Gondwana formations i.e., Maleri Series (upper Gondwana) and Talchirs (lower Gondwana) have very poor ground water potential and ground water occurs in phreatic condition.

ALLUVIUM

Alluvium of fluvial origin occurs in narrow patches along the banks of Wardha and Wainganga Rivers and consists of clay, silt with lenticular bodies of sand and gravel. Ground water generally occurs under phreatic conditions down to the depth of 10-15 m. The area in the north eastern part of the district near Brahmapuri along the western bank of Wainganga River and having a spread of about 100 sq. km. forms the most potential alluvial area. The Allluvium in this part is occurs down to 30-35 m and the basement is reported to be formed by Granitic Gneisses. The dugwells yield up to 50 m3 /day when favourably located, whereas shallow tubewells yield varies from 5 to 15 lps.



EXPANSION OF NEW MAJRI UG TO OC MINE, MAJRI AREA WESTERN COALFIELDS LTD.

PERIOD- DEC 2022 (POST-MONSOON), JAN-FEB -2023 (WINTER), MAY-2023 (PRE-MONSOON) & AUG-23 (MONSOON)



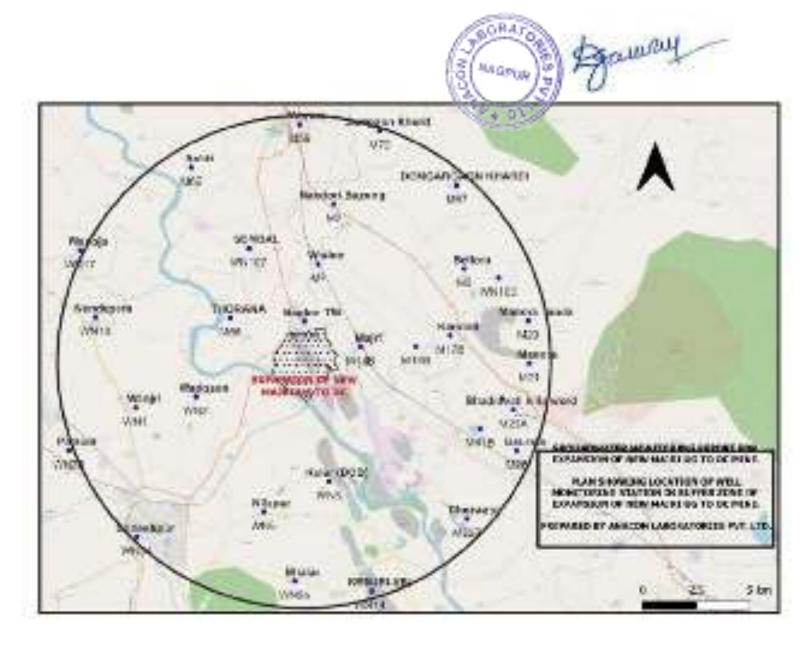


FIGURE-I: GROUND WATER MONITORING STATION (OBSERVATION WELLS IN AND AROUND OF EXPANSION OF NEW MAJRI UG TO OC MINE)

Table: I Ground Water Level Monitoring Data of Dugwells/Piezometers in Buffer Zone of Expansion of New Mairi UG to OC mine, Majri area, WCL

Sr.	Well	Name of	Well location	Latitude	Longitude	R.L. in	Well	Well	Height	Dep	th to W		el (m	Utility /	Formatio
N	No.	village				m	dia	dept	of			gl)	T	Owner	n
о.							(m)	h (m	measur	DEC	JAN-	MAY	Aug-		Tapped
								bmp)	ing	-22	FEB-	-23	23		
									point		23				
									(m agl)						
1	M2	Nandori	W of Nagpur -	20°12'2.3	79°1'54.0	196	2.24	9.11	0.63	1.1	3.4	4.2	2.90	IRRIGATI	SHELLY
		Buzung	Chandrapur road	39092641	82513205									ON	LIMESTO
			near old Toll Tax	29437"	3294"										NE
			naka												
2	M5	Bellora	W edge of	20°10'18.	79°5'23.1	215	3.36	9.2	0.69	2	4.6	6.3	3.10	DOMESTI	BASALT
			village, adjacent	34841628	99858345									С	
			to Jena road near	96335"	8051"										
			to temple												
3	M7	Wislon	200 m N of	20°10'25.	79°1'29.0	215	2.21	6.36	0.65	2.3	3.8	4.4	2.80	DOMESTI	SHELLY
			village in the	70946270	45613494									С	LIMESTO
			field, adjacent to	78914"	6305"										NE
			Nandori road,												
			near to school.												
4	M10	Naglon TW	C of village near	20°8'53.2	79°1'7.01	198	1.82	15	0.55	4.3	6.5	7.1	3.00	IRRIGATI	BASALT
			well No. 10 in	74854325	49439389									ON	
			the compound of	2183"	8315"										
			owner house												
5	M10	Naglon/Kuc	In field near	20°8'53.2	79°1'7.01"	198	1.82	8.7	0.55	1.9	1.2	3.4	1.90	DOMESTI	SHELLY
	Α	hna colony	Kuchna colony	7"										С	LIMESTO
															NE
6	M14B	Majri	SE of village ,	20°8'12.4	79°2'36.6	217	3.11	6.95	0.3	2.1	3.6	5.5	3.20	IRRIGATI	SHELLY
			near GP office	58211791	90441286									ON	LIMESTO
			adjacent road	1999"	8496"										NE
			l	İ	i]							l	

Sr.	Well No.	Name of village	Well location	Latitude	Longitude	R.L. in	Well dia	Well dept	Height of	Dep	oth to W	ater Lev	vel (m	Utility / Owner	Formatio n
0.		_					(m)	h (m bmp)	measur ing point (m agl)	DEC -22	JAN- FEB- 23	MAY -23	Aug- 23		Tapped
7	M16B	Kondha (New)	E of village, N of main road	20°8'12.8 21560836 0037"	79°4'5.88 83870719 5464"	219	3.32	10.49	0.64	2.25	6.3	7.3	3.00	IRRIGATI ON	SHELLY LIMESTO NE
8	M17B	Kandoli	N of village, near Hanuman Mandir	20°8'30.8 57006674 367"	79°5'0.81 50599134 58088"	212	2.56	11.68	0.54	3.65	5	6.8	2.80	IRRIGATI ON	BASALT
9	M20	Manora Tanda	S of village, adjacent to Mangoli road, near school.	20°8'54.4 8"	79°7'5.97"	212	2.35	7.35	0.33	1.7	4	6.2	1.85	IRRIGATI ON	SHELLY LIMESTO NE
10	M21	Manora	W of village, 60 m S of Mangli road	20°7'46.2 11229863 4764"	79°7'7.84 79032566 1105"	212	2.35	7.35	0.33	2.35	4.4	6.0	2.60	DOMESTI C	BASALT
11	M23	Bhadravati Camp (GSI Drilling camp)	N of village (outside) , about 70 m E of Kesurli road after G.S.I drilling camp	20°6'48.6 79351228 8855"	79°6'24.2 98763752 1275"	221	2.68	12.25	0.82	3.6	4	5.3	4.50	DOMESTI C	SHELLY LIMESTO NE
12	M23 A	Bhadravati killa word	Vivekanand Madhyamik vidhalaya	20°6'31.3 91431200 7597"	79°6'42.0 27578124 6596"	224	2.49	17.74	0.54	5.6	8.2	10.1	3.80	IRRIGATI ON	SHELLY LIMESTO NE
13	M26	Gaurala	C of village, near OHT	20°5'25.7 27103641 6739"	79°6'47.6 31536267 0925"	202	2.59	8.81	0.51	3.2	2.6	4.5	1.90	IRRIGATI ON	BASALT



Sr. N	Well No.		Well location	Latitude	Longitude	R.L. in	Well dia	Well dept	Height of	Dep	oth to W	ater Lev	vel (m	Utility / Owner	Formatio n
0.							(m)	h (m bmp)	measur ing point (m agl)	DEC -22	JAN- FEB- 23	-23	Aug- 23		Tapped
17	M32B	Dhorwasa	W of village, adjacent to road & near to embankment	20°3'36"	79°5'28"	204	2.62	9.54	0.54	1.6	3	4.9	3.30	IRRIGATI ON	BASALT
18	M41B	Vijasan	Near ZP school of Balwadi	20°6'0.90 12838237 39618"	79°5'48.9 61627147 4631"	213	2.74	12.59	0.82	3.1	2.8	5.7	4.50	DOMESTI C	SHELLY LIMESTO NE
31	M59	Warora	Anandvan Bio- Technology Lab, Adjacent to Nagpur- Chandrapur road	20°14'10. 34333058 58061"	79°0'59.3 28874806 6641"	212	4.12	11.21	0.3	3.8	6.3	9.0	2.70	DOMESTI C	BASALT
33	M62	Ashti	East of the village , opp. to Mahadev Upre's house	20°13'1.1 97008621 73318"	78°58'5.0 78847260 25165"	214	4	10.11	0.45	4.3	5.1	8.3	1.90	DOMESTI C	BASALT
39	M66	THORANA	IN THE AGRICCULTURE FIELD OUTSIDE THE VILLAGE ON NORTH SIDE OF THE VILLAGE	20°8'59.1 9"	78°59'7.6 3"	200	4.2	11	0.5	4.1	8.3	9.4	1.50	DOMESTI C	BASALT
40	M67	DONGARGA ON KHARDI	NEAR HANUMAN MANDIR ADJACENT TO THE ROAD	20°12'32. 56"	79°5'11.2 23"	210	5.2	13.5	0.5	4.3	6.1	8.3	3.40	IRRIGATI ON	SHELLY LIMESTO NE



Sr. N	Well No.		Well location	Latitude	Longitude	R.L. in	Well dia	Well dept	Height of	Dep	oth to W	ater Lev	rel (m	Utility / Owner	Formatio n
0.							(m)	h (m bmp)	measur ing point (m agl)	DEC -22	JAN- FEB- 23	-23	Aug- 23		Tapped
43	M70	Jamgaon Khurd	NEAR SOUTH TO KHIRATKAR NIVAS	20°14'0.2"	79°3'7.64"	205	3.8	10.3	0.45	3.2	4.5	5.7	2.95	DOMESTI C	BASALT
1	WN6	Nilapur	About 800 m W of village, adjacent to Wani road	20°3'47.1 97682958 5572"	79°0'1.44 63598697 6027"	197	4.95	9.2	0.34	2.1	3.5	4.2	1.60	D/I	
2	WN8 a	Bhalar	Near bus stop. Well of Sri. Arun Maruti Goble	20°1'56"	79°0'51"	215	1.55	8.6	0.73	2.6	4.2	6.7	2.30	D/I	
4	WN1 4	KESURLI(B)	TW near Kesurli More on E of Wani road	20°1'40"	79°2'55.2"	210	4	9.3	0.5	2.9	4.55	6.2	1.90	D/I	
24	WN2	Wadgaon	About 400 m S of village, adjacent to nalla	20°6'52.3 28744489 5587"	78°58'12. 97027921 06241"	224	4.75	7.01	0.85	1.4	4.1	5.5	1.70	D/I	
25	WN5	Kolar (DCB)	E of village, adjacent to nalla well of Nilkant Pijurkar	20°4'36.1 26217532 636"	79°1'46.4 54012685 0829"	211	1.82	10.52	0.15	3.4	5.5	7.2	2.00	D/I	
26	WN5 4	Ganeshpur	TW near the road junction of Wegaon & Ghonsa	20°3'6.59 19199074 7701"	78°56'38. 17778677 60342"	214	1.58	7.04	GL	2	2.6	4.4	1.80	D/I	
27	WN1	Wanjri	C of village in southern sector,	20°6'34.8 98433431 4579"	78°56'35. 97092298 12744"	210	2.74	7.16	0.88	2.2	3.55	6.2	3.10	D/I	



Sr. N	Well No.	Name of village	Well location	Latitude	Longitude	R.L. in m	Well dia	dia dept		Dep	oth to W	ater Lev	el (m	Utility / Owner	Formatio n
0.							(m)	h (m bmp)	measur ing point (m agl)	DEC -22	JAN- FEB- 23	-23	Aug- 23		Tapped
			about 60 m E of main road												
28	WN1 6	Nandepera	Near Hanuman Temple and GP office	20°9'0.28 43023828 3903"	78°55'31. 31683840 91342"	220	4.23	8.05	0.7	3.1	4.05	7.2	2.70	D/I	
29	WN1 7	Wanoja	60m E of road entering in villageand N of Nallah	20°10'47. 71045824 90867"	78°55'6.8 34644057 43179"	225	4.6	9.3	0.4	4.2	6.5	7.9	1.95	D/I	
35	WN2 8	Palsula	15m N of Wani Yavatmal Rd near Soyabin Gowdown	20°5'25.8 44391527 2409"	78°54'48. 56738706 74054"	195	5	13.5	0.3	3.1	7.45	6.3	2.60	D/I	
53	WN1 06	GOVARDIP RITH	OPPOSITE TO THE Z P SCHOOL JENA	20°10'3.7 4"	79°6'18.5 6"	210	5.2	15.6	0.3	5.4	8.8	9.9	4.40	D/I	
54	WN1 07	SEMBAL	NORTH -WEST FROM JAGANNATH BABA TEMPLE ABOUT 200M	20°10'51. 41"	78°59'37. 2"	215	4.2	8.7	0.3	3.6	4.2	7.0	3.80	D/I	

NOTE- GP-Gram Panchayat, BMP-Below Measuring Point, agl- Above Ground Level, D-Domestic, I-Irrigation, P-Private, RL- reduced Level, bgl- Below Ground level, NA- Not Accessible



ANALYSIS REPORT









TC 5456

The Report

TLE No. TO SERVICE STREET

Their Report No. 31 10 (\$40 62 500 (11)) Day 3 24.46 2020. May Lath 85 or plant reprinted No. 1 - All PT (1880e 2021 98-2 08-1) Artificial State Record Title to bly in Roll 255 mg 1975 Wile Western Contribing Secretary 1991 La. Lines and District BURN DOTT Emple Road Cycyle State: Cycle Emer. Magran. WICE PHYSICISE, 440000 Rediscourse: Sample Category 112 (6/00/20) Sweight States Sample Foreignbury/Synchric Purpose of anothers Countries House and

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TC 5458

Test Report.

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TO 5458

Test Report

ULBUNG TO SUSCIMOUS OUT BY Text Report No. 1 ALPS, DRIMANUT 1-3

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Page 1 of 5 Bundani South

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7	A linearity	4.0	E 5021 (Feb. 21) 1968	200	560	1854
5	Colors	Liggs	50 7054 (Pare-11) 0000	100		21.00
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77	Calculation (Calculation)	right.	15, 300, 374, 401, 399	200	200	11364
3	Ray Ment Chloring	1467	-15 2005 (Part 55) - 2001	0.1	12	DOI: 06-011
6	Rombic to D	1965	(K.1925 (Part 60) - 3000.	- 100	130	000
97	Magnestary wide	797	8: 3029 The dily 1918	144	103	17.6
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-100	Herman	18.91	\$8,0000 place the 2010.	1.5	2.5	9000 HB 13-bi
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18	Cisciplate (a)	0.0	6x302f (fax(2)), 2012	11002	Numbracks .	1101, (St 860)
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10	Manganuta (ox.lda)	8.6	DC 2005 (Peri 2) - 2015	1035	0.3	0.000
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24	Salonic with Ser	198	Pri (000) (then \$64 : 2000)	7,0000	Thir refer allow	B48.100-8801
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37	pli v	- The same of	(B.585%) Res 1017 (B25)	67142.5	Na religionists.	大婦.
31.	Selpharulas SCut	445	28.9029 d 19.2017 (00.2)	190	100 March 1980	E PERC
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13	Total hast now to CaCita.	9.25	18:00:29 (Emp. 20) (2009)	200	700	142
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38	Anama social	- Charles	19, 1919 (Fig. 57) (1919)	1.00	No. 4; byceries	OH . 1 10
35.5	Acperimentalism Add	Hgf.	5.8.5 (a.2. 189	4.0	8.7	1004 policinal (
1115	Dates	1824	8-0405-6-10-04-10-04	65	34	2008.428.+3.11
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177	Cadeeye (c) Citi-	700/1	18 20 N F In 21 1999	1,000	Newtonian	HH (1 - 30)
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		Part I	As capacities Limit	Permissible Limit		
1	Chronical Testing 1, Water					
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31	Colette	\$5,000	\$6,3025 (Park) (980)	100	29	
7	Chleride (se 65)	0.80	K 3015 (Fire 32) (1908)	259	1963	14000
1	Colorus (ac Ca)	0.67	\$6,4000 plan, 801, 1890.	28	200	1,78
3.0	Note that O' forms	1567	48.0 (21.0 pm; 30.1 (20.0))	0.2	6510	RDC/DL-1011
3.1	Planette im F	High T	B. 3 (25 (24): 60] : 2006	1.0	1.9	9.95
7	Magnistan to My)	right:	S 2009 (Page Apr 1980)	300		29,29
7	Silvania (Sa Sa S	CB3	APPHy received 77 minute area (1991)	45	Serderalim	97.94
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16.	MI	The Cartesian	68 3825 (Pag) H h : 3022	6.5 (4.5)	No reference	735
1	Solphure due 170.4	1967	16 Jack (Net 281-1992)	228	+10	17.46
w	Total diseased which	100	US 3405 (Part 150 : 1941)	199	200	9004
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11	Chronical Today 2. Residues in Water				Market Heat	Steel to
15	Charles his Add	967	第 第43 (Fig. 27)、(20)2	2.0	No temperature	Rra (01 - 0.01)
36	Alterdanier (cs (4))	10,4	6 AC JAC 3:200	0.000	100001144	H20.00.000
17	Tkoron	Mg/I	8-3025 (Pag 2): 2019	1.7	14	BD4 89, - 0.10
18	Couppe (as Day	845	B: 3025 (Plan 2) : 3309	0.05	1.00	W11 104 - 4.88
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18	(associated)	med .	45 P00 (Pw12) (2012)	11	Sis education	1806 204 / 6000
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100	A WOOMCHOUGH	109/1	E 2000 See 25 (1900)	351	1108	127,28
	Calcium to Co	149.7	18 3413 (Part 48) (1991)	13	49	129,6
3	Resident Universe	166.7	16 3823 (Red 200 (2001)	3.2		DOCUL-003
16-	Floor String FT	04.1	5 905 Feb. 90 (200)	Millian	737	1.7
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15	711	44.154	8.5659 (Pres 81) (2002)	6.5176.5	No tribydring	1.0
10	- Sub-may Fac 1839	160	to according MT 2862	200	- 1000 April 1000	2641
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16	Chemical Triving 2. Resident In Water				m james sa sa s	Augment.
13.5	Resemble Gen / No. 1	1007	18 3303 (Pay 31) 13002	10,84	Neindenstate	100,100,-101
37	Allowand and Allo	2007	DOMESTIC: 2014	0.01		Best Dec 10-10
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35	- Into the Pot.	76.7	18 38 25 75 1 25 12 76	174	New York Control	100
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Test Report

III New Transactions of the P. Page Left Date (\$4,000,0000) Tell Report No. 40.PT/2406232511-18 **的第二人** Applicate State Supplied Resident No. 19. 104, CARC 2015/A. (240), 10. 22 Bio 2003 Analysis Rost General Text: 100 Ex 3665 be word from a Min Windows Conflictor Downson, WC Lt. Carlle Book, Carl Dises, Child Dises, Nagrae. Betreenen. WITE HOUSEST MINNEY Webst Sample Category Fungione of naturalism Quantity Received. Special Particulary Delice. Sample Name De induing. 13.10 Christian Victor (Mr. 8 No.: 1921); Phys. Acad. seemed Wave Sampling Laureton BARS 2023 Sampling Bods Sample Collected for Manager No Newsmith Sampling Time 30. Mahoda Videolini

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97	Charge site (see SC)	467	10, 2027 State 711 1838	73	3.m	134.6
77	Calcium Fail Can	996	S SELS (Fall-ME): 1991	8.7	100	1826-184-19.19
	Registral Chineses	1995	B 003 (Fee 20) (MI)	14	100	6.60
1	Finoride (m.F)	7.05	8 303 For M1, 1808		180	Fee:
9	Magaz styre (as Migh.	0.00	15 SATE (Part Most 1994	30	Special sure	12-80
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Anacon Laboratories Pyt. Ltd. Nagpur Lab

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Tee Report

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Reference:

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7.35	Original	Hoop	86.0000 (15 a. 9) (2001)	3	15	
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5	Residue 13the inc.	84,05	8 303 (Fee 30) 200	2023		100,000,400
- 6	Pleasante Cay F.1	ept	B: 3025 (Free, MT) - 2018	1.0	1000	134
2.0	Magnessian to Mgs	and .	to daily part age time	. 20	110	31.36
-	Names Sur-SU(3)	68	A PSIA medical Earl volume 2017	40.	Mar reducement	19.81
-4-	Char		E 3021 (Swift) 2019	Agreeable	Agricultus	Agrecible
35	MI		85 3025 (Peri 11) 2002	45 995	No reference	7,34
100	South me Lie SOV)	re!	b. 9123 (Part MT 2002	200	4000	38.10
13	Total Seniros obta-	mp/	38 3000 - Charles (1984)	200	1000	200
133	Tubidity	870	B-3025 (Part 10) - 2004	(4.1)		0.1
112	Tired Sandates (es Cal. Ch.)	290	18/2025 (Part 11) (2009)	0.000	\$60	HE
1	Chemical Testing 3. Resident in Water	V 3000		-	(None beauty)	- American
330	America (et Art	1267	14 3000 (Set 17) - 2000	0.01	Nerdposes	Mit (BE - ERE)
16	At a someter ab	564	In Straffacili 2018	0.02	10.5	BOLDE LOC
78	Term	1995	15 1615 (Fam 1) : 2009	10.5	2.6	B00.701 - 035
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	Colomor (e.C.)	767	(5 (8 (8 (8 (8)) 2 (8 9)	-0.000	96 86 15 F St.	Mid. (DE, = 8-001)
34	Liver rie fire	107	19 1803 (Evil 10 12 8 N	11.0	No reference:	6.17
31	Lad william	100	S-3628 (Fun 2h: 138.9)	6.00	Note level an	HOLLOW FORM
37	Mangarete (in Ms)	100	S00331431100	- 800	12	1.2
10	Moutant tax 500	941	16 2021 Fox 2013 BB	18.02)	Non-laterier	THE STATE
10	Suive hero (see Sco.	1604	7h 3005 (Fair 20); 2502	1.0	2.535 (chapter)	BUL DE OAH
15	Total Cooperate to Co.	1401	8.303 Fax 20:1919	0.00	No o Marian	D30 831 - 905
360	Zhetta čet	82	EXX2 (Fan 2) (1919)	N	13	804,400, 404

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1. + 67 spanished assemblement to be Symmetrial.











TC 5458

Test Report

CERTAIN TOSANDOMORNASE Teachigue No. STR. Green Company	Date (16/4/10)	Taget of the Notice Not
Secol To Mr. Wassers Charledds Lindow (WCT) Fords Back, Cold Direct Ovel Lines, Nagyer, WCL, NO Od St. 64800.	Sample Sensed Std. ALP (attraction to a 4-12) Favored Order III. (8-22) Behinder:	Aughor Cut 1204,3400 Scougle Cutigramy States
Awayle Name	Sangle Factorise Doors Grow J Vigor (Wall No. 1912) C. (Mg/4 April 1	Perpension analysis Quantity Section Devicing Class
Comment Widow Starry to Collected By Me Maharin McCartin	Sampling Date 16-08-2021 Sampling Time Not Standard	Rempling Linuxies Displayers Salle Word
Taxo Beginnet (Burnsal Today	WATERIAN	

	12123537	Measurement	Two Storbad	Christian W.	per D. 1868 (1963) as r Specific alternal reconfident No. 4	Tor Seak
· No.	Santana	Sat Personer (Set Ind. Sector)	Line)	Department of Cheste.		
77	Change Testing & Water	0.000	The state of the s		100	250/35
77	A feliality	1994	5 30 (9 (Fee 27)) 1986	196	14	
	Chiese	Hage:	F. St. 20 (Fig. 4 - 202)	330	1000	204,79
87	Children (St. 10) ETC	1.15	18 1823 (Part Sch. 1981)	200	200	190.8
1	Colores to Cit	100	B. A.C. Pag 40; 100	25	200	806,06, 8.0
5	Aviation from	0.6	E 2005 Per 201 A.S.	6.7	131	1,05
8	Thursday Int. No.	110/1	15 3025 (Peri Kit) 3/48	1.0	100	10.00
ŶT.	Magneties (at high	1967	2: 3: 20 d on 461 1994	33	No infrastrati	20.04
т	Straint (at MCv)	1967	A HAR masked I rough new Part	45		Name of the
	Officer	HILESTON OF	BURE DESCRIPTION	Appropriate	ngeogals.	1.03
60	48		5-3618 (Fee 10) (101)	8.555.6.5	No to approximate	20.64
fit:	State house (ast Milly)	mg/f	8 3624 (Feb. 20) LBLD	100		-
铷	Tend deadyed solids	High.	is properly at the control of	-560	3100	0.7
计	- Sub-dec	NTU	E-9000 St. No. 1984	1		344
行	Total territori de Circitat.	regit .	5.3325 (Sec. 71) - 2006	2.4	-900	711
1	Chemical Leaving 2. Resident to Water				9.00.0	1 400 (006.3
**	Arrem he Ad	1967	FC 1921 (Pure 22) 2-22	7000	Nordepp w	B3600-63
g-	Montain to 20	144	28 8015 (Page 1) 12 08	0.00	17	
7	Decree	8947	S 36 3 (fee 20 20 8)	1.5	2.1	R00 Cd - 90
÷	Person De DO	and .	8 303 (%4 (5) 1116)	8.00	Market Company	MODERAL OUT
變	Contractor (ac. 24)	1004	B-3029 (95-62) (1819)	0.000	Hork inseles	BELLILL OF
200	- bortes-ret	and .	15 3001 (mari2): 2817	100	No processors	6.81
200	Casting Mil	ag/	- Dr. Hittle (Peri 21): 2009	8.07	Ka principle	TOT (04 - 40)
垒	Management (4) No.1	re	to 1021 (fam 2) 2013	3.000	101	621
萝	Nidos (m. 8%	ing/i	15 1915 (Per 1) 2019	0.05	No. of a calcon	343 (DE - LO
楚	Science (N. 24)	right.	18 NOT 1841 440 2000	0000	No extra cutous	MALTER TO
毌		161	18 28 (School of : 200 S	0.05	Morelatation	ME (0) : 00
*	The second secon		8.0025 (Fax 2): 20.9	100	186	WEST (24: -4.1)

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PRODUCTION PROPERTY Thanks the purify to your lieb rood level incompany can. Would find our had controlled objects that a projection state. You put to a lot of have week to ency so that you have a heartness dispersaries of every step of our west in early by where to on unto that your next experience out the significantly before, we welcome your limitable over small or fevertinnio gunucios in

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SC 5456

Test Report

CER No. TOSAS CARROLLESSE Ted Report No. ALPL/Macadillis III.	Davi 1953/CI	Page 1 of 1
Donald To: Mr. Western Coal Fields Diseased (WCL) Lately Rend, Cort France Girl Lines, Vegrow 4(2), 140 (MS), 44000	Named Server Na. ALPRIORECT SW-545-19 Insert Server Belevore	Analysis End. 6264-3603. Nacopis Coopers Mess
Sample Name	Stanger Furnishing Details Drawed States (Web No MDW (Water Anna)	Present of probability Generally Section Decision (C.)
Special Way: Special Collected by Mr. Malagin Michaele	Sampling Date (Bally 2007) Sampling Time Vist Memoral	Sampling Societies Gestald
Tour-Heggered Chorder Testing		

	otherwise Charles Testing		TESTARACLAS		par 15 18500 - 2047	
	#01/42/F/644)	Vicaranguese	Toe Medical	distriction to be building &	(er Specifications)	You Reset
		Tri faireate (3)	Acoptoble Lines	Pyromiodide Limit		
1	Chemical Tentos I. Wore.	Control of the last		100	1476	263
3.1	A sub-site.	199/	S 1615 (Fee 20) / 1995	1	19	-
1	Colors	Hors	8 X St Fee C : 1901	190	1007	170 ed
1	Chlerios (as 40)	194	18 NRW (Not 32) : 1983	75	100	11.14
7	Colones (as C.s)	6.20	N 900 Pat 40: 199		100	WARRY CO. C. D. Dr.
4	Residual Charles	8.6	p. 1005 (Feb. 20) (N. 20)	0.2	1 12	0.65
87	Phone ide Las. F	C#1	B. 1025 Part 631 (2019)		100	5.766
7	Management (as We)	178	S 3(2) (Fig. 4c) (1994)	39	Verofession	10.04
T	Strang to MCO	199,7	ATTO method 21 studence 2017	36	Avenuelida	Approximate.
智	Ding		R WINDOWS SOLD	Asymodisk	No or contract	273
100	ME	11 - 9 - 1	to this (Bat Hs; 1911	8.510.83		9.31
17	Kall hate his 50s.	864	is an Soften Note 1800	100	3360	60
17	Total classified setting	right	EXMOREM INC.	Sint	200	63
13	Technical	1.00	B-2025@ne.001:1984	- 47		772
护	Total Inches (as CaCh)	right	15, 3 (01, Part 21) ; 2008	7200	90.	110
	Chemical Leville				and the second second	
	2. Heridons la Water	1000	\$6,000 Hart 374 (539)	0.01	No reference on	MOLACE, INC.
ж.	Arrente (81/0)	767	18 (8) S (Fig. 1) (2018)	0.03	0.1	168-01-12
70	Abott to any to 116	100	S X S Put In 1976	1.850	2.1	HOLEST - 0.5
10	Leave		B 200 (554.0) (226)	3,05	A CONTRACTOR OF THE PARTY OF TH	History and
亚	Corpor Car Dist	100	P. 800 (PAR2) (287)	8.003	No principals	16 LEA - 0.0
35	Communication Coll	100	65 FOOT (First S1: 79.75	1.3	Na retareator	1.1800304-03
33.	location Feb.		E-3029 (Part 2) - 2019	6.01	Na reference	mm (b) 4.0
33.	Colon Rei	ng!	18 100 (Fac(2) - 2019	0.11	02	0.0
3	Management (as 2001		1678Herwith 2019	0.64	Verdesina	3DL (DE, + FO
21	No dead gas line	- 100	15 000 (Pag 56) 2000	0.00	Charles sales	S00 (00) 100
-24	Serverselvice in:		\$ 1625-Fun.25-1264	606	No reduced in	300, 011, 00
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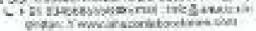
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Amacon Laboratorius Pet, Ltd. Nagpur Lab

Q FFN.Sd., Bis Forset Plant. Plant Std. with wars. Foreign. MIDC Europe. Magazir, Mathematics, 1986 - 191 122.











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Time Regard

OLENA-TOSASCHIOMICOLOGY Petrol 1 (60) Washington 24 (ex. 541). Temporal Second School described American Mark ALTERNATION AND ADDRESS. many stip I make of Sin. 2006/2015 Santon Cont. month in FEB. TEL Learning Date: Mic Wickelle Facilitate Central (WCT) Front David Conflicting, Ciril Lives, Named No. 1, 180-94, Sc. 4 (1993) Monte. Sangle Colores Margines of positives 120 daily Passage Received Sample Particular Shape. Sample Same DOM: Commercial Control of March 1984 (March 1984) Section 18 Section 18 Agraphing Loos ton Simples Bok 11/05/2004 Springle Calibrated 39 Discovering. No. Make and Sumpling Trees. Str. Str. and Street. Text Reported Whele tel Lotter.

	s Required, the behalf on an		TESC RESCUES		STREET, SQUARE	
s×.	Ted Paramose	Manager et all Cont	Total Medical	Distinguished with	per in Initial 1911 and Specifications or on Initial No. 4 Per to be ble Libert	Tex Head
-	Denied Joing L Water					
44	Advisor	2.0	B 3029 For 21s 15th	1200	2400	10.1
4	Colonia	Physical III	\$6.3695 photos to call?			
4	Charlestell	(right)	6-1000 of all (2) (3/48)	311	100	15004
1	Elektronicki City	146.7	DCARS (Fan.48), 9901	- 13	- Y6	113.2
÷	Number Didney	961	10 TAUS Part 250 : 2 U.S.	17		Maria Constitution
÷	Facilities II	ma/1	S 5625 (Part 80), 1385	3761	1.5	5.64
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4	Name (Se (SE)	est.	A First week of participation, 2017	46	May serter cardinary	00000000
÷	Dilete	100	ps 3025 francis (\$1.5015)	Agreedity	A provided.	Sprend in
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	September 106-1934	1067	E 1025 Per 241 2002	2.8	400	1779
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	Change Tooley		- 100-1012			
11	2 Resigns to Water				The second second	1 mm 104, (0.11)
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10	A benefit facts (e.g. 30)	Wall .	F. 803 (Per 7) (101)	8.00	1.4	100 (16 - 61)
691	Chara	1991	15 3024 (Per 21 - 2017)	34.5	12	ALL AND DES
锥	Captalities 6:3	14	distribution (1) 2019	0.85		Me de se
100	Calmin Section	1967	19 (015) Fat 21 (2019)	8.80	menda serie	9.77
31	Francis Tell	right.	[STREST on TEXAS 9.	1.6	Security (Fig.	10H-01L-0W
1	Lesi action	the board of	3.38 (9.10-6.25:20.9	9.64	No college (er	8.24 Hall 211 21 22
金	Managerial (at 195)	real.	5.5000 (Eur.2) (124.9)	B.1		100 (2, 01)
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11.	Night Linkling	eat	[10.71(2)] (Charles 21 - 20.14)	0.00	Proceduration	101.704 (100)
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7	Rendered Ordering	197	PS 5025 (Part 200-200)	9.2		101.01-65
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33.	The bridge	8.00	Describing to 100		4	10.4
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11	Charles Testing L Residue to Water					
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11	Womanie to (II)	797	2 0035 (Twit 25 (2009)	1000	4.5	BEST STATE CONTY
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Test Report

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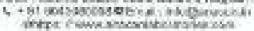
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Test Report

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Test Report

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Test Review

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11	Trial formation production (Sec.)	163	#5-3925 (P.at.21) (: 2008)	200	600	436
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7	University (CO)	8.6	\$ 3025 (For 40) (199)	100	. 101	1488
-	Household Columbia	86	S 3025 (For 350 2021	- 193		2000115-0010
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11	References SON	1496	is harsal or had a 22	300	300	19.28
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Text Report

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Test Report No. : ALPS / SYNCHOLOGIA, 28 Description and the contract of the contract o Paper of the Sample Irraped No. Is need The 1 AND RESIDENCE VALUE OF Amelijaski Staret decimal Sept. Min Western Conflicts Limited (MCL): Inward Date 0486.7015 Administration Family 26.86,3003 Table Board, Cast Fearing Cryst Linging Parkers agen-Name: 907, 30 (AS) 4 (60) Sample Carpy say Water. Stateple Name Sample Park or bres (batella Pro just al mention | Character Received. Water. What (We No White that Nothing Deloking.

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3	Alles Falls	902	(5:3025 (Pub 3)) + 1666	500	660	261.2
2	Colour	Hasen	15 3625 (For 4) (2001)	5	13	1
3	Chloride (65.17)	786	B/3425 (Part 82) 1448	350	1000	100.04
4	Casalan (so Cip.	(NA)	15 303 (Part No. 1991	29	306	50.2
3	Foodbad Charges	176	15,5625 (Fax 2x) (AU)	0.2		B00400-001
£.,	Flooring (pc/f)	1993	15 (405 (654 664) 3088	1.0	1.68	0.72
7	Magnetic of the Mag	1991	15. 3185 (Feb. 45): 1994	39	2 1 - 12 W W C C C	29.17
1	Nicholay Jan X O. J.	1.00	APIIA walked 24rd reference 2017	45	Probleman	7.85
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Mi.	MR (Leyence)	+ 110	18 3 8 5 (Part 11): 1002	F5 9-85	Novelone tra	1.34
11	Substitute (by SOLI	med.	IN 2013 (Part 20) (2002	2.0	37.0	51.10
17.	Total dissolved solids	460	IS 2022 (Pag 16): 1504	9.0	78/9	922
12	Darbid ty	NTI.	IS 1025 (Part 10): 15 M		4	8.4
14	Total furdame (as Cath), (MpT	85 3025 (Fast 21) 20 (W	250	44.5	(b)
ij.	Chemical Turkry . In Residual In Wester					
130	3183K (8(70)	9.65	18:3025 (Fine 37) (2012)	1600	No relaxation	663 (III - 0.0)
15.	Mention in 40	wy6.	25 3025 (Fax 2) - 2019	16.00	1.2	HER SEC. CO.
17	lions	476	S 8/25 (P. J. 2) - 3019	24.90	2.8	0000 (DE-10.15)
18	Costour Cas Cas	1965	PS 3025 (Fur dir Julie)	9.05	5 Sec. 19	RISE IDL - O.CV.
22	Cadmining as Cal.	(20)	15 3KG5 (File 2) - 3019	0.000	No entiretarione	FIRE 124 - 0.03
20	Iron (as Fig.	1965	15 3025 (2.18.7) (31.9)	0	No or handless.	1.17
3	Load (ac Ph)	276/1	15 3025 (Rev. 2) - 2009	0.0	Marsdaye Son	MOR #24 - 0.00
1	Margianne (in hing	1704	15-3025 (Pers 2) (30/9)	0.1	4.5	0.34
3	Niyks Las NO	right	15 (00) Was \$1 (2005)	0.60	Pet notionar Job	HDL-DL-COIL
34	Authorities to No.	1051	68 2465 (Part 5t) : 2003	0.01	No relate log	DDE (C.) - O (B)
20	Sand Cheere are discour	mp/1	16 3632 Shirt 25 ; 2018	0.05	No origination	RDC-CUL- BROK
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3	Colored Inc. Car.	mp/	S. NO 5(For 43), (99)	710	The second secon	179.95
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Catch Drain along Haul Road



Catch Drain along Haul Road

Surface Run-off

Adequate numbers of vegetation will be grown on the top surface and slopes of the dumps in order to arrest the erosion of soil and it will also reduce surface run-off, which helps averting siltation of natural water courses. Garland drains has been constructed for surface run-off around mine, embankment and dumps.



Garland Drain along Embankment



Garland Drain along OB Dump

Photographs of Garland Drain



Garland Drain along OB Dump



Garland Drain along Embankment

In Compliance of condition No.4.C(xi) of EC granted by MoEF&CC vide no.J-11015/ 25/ 2008-IA-II (M) dated 01.01.2021.

Production Capacity 3.00 MTPA in an area of 706.28 ha

Expansion of New Majri UG to OC

Tehsil- Bhadravati, District- Chandrapur Maharashtra (Majri Area, WCL)



JULY-2021

PREPARED BY

Western Coalfields Limited, Nagpur, Maharashtra.

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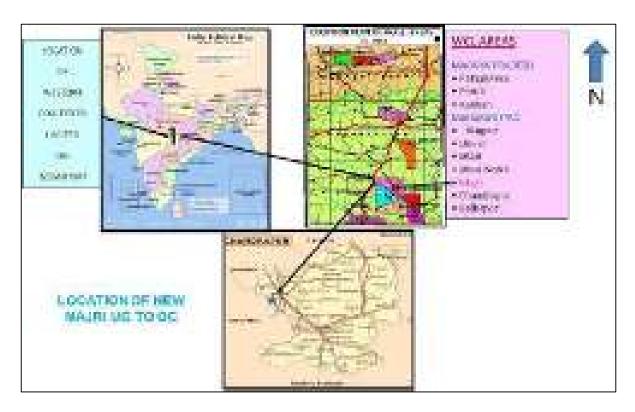
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Chapter 1 INTRODUCTION

1.1 Identification of Project and Project Proponent General Aquifer Parameters

Expansion of New Majri UG to OC project is a Opencast Coal mine of Western Coalfields Limited (WCL) Majri Area, located in Bhadravati Tehsil, Chandrapur District, Maharashtra State. This is an operating coal mine with a production capacity of 3.0 Million Tonne Per Annum (MTPA) in total area of 706.28 Ha. Project Proponent WESTERN COALFIELDS LIMITED is a subsidiary company of COAL INDIA LIMITED (CIL), which is under administrative control of MINISTRY OF COAL, GOVERNMENT OF INDIA.



1.2 Introduction

The Expansion of New Majri UG to OC has obtained Environmental Clearance for for production capacity of 3.0 MTPA in an area of 706.28 ha vide MoEF & CC letter no. J-11015/25/2008-IA-II (M) dated 01.01.2021.

The the Project Report (Including Mining Plan & Mine Closure Plan) for production capacity of 3.00 MTPA (Normative) and 3.75 MTPA (Peak) within ML area of 706.28

ha was prepared and approved by WCL Board in its 311st meeting held on 25.05.2019 vide letter WCL/BD/SECTT/BM-311/2019/539 dated 07.06.2019.

Total geological reserves in the mine lease area is 78.62 MT with 67.65 Mt mineable reserves. Extractable reserves are 57.85 Mt. Percent of extraction is 73.58 % with a maximum depth of 150.0 m.

1.3 Location & Communication

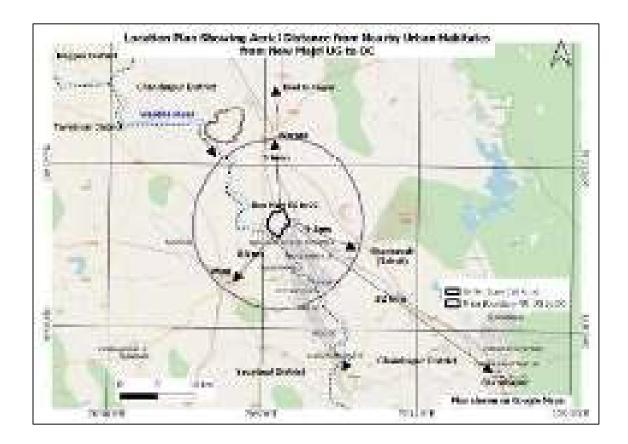
The New Majri UG to OC Expansion mine is located in Majri Area of WCL in Chandrapur district of Maharashtra state. This is an operating mine with the capacity of 3.0 MTPA and land area of 706.28 Ha having EC issued vide ref no. J-11015/25/2008-IA.II (M) dated 01.01.2021.

The area is at a distance of about 140 km from Nagpur via Warora. The Majri railway station, within the area is located about 17 km from Warora railway station on the Wardha – Kazipeth main branch of Central Railway. The Majri-Wani branch line passes through the central part of New Majri Colliery separating New Majri UG to OC mine in northern side from New Majri Sector-IA & IIA Extension OC in southern side. National Highway-930 passes along the northern boundary of the project connecting Warora and Wani town.

Many coal mines (New Majri Sector-IA and IIA OC, Navin Kunada OC, Kolar Pimpri OC etc) are located in south of the project.

The area of New Majri UG to OC expansion mine is bounded by latitudes N 20°06'45.43" to 20°08'43.08" and Longitude E 79°00'13.53" to 79°01'59.9". The block is covered in the Survey of India Toposheet No. - 55 P/4.

Toposheet plan showing the project area is given below.



1.4 Topography & Drainage

The characteristic land pattern of project area is a north-south trending raised ground between the altitudes 185 m to 194 m. The western part of this raised ground slopes into Wardha River. The HFL of Wardha River is reported to be 193.65 m as observed in 1994 in New Majri Colliery area with reference to the assumed RL of Bench Mark of the colliery. The Wardha River flows along the mine boundary in south-west of the project. A minimum distance of 175 meter has been kept from the quarry surface of the mine. An embankment with height of 6 meter above HFL will be constructed between quarry and the Wardha River. A minimum safety distance of 45 meter from Embankment to Wardha River has been proposed in the approved Project Report.

Location Minimum Distance from Wardha River (in meters)			
Mine Boundary	0		
Embankment	45		
Quarry Surface	175		
External Dump	2100		



The Koradi nala with its branches and gullies used to pass through the eastern part of project area and it joins Shirna nala further to the east. The Koradi nallah has been diverted for the existing project (1.20 MTPA) along the mine boundary and now joins the Shirna Nallah a kilometer before its earlier confluence point.

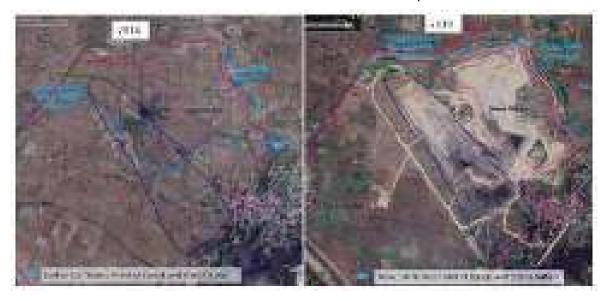


Figure Plan showing Diverted Route of Nallah on Google Earth Imagery



The Koradi nallah was diverted to the Shirna nallah in accordance with the design received vide note no. CDO/DAM/ED-2/14/2016 date 31.03.2016 from the office of Superintending Engineer (DAM), Design Circle, Central Design Organization, Nashik of Government of Maharashtra (Water Resource Department). The report is attached as Annexure- XVIII.

The HFL of Koradi nala & Shirna nala is reported to be 192.45 m. The entire up-dip side of the project area i.e. the quarriable zone is under the HFL because of these nallahs flowing through the area. The topography in this part varies between 185 m to 190 m. The present expansion of existing New Majri UG to OC (3.00 MTPA) does not require diversion of any Nallah/River.



1.5 Mine Boundary

The geological block boundaries of block are as follows:

North	-	F ₆ -F ₆ Boundary fault & Naglone – Patala Road		
South	-	Railway Line		
East - Subcrop of Composite Seam		Subcrop of Composite Seam		
West	-	Wardha River		

The mine boundary of the New Majri UG to OC Expansion mine are as follows:

East (Rise side)	: Subcrop of Composite Seam				
West (Dip side)	e) : At about 250 m Depth line				
North	: Fault $F_6 - F_6$ Boundary fault and upto 85 m away from the road connecting Naglone village to Patala village				
South	: Safety distance of 100 m from surface Infrastructures and railway line				

1.6 Geological Structure

Strike & Dip

Overall Strike is NW-SE with a strike length of approx. 2.8 km. The bed dips towards SW throughout the Block. The gradient ranges from 1 in 4.6 in Northern part to 1 in 4.8 in the Southern part.

Faults

Details of 3 faults encountered in the area considered are provided in Table below:

Table 1 Details of Faults

CI	Cault No	Challes		talis of Faul	
SI	Fault No.	Strike of	Amount	Linear	Nature and Evidence
No.		_	and	Extension	
		fault	Direction	(approx.)	
			of throw		
1	F6-F6	Almost	150m	1.4km	 Oblique fault.
	(Boundary	NW-	towards		Evidence of Talchir
	Fault)	SE	SW		Formation at depth of
					29.65 m & 39.85 m at
					CMWN-08 & 04
					respectively against
				2	existence of coal seams at
2		Almost	About 0	0.405	1. Strike/Oblique fault.
		E-W	to 20m	Kms	2. Absence of Composite
	564 564		towards N		seam in B.H.No CMWNM-
	F6A-F6A				89 &91
					3. Part thickness of
					Composite Seam due to
					faulted floor in CMWNM-
					90
					4. Difference in FRL values
					of B.H.No. CMWKH-209
_		Λ I	Alexant Occa	0.202.1	on the Downthrown side
3	FF-FF	Almost	About 0m	0.293 km	1. Strike fault
		NW-SE	to 5m		2. Difference in Floor
			towards		contour level between
			SW		CMWN-07 & 19

1.7 Mining Technology

Method of Mining will be Opencast with Shovel – Dumper Combination.

Geo-Mining parameters of Expansion of New Majri UG to OC mine

SI. No.	Particular	Qty.
1.	Area of the Quarry	
a)	On floor (ha)	235.03
b)	On surface (ha)	358.35
2.	Depth (m)	
a)	Initial	52
b)	Final	250
3.	Gradient of Seam	1 in 4.6 in Northern part to 1 in 4.8 in Southern part
4.	Average thickness range of seams (m)	12.88 to 18.89
5.	Average Strike length (m)	2163
6.	Width on surface (m) [dip rise]	1316
7.	Width on floor (m) [dip rise]	1073
8.	Grade and GCV (kCal/kg) (0.05m	'G-11'
	dilution at each contact point)	(GCV-4115)
9.	Mineable Reserves (Mt) as on	36.09
	01.04.2018	
10.	Total OB (Mm ³)	383.49 Mm ³
11.	Additional OB to be generated as on	373.18 Mm ³
	01.04.2018 (Mm ³)	
12.	Average stripping ratio (m ³ /t)	10.34

1.8 Land Requirement

The land requirement use details of the project is as follows:

SI. No.	Particulars	Tenancy land (ha)	Govt. Land (ha)	Forest Land (ha)	Total Land (ha)
1	Land required for existing New Majri UG to OC mine	460.21	18.95	Nil	479.16
2	Addl. Land to be acquired for Expansion of the mine	220.30	6.82	Nil	227.12
	Land involved in the New UG to OC Expansion mine	680.51	25.77	Nil	706.28

1.9 Genesis of the Study

Environmental Clearance for Expansion of New Majri UG to OC has been secured for production capacity of 3.0 MTPA in an area of 706.28 ha vide MoEF & CC letter no. J-11015/25/2008-IA-II (M) dated 01.01.2021.

As per EC Condition no. 4.1c(xi) at pg 11 of aforesaid EC letter," Project proponent shall take all precautionary measures to ensure riverine/ reparian ecosystem in and around mine upto a distance of 5 km. A riverine/ reparian ecosystem conservation and management plan should be prepared and implemented in consultation with irrigation/ water resource department in the state government "

In compliance of the aforesaid EC condition, Western Coalfields Limited has prepared riverine/ reparian ecosystem conservation and management plan and also suggested all precautionary measures to ensure riverine/ reparian ecosystem in and around mine.

Subsequently, steps will be taken so as to implement the aforesaid measures / plan in consultation with Irrigation/ Water resource department in the state government.

The Detail analysis report/ plan/ suggestions are being placed in subsequent pages.

1.10 Geology of the Area

Regional Geology

Wardha Valley Coalfield is located in the southeastern part of Maharashtra State between Latitude N-19°30′ & 20° 27′ and Longitude E-78° 50′ & 79°49′. The aerial extent of this coalfield has been estimated as 4000 sq.km. The NNW-SSE axis (which corresponds to the strike of the coal bearing sedimentaries) is around 100 km long with a maximum width of about 80 km. The like hood of extension of this coalfield in the north-northwestwards beneath the Deccan Trap cannot be discounted.

The coalfield has elliptically aligned coal prospects within Barakar Formation around the core of Talchirs, which occupies the central part of the coalfield. The eastern limits of this anticlinal structure is constituted by Konda/Bhandak blocks towards north and Wirur/Subai/Chincholi blocks towards south. The western limb is constituted by Majri/Kawadi/Kolarpimpri blocks toward north and Ghugus/Nakoda/mugoli/Kolgaon-Sawangi towards south. These limbs have been further affected by numerous NNW-

SSE trending faults. Depending upon the alignment of these faults vis-à-vis the strike of coal bearing sedimentaries, numerous isolates coal-prospects have been deciphered in western limit of Wardha Valley Coalfield.

The Archaeans are exposed in the low-lying area in the eastern part of coalfield. The Pre-cambrian sediments, Sullavai sandstone and Pakhal Limestones encircle the Gondwana sediments in the south west and north-east while the flows of Deccan Trap conceal the underlying Gondwana sediments in the northwest.

The Talchir formation conspicuously occupies the central part with a maximum width of 21 km and length of 24 km. The coal bearing Barakar Formation conformably overlies the Talchirs. Few exposures of it in the form of narrow linear strips occur in the western part of the coalfields is given in the Table 1.

Table: Regional Geological Succession of Wardha Valley Coalfield

Age	Formation	Lithology
Recent to Sub- recent	Detrital mantle	Black cotton soil, sandysoil, kankar etc.
Upper Cretaceous to Eocene	Deccan Trap	Basalts
	UNCOFORMITY Lametas	
Cretaceous	UNCONFORMITY	Cherty limestone, Silicified sandstone.
 Upper Permian	Kamthis	Red, brown, medium to coarse
to Lower Triassic	UNCONFORMITY	grained sandstone, variegated clay and shale band.
	Barakar	
Lower Permian	Talchir	Predominantly grey to white medium to coarse grained sandstone with minor shales, carbonaceous shale and one thick coal seam (15 to 25m)
Lower Permian- upper Carboniferrous.	UNCONFORMITY	Greenish to grey coloured sandstone, siltstones and shales.
	Sullavai	Tanadana, anadana ana analah
Precambrian	Pakhal	

	UNCONFORMITY	White to light brown quartzitic sandstone, conglomerates.
	Metamorphics	Grey, bluish or pinkish limestone and Cherts
Archaean		
		Gneisses or schists

Chapter 2 HYDROGEOLOGICAL SETUP

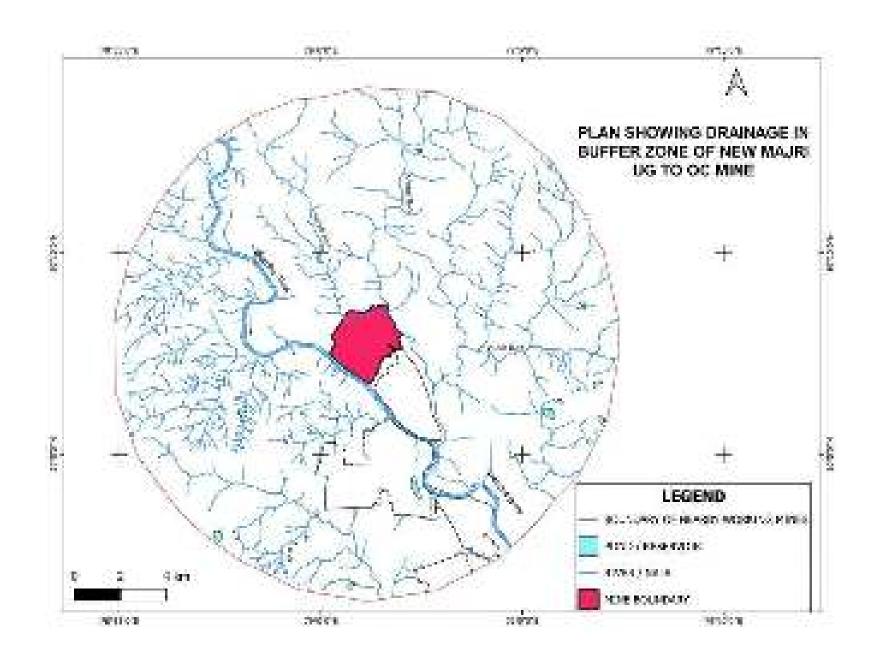
2.0 Hydrogeology

The Expansion of New Majri UG to OC is situated in Wardha Valley coalfields of WCL. The ground water assessment carried out in the Wardha Valley coalfield is provided in this chapter.

2.1 Topography & Drainage

The considered area has gentle topography. The maximum and minimum elevations of the area under consideration are 194 m and 185 m above M.S.L. respectively. The main drainage of the area is controlled by south easterly flowing Wardha River. Wardha River flows adjacent to the south west boundary of the mine. South Easterly flowing Shirnai nadi flows adjacent to the North Eastern and Eastern side of the mine boundary. Diverted Koradi Nala passes within the mine boundary near to the northern side of the mine. H.F.L (observed in 1994) of the Wardha River is 193.65m above MSL in the region. The HFL of Koradi nala & Shirna nadi is reported to be 192.45 m above MSL. Embankment is proposed along the quarry boundary would be 6m high above the HFL. The distance between the toe of the embankment and the Wardha River would be about (approx.) 50 m to 100 m and its distance with the Koradi nala is about 10-30 m.

Morphometric analysis of Micro-Watershed of Koradi Nala and Shirnai Nadi (part of Shirnai nadi before it joins Konda nala). Drainage plan of the buffer zone of mine (10km radius) and location of the micro-watersheds is shown below:



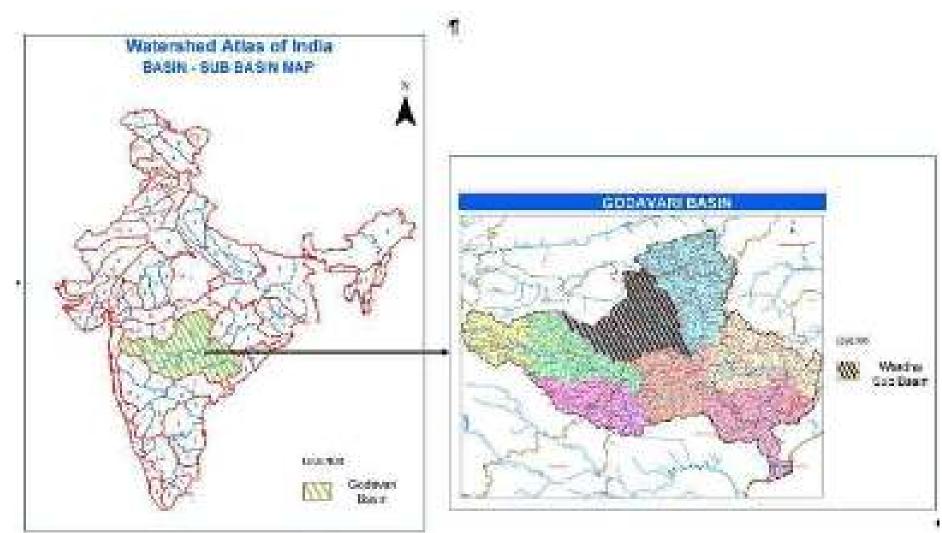


Figure: Basin and Sub-Basin in which the mine is located

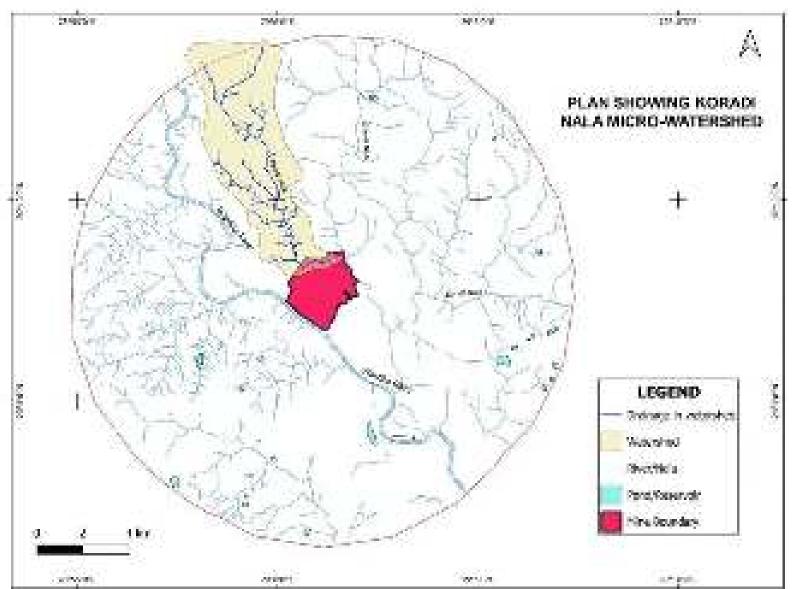


Figure Koradi Nala Micro-Watershed

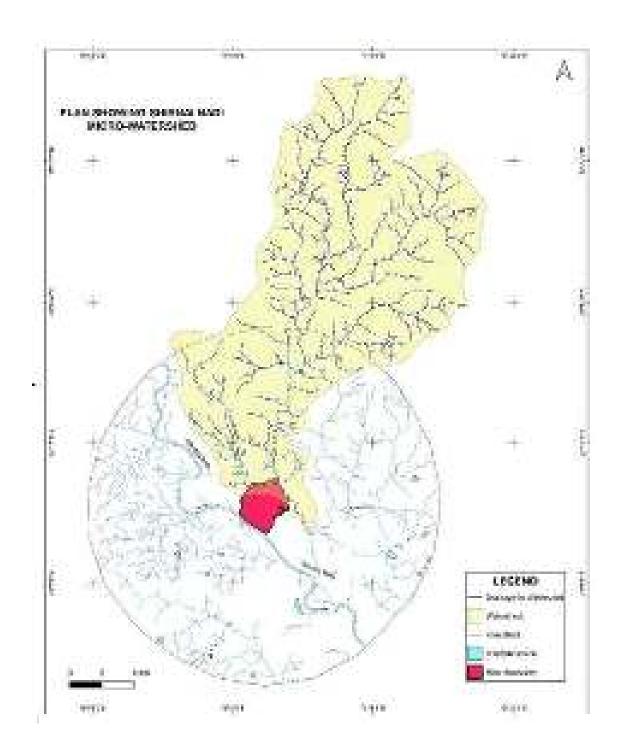


Figure Shirnai Nadi Micro-Watershed

Part of Mine lease hold area of New Majri UG to OC mine comes under the watersheds of Koradi Nala and Shirnai nadi at the downstream part of both watersheds. Only about 0.97 sq.km and 2.098 sq. km of the Koradi nala and Shirnai nadi watersheds intersects the concerned mine leasehold area respectively. However the total area of Koradi nala and Shirnai nadi watersheds is about 33.07 sq.km and 278.58 sq.km respectively. Hence mine leasehold area that lie within the Koradi Nala and Shirnai Nadi microwatershed area constitutes only 2.93% and 0.75% of the respective micro-watersheds. Basic morphometric analysis of the two micro watersheds is given below:

Table: Basic morphometric analysis of the Koradi Nala micro water shed

Micro Watershed	Attributos		Stream Ord	er
wiicro watersned	Attributes	I	II	III
	Number of streams	23	3	1
	Stream length (km)	19.62	7.20	9.54
	Cumulative stream length (km)	19.62	26.82	36.36
	Mean Stream Length (km)	0.85	2.40	9.54
Koradi Nala	Bifurcation Ratio	7.67	3	
	Mean Bifurcation Ratio	5.34		
	Area (sq.km)	33.07		
	Stream Frequency	0.82		
	Drainage Density		1.10	

Table: Basic morphometric analysis of the Shirnai Nadi micro water shed

Micro	Attributes Stream Order					
Watershed	Attributes		П	III	IV	V
	Number of streams	146	29	8	3	1
	Stream length (km)	179.66	54.34	54.41	12.59	14.56
Shirnai Nadi	Cumulative stream length (km)	179.66	234.00	288.41	301.00	315.56
	Mean Stream Length (km)	1.23	1.87	6.80	4.20	14.56
	Bifurcation Ratio	5.03	3.62	2.67	3	

Mean Bifurcation Ratio	3.77
Area (sq.km)	278.58
Stream Frequency	0.67
Drainage Density	1.13

2.2 Aquifers

The geology of the area in and around New Majri UG to OC mine consists of alluvium, Kamthis, Mot and Barakar. Broadly the aquifers can be classified as shallow and deeper aquifers. Shallow aquifers includes Soil/Alluvium and Kamthi formation whereas deeper aquifer system consists of Motur and coal bearing Barakar formation. The groundwater potential of Shallow aquifer is generally moderate to high in Alluvium/Kamthis as compared to deeper. Groundwater from the above mentioned aquifers is harnessed through shallow / deep tube wells. The types of aquifers are given in the table below.

Table: Type of aquifers in New Majri UG to OC Mine area

	Hydrogeological unit	Formation	Thickness (m)
llo / ifer	Unconfined aquifer	Soil/Alluvium	1 – 22.85
Shallo w Aquifer	Unconfined / Semi-Confined aquifer	Kamthi	5.51-33.65
, ,	Semi confined	Motur	54.20 - 80.15-
Deeper Aquifer	Semi confined / Confined Aquifer	Barakar Formation above Coal Seam	upto 141.55
ΔĂ	Aquiclude	Composite Coal Seam	12.88 – 18.89

2.3 Groundwater Level

To collect the representative groundwater levels in the study area, WCL through CMPDI, RI-IV has established a monitoring network with 16 number of hydrograph stations spread over the buffer zone (10 km radius from the New Majri UG to OC mine). Water level monitoring in these hydrograph stations has been done as per MoEF&CC guidelines (four times in a year). Groundwater levels from 2015 to 2019 is placed below:

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831	Contraction of		May 15	497	There .	1477	Magnitude.	34g Fe	269795	Light	Mac 14	Aug 17	2007 14	316.18	MIN TO	AND TV	(Mercha)	386
de .	Same Beerg.	rest for the National Contract of the Contract	7.26	3.66	3.96	2000	3.50	200	3.66	2.66	Div.	1.44	14-	13.00	454	1486	29%	5.46
	parties.	transport of the state of the terms of the state of the state of the state of the state of	9.90	(8)91	19	(3)	Chr	304	150	934	Bec	10	-00	16	fry.	190	*	100
W.	WW.	interport to the cost west, one for	200	3.66	39.	826	特任	2.81	227	3.66	100	900	841	89	0/7	7.08	0.5	-80
uri.	hope 10	Coloring market N. We see	100	200	(3/94	19,21	100	1000	15mi	(5.9)		inst.	Min.	14644	Settors	1491	Per	16.9
die	94	Contingent of the Contingent o	104	3,6	150	2.26	松竹	36/6	683	5.07	1971	100	rdy.	100	107	140	100	10
4.00	PACES NOT	a strategy of transmission.	49	5.736	136	20.05	1935	3,95	505	234	0.77	40	581	0.5	By:	3.46	4291	30.0
904	Rend	NEW York NAME AND ADDRESS.	50	4,90		6.01	84	2.0	340	Adm	100	100	100	*	1177			100000
90	****	Distribution of Proceeding Contin-	4.00	(3.96	140	330	0.54	79.5	100	34.	jar.	114	100	700	16,96	66	1,67	1,646
4	Mary	Colorage is a colorage and					100	160	DO:	100	00	(40)	199	349	1201	240	129	159
	Property Goes	with files to some shall file B of fewel seat end Gold piles	100	100	46	380	10.55	331	164	300	664	100	160	444	1646	0.6	4.6	3.3
417	States in a	Command Englance, Letteral	4.50	11-06-	425	34.96	400	28.	738	480	414	900	746	1994	D.44	1.00	4.24	18.00
901	Smere.	Contribution Dell					9.17	(0.00)	3.00	7.36	3.00	-0.00	3.01	342	400	286	100	338
Gr.	Enough :	will their about 10 food many lotters and	34	194	1/40	16.50	148	4.65	3.35	28	1000	1100	. No.	190	24	11.5	C0000	10.7
dia.	Separation.	disco Mietro y suppliment in held Alfondos Balen					1 min	4.5	100	30.	10.00	de	11.00	***	1,04	3.6	20,18	3,036
eri.	Voce-	C. A. Minigar, Tarres Til et e Flager result, recent für Vinneter begreicht. Et vorsei- deut	190	300	241	1000	285	2.65	339	1.5	194	140	100	454	425	100	189	100
46	Vision	North stout times	3.9	0.00	164	38	525	400	400	4.0	HT	(14)	10	14 5 14	100	199	1,0%	32
4/10	1049																	
660	700600	About 450 to 1 of officer principal .		98.58	446	149	4,55	281	2.0	3.0	500	:48	411	100	1.60	286	1.66	1925
	Marie	of any MCC or Part of Affairs and America.	2.00	0.81	731	1997	130	3540	100	3.60	340	160	180	38	100	366	1/0	736
	astrone-																	
10.	766	Inglish and his									30906	100	1990	*(94)	water.			1
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44	94	Washington address of as the well-of-photos at a									100	-4	200	200	76.25	11.0	10.00	31.9
84	364	One for each energy of Street	100	and the second							1446	1.46	ou take	South State of	0.00	TURE		1.40

The range of water levels for the year 2018, measured from the area in and around New Majri UG to OC Area for pre-monsoon and post-monsoon periods are given as follows:

Table Depth to Water Level Range in buffer zone of New Majri UG to OC Mine

- actor - optimite material actor ac							
Pre monsoon period	Buffer zone (within 10 km)	2.85 m to 10.85 m					
May-June	Core Zone (within 3 Km)	7.70 m to 7.85 m					
Post monsoon period	Buffer zone	1.15 m to 10.45 m					
Oct-Nov	Core Zone	1.15 m to 4.55 m					

Table Water level Fluctuation in buffer zone of New Majri UG to OC Mine (m bgl)

Year	Min	Max	Average
2012	1.04	4.93	3.02
2013	1.60	5.25	3.52
2014	0.00	1.90	0.89
2015	0.35	3.00	1.51
2016	0.30	4.40	1.70
2017	0.15	4.50	1.61
2018	0.40	3.10	2.00

The ground water level monitoring data of observation wells in the buffer zone of New Majri UG to OC Mine for pre- monsoon and post-monsoon periods from 2015 to 2019 are presented in the previous sections.

2.4 Water Level Trend

To assess the water level trend hydrographs of two permanent observation wells fixed by WCL through CMPDI, RI-IV has been prepared based on pre-monsoon (May) and post-monsoon (Nov) water level data along with the annual rainfall (mm) of Bhadravati Tehsil from 2008 to 2017 as presented in **fig.1 & fig.2**.

The hydrograph of well M-14b in Majri village shows decreasing water level trends during both pre-monsoon and post-monsoon period and hydrograph of well M-16b in Kondha village shows more or less steady water level trends during both pre-monsoon and post-monsoon periods.

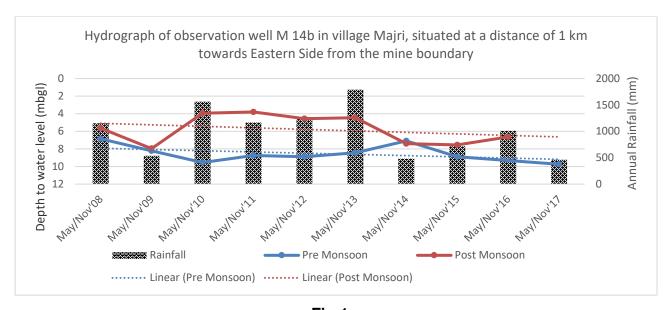


Fig.1

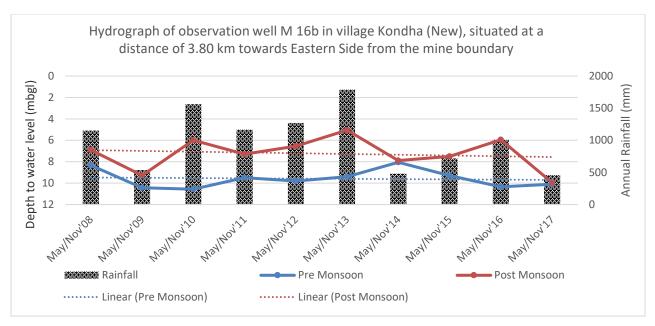


Fig.2

2.5 General Aquifer Parameters

The semi-confined/confined aquifer occurring at greater depth in Kamthis and Barakars is mostly tapped by shallow / deep tube wells. The tube wells located in the project area tapping the semi-confined aquifer in Kamthi and Upper Barakar formations down to a depth of about 100m have registered better yield ranging from 3 to 5 LPS. It may be appropriate to emphasis here that Lower Barakars overlapped directly by Kamthis is a better environment due to direct recharge / infiltration from the potential Kamthi formations.

No detailed hydrogeological investigations were carried out at New Majri UG to OC mine area. However, the aquifer parameters evaluated by CMPDI under UNDP Project at Bhadravati which is located in the eastern part of buffer zone have been considered and attributed to the study area. The projected hydraulic parameters of the aquifer in alluvium and Kamthi / Barakar formations are as follows:

Table Aguifer Parameters in the Study Area

Kamthi – 5.0 m/day
Barakar – 2.0 m/day
7.7 x 10 ⁻³ to 9.8 x 10 ⁻⁴
0.05 - 0.025

2.6 Groundwater Resources in the Area

Ground Water Resource Estimation (As Per Gec-2015) In The Buffer Zone

The ground water resource estimation has been done by using latest methodology i.e. GEC-2015 as given below:

Ground Water Draft

The groundwater withdrawal here is generally for irrigation, domestic and Mine use and is quantified as under.

Table Gross Groundwater Draft for 'All Uses'

	GROUNDWATER DRAFT	Monsoon (120 days)	Non- monsoon (245 days)	Total
		M m ³	M m³	M m³
1	Net irrigation use			
i.	Proportional quantity for 1570 Ha area	0.00	0.17	0.17
2	COMMUNITY USE			
i.	Projected population (i.e. 2025 AD) = 55601	0.32	0.66	0.98
ii.	Mine use (mine water & tubewell):			
1	New Majri UG to OC	0.03	0.06	0.09
	New Majri II A OC	0.12	0.24	0.36
	Kolar Pimpri OC	0.10	0.20	0.30
	Junad OC	0.05	0.10	0.15
	Total	0.30	0.60	0.90
	Sub-Total (2(i)+2(ii))	0.62	1.26	1.88
3	Net Annual Mine Discharge (M m³)	Monsoon	Non- monsoon	Total
i	New Majri UG to OC	0.51	1.05	1.56
	New Majri II A OC	0.83	1.69	2.52
	Kolar Pimpri OC	0.53	1.07	1.60
	Junad OC	0.41	0.85	1.26
Total	Mine Pumping in the Area	2.28	4.66	6.94
Mine	use	0.30	0.60	0.90
	discharge after mine use	1.98	4.06	6.04
	nine discharge in the area	1.98	4.06	6.04
	s Annual Groundwater Draft for 'All uses' iffer Zone	2.60	5.49	8.09

Ground Water Recharge:

<u>Table Rainfall Recharge in the study area by Rainfall Infiltration Method during Monsoon and Non-Monsoon Period</u>

	Non-Monsoon Period		
	Description of items		
1	Area	044	
	a. Sedimentary Area (km²)	314	
	i) Alluvium/Kamthi	284	
	ii) Lametas b. Hard Rock Area (km²)	30	
	i) Basalt	<u> </u>	
2	Average Rainfall (mm) during	1163.1	
_	a. Monsoon season rainfall (mm) (June to Sept)	1017.5	
	b. Non-monsoon season rainfall (mm) (Oct to May)	145.6	
	c. Minimum threshold value of rainfall (mm)	116.31	
	d. Maximum threshold value of rainfall (mm)	3000	
		Sedimentary	Hard Rock
3	Rainfall infiltration factor	Alluvium/Kamthi- 0.15 Lameta – 0.06	-
4	Rainfall recharge in the study area by rainfall infiltration factor method		
	a. Monsoon season (M m³) = $[(1) * {(2d)-(2c)} *(3)/1000]$ if $(2a) > (2d)$ = $[(1) * {(2a)-(2c)} * (3)/1000]$ if $(2a) <= (2d)$	40.01	
		Alluvium/ Kamth	i – 38.39
	i) Sedimentary	Lameta - 1	.62
		Total – 40	.01
	ii) Hard Rock	-	
	b. Non-monsoon season (M m ³) = Nil if (2b) <= (2c) = $[(1) * {(2b) - (2c)} * (3)/1000 \text{ if } (2b) > (2c)]$	1.30	
		Alluvium/ Kamtl	
	i) Sedimentary	Lameta - 0	
		Total – 1.	30
_	ii) Hard Rock	-	
	Gross Rainfall Recharge [a) + (b)]	41.31	

<u>Table Rainfall Recharge in the study area by Water Table Fluctuation Method during monsoon</u>

	Description of items	Sedimenta	ry
1	Area (km²)	Alluvium/Kamthi	Lameta
		284	30
2	Water table fluctuation (m)	2.61	1.07
3	Specific yield	0.04	0.025
4	Change in groundwater storage [(1) * (2) * (3)] (M m ³)	29.65	0.80
5	Total (M m³)	30.45	
6	Gross groundwater extraction for 'All Uses' during monsoon season (M m³)	2.60	
7	Recharge from 'Other Sources' during monsoon season (M m³)	0.46	
8	Gross Rainfall Recharge (M m ³) [(5) + (6)-(7)]	32.59	

<u>Table Rainfall Recharge during Monsoon season after comparing results from Water Table</u> Fluctuation Method and Rainfall Infiltration Factor Method during monsoon season

	Description of items	Quantity	
1	Rainfall Recharge during monsoon season		
	a. By Water Table Fluctuation Method (M m ³)	32.59	
	b. By Rainfall Infiltration Factor Method (M m ³)	40.01	
2	Difference between (1a) and (1b) expressed as a percentage of (1b), 'PD' $ PD = \frac{[(1a)-(1b)]}{(1b)}*100 $	-18.54%	
3	Rainfall Recharge in the study area during monsoon season after considering the 'PD'		
	[= (1a) if 'PD' is between -20 and +20%	32.59	
= 0.8 * (1b) if 'PD' is less than -20%			
	= 1.20 * (1b) if 'PD' is greater than +20%]		

Table Net Groundwater Availability in the study area

	Description of items	M m ³
1	Rainfall Recharge in the study area	
	a. During Monsoon season (Rainfall Infiltration Method)	32.59
	b. During Non-monsoon season (Rainfall Infiltration Method)	1.30

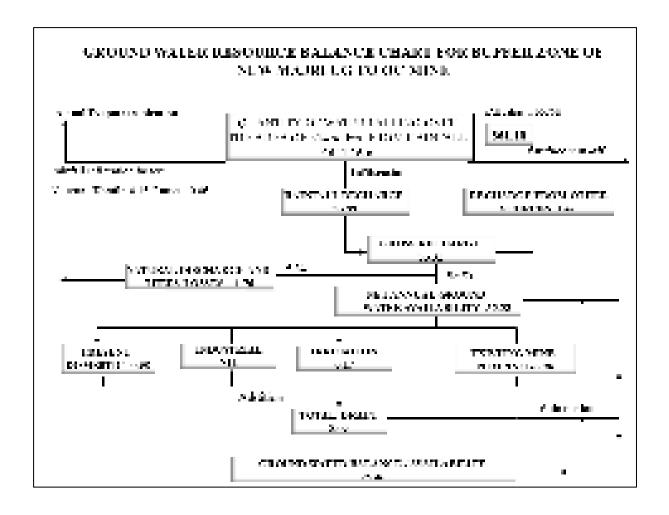
	c. Annual [(1a) + (1b)]	33.89
2	Recharge from 'Other Sources'	
	a. During Monsoon season	0.46
	Return flow from Excess mine water [20% as seepage factor]	0.40
	Recharge through water bodies in the area	0.06
	b. During Non-monsoon season	0.96
	Return flow from Irrigation [20 % of Irrigation Draft]	0.03
	Return flow from Excess mine water [20% as a seepage factor]	0.81
	Recharge through water bodies in the area	0.12
	c. Annual [(2a) + (2b)] M m ³	1.42
3	Are Environmental Flows assessed (Yes/No)	No
4	Total Annual Groundwater Recharge [(1c) + (2c)]	35.31
5	Environmental flows in (M m³)	1.76
	a. [0.05 * (4)] if response to (3) is "NO" and rainfall recharge during monsoon season computed by 'Water table Fluctuation Method'	1.76-
	b. [0.10 * (4)] if response to (3) is "NO" and rainfall recharge during monsoon season is "NOT" computed by 'Water table Fluctuation Method'	-
6	Net Annual Groundwater Availability in the study area $[(4) - (5)] \text{ M m}^3$	33.55
7	Annual Gross Groundwater Draft for all uses in the study area	8.09
8	Balance Available Annual Groundwater Recharge (Net Annual Groundwater Availability – Gross Annual Groundwater Draft)	25.46

Table Stage of Groundwater Extraction in the study area

Description of items	Buffer Zone
1. Net Groundwater Availability (M m ³)	33.55
2. Annual Gross Groundwater Draft (M m³)	8.09
3. Balance Available Annual Groundwater Recharge (M m³)	25.46
4. Stage of Groundwater Extraction	24.11%

The present stage of ground water extraction in and around the project area is 24.11% which can be categorized as safe area. As per CGWB, Central Region, Nagpur the 'Stage of ground water extraction' in Bhadravati tehsil, in which mine is located is 10.37%.

Ground water resource balance flow diagram is furnished below



2.7 Groundwater Quality

The groundwater quality in the area is being monitored regularly (once in a year) by WCL through CMPDI, an ISO-9001 company and the results indicate the groundwater does not contain any toxic elements for drinking as per BIS 10500:2012 drinking water standards. Generally, the water quality is slightly alkaline in nature with pH value ranging from of 7.0 to 7.4 with low to high concentration of total dissolved solids (TDS) i.e. 383 mg/l to 1390 mg/l though it is within the permissible limit of 2000 mg/l. The concentration of fluoride ranges from 0.56 mg/l to 0.86 mg/l which is within the desirable limit of 1.5 mg/l and the concentration of nitrates varies from 17 mg/l to 44 mg/l which is also under the desirable limit of 45mg/l. Normally, the coal mining activity does not induce any unwanted chemical or elements into the groundwater except for total suspended solids (TSS). Ground water quality analysis data (2018-19) is given table below:

Table Groundwater Quality at Mairi and Wislon

				Analysis Sampling Code, Le	Result	Standard (IS : 10500 : 2012)	
SI. No	Parameters	Test Method	Limits of Detection	MAJRI, M-14B 27.11.2018	WISLON, M-7 27/11/2018	Desirable limit	PLV in the absence of alternate source
1	Colour Hz)	IS 3025 /04:1983,Platinum Cobalt	1	1	1	5	15
2	Odour	IS 3025 /05:1983,Physical , Qualitative	Qualitative	Agreeable	Agreeable	Agreeable	Agreeable
3	Turbidity (NTU)	IS-3025/10:1984 Nephelometric	1.0	2	2	1	5
4	pH Value	IS-3025/11:1983 Electrometric	0.2	7.40	7.40	6.5 to 8.5	No relaxation
5	Total Hardness as	IS-3025/21:2009 EDTA	4.0	288	336	200	600
6	Iron -mg/l	IS-3025/53:2003 AAS-Flame	0.06	BDL	BDL	0.3	No relaxation
7	Chlorides - mg/l	IS-3025/32:1988, Argentometric	2.0	404	280	250	1000
8	Residual Chlorine -mg/l	APHA, 22 nd Edition	0.02	BDL	BDL	0.2	1
9	Fluoride- mg/l	APHA, 22 nd Edition	0.02	0.58	0.81	1.0	1.5

		Test Method	Limits of Detection	Analysis Result Sampling Code, Location & Sample collection date			(IS : 10500 : 012)
SI. No	Parameters			MAJRI, M-14B 27.11.2018	WISLON, M-7 27/11/2018	Desirable limit	PLV in the absence of alternate source
10	TDS -mg/l	IS-3025/16:1984 Gravimetric	25.0	383	870	500	2000
11	Calcium -mg/l	IS-3025/40:1991 EDTA	1.6	29	40	75	200
12	Magnesium - mg/l*	APHA, 22 nd Edition- Calculation	3	53	58	30	100
13	Copper -mg/l	IS-3025/42:1992 AAS-Flame	0.03	BDL	BDL	0.05	1.5
14	Manganese - mg/l	IS-3025/59:2006 AAS-Flame	0.02	0.040	BDL	0.1	0.3
15	Sulphate -mg/l	APHA, 22 nd Edition	2.0	15	192	200	400
16	Nitrates - mg/l	APHA, 22 nd Edition UV-Spectrophotometric	0.5	17	41	45	No relaxation
17	Cadmium - mg/l	APHA, 22 nd Edition	0.0005	BDL	BDL	0.003	No relaxation
18	Lead -mg/l	APHA, 22 nd Edition	0.005	BDL	BDL	0.01	No relaxation
19	Selenium – mg/l*	APHA, 22 nd Edition	0.005	BDL	BDL	0.01	No relaxation
20	Total Arsenic - mg/l*	APHA, 22 nd Edition	0.005	BDL	BDL	0.01	0.05
21	Zinc -mg/l	IS-3025/49:1994 AAS-Flame	0.01	BDL	BDL	5	15
22	Total Chromium -	IS 3025 (Part 52) : 2003 AAS-Flame	0.01	BDL	BDL	0.05	No relaxation
23		APHA, 22 nd EditionCarmine	0.2	BDL	BDL	0.5	1.0
24	Alkalinity -mg/l	IS-3025/23:1986, Titration	4.0	440	480	200	600
25	Nickel-mg/l	IS 3025 (Part 54) : 2003, AAS-Flame Method	0.02	BDL	BDL	0.02	No relaxation
26	Aluminum - mg/l*	APHA, 22 nd Edition	0.03	BDL	BDL	0.1	0.2

Table Groundwater Quality at Naglon and Telwasa Village

		rable Groundw		Analysis Result Sampling Code, Location & Sampl collection date		Standard	(IS : 10500 : 012)
SI. No	Parameters	Test Method	Limits of Detection	NAGLON, M-10 27.11.2018	TELWASA, M-34A 26.11.2018	Desirable limit	PLV in the absence of alternate source
1	Colour Hz)	IS 3025 /04:1983,Platinum Cobalt	1	3	3	5	15
2	Odour	IS 3025 /05:1983,Physical, Qualitative	Qualitative	Agreeable	Agreeable	Agreeable	Agreeable
3	Turbidity (NTU)	IS-3025/10:1984 Nephelometric	1.0	2	2	1	5
4	pH Value	IS-3025/11:1983 Electrometric	0.2	7.3	7.00	6.5 to 8.5	No relaxation
5	Total Hardness as CaCO ₃ -mg/l	IS-3025/21:2009 EDTA	4.0	860	340	200	600
6	Iron -mg/l	IS-3025/53:2003 AAS-Flame	0.06	BDL	<0.06	0.3	No relaxation
7	Chlorides - mg/l	IS-3025/32:1988, Argentometric	2.0	328	80	250	1000
8	Residual Chlorine -mg/l	APHA, 22 nd Edition	0.02	BDL	BDL	0.2	1
9	Fluoride- mg/l	APHA, 22 nd Edition	0.02	0.74	0.86	1.0	1.5
10	TDS -mg/l	IS-3025/16:1984 Gravimetric	25.0	1390	610	500	2000
11	Calcium -mg/l	IS-3025/40:1991 EDTA	1.6	72	96	75	200
12	Magnesium - mg/l*	APHA, 22 nd Edition- Calculation	3	73	24	30	100
13	Copper -mg/l	IS-3025/42:1992 AAS-Flame	0.03	BDL	BDL	0.05	1.5
14	Manganese - mg/l	IS-3025/59:2006 AAS-Flame	0.02	BDL	BDL	0.1	0.3
15	Sulphate -mg/l	APHA, 22 nd Edition	2.0	132	110	200	400
16	Nitrates - mg/l	APHA, 22 nd Edition UV-Spectrophotometric	0.5	43	44	45	No relaxation
17	Cadmium - mg/l	APHA, 22 nd Edition	0.0005	BDL	BDL	0.003	No relaxation
18	Lead -mg/l	APHA, 22 nd Edition	0.005	BDL	BDL	0.01	No relaxation

19	Selenium – mg/l*	APHA, 22 nd Edition	0.005	BDL	BDL	0.01	No relaxation
20	Total Arsenic - mg/l*	APHA, 22 nd Edition	0.005	BDL	BDL	0.01	0.05
21	Zinc -mg/l	IS-3025/49:1994 AAS-Flame	0.01	BDL	BDL	5	15
22	Total Chromium -	IS 3025 (Part 52) : 2003 AAS-Flame	0.01	BDL	BDL	0.05	No relaxation
23	Boron -mg/l	APHA, 22 nd EditionCarmine	0.2	BDL	BDL	0.5	1.0
24	Alkalinity -mg/l	IS-3025/23:1986, Titration	4.0	340	204	200	600
25	Nickel-mg/l	IS 3025 (Part 54) : 2003, AAS-Flame Method	0.02	BDL	BDL	0.02	No relaxation
26	Aluminum - mg/l*	APHA, 22 nd Edition	0.03	BDL	BDL	0.1	0.2

The water analysis from the regular monitoring & additional monitoring present the similar picture with all the parameters within the permissible limits.

2.8 Impact of Mining on Water Regime

The mining activity creates dis-equilibrium in environmental scenario of the area and disturbs the groundwater conditions/regime in particular. The impact on water regime due to mining activity can be broadly classified as under:

- i) Impact on topography & soil
- ii) Impact on surface water and quality
- iii) Impact on groundwater & quality

A brief description/out-line on these aspects is given below:

Impact on topography & soil

A local change in ground topography has been created at project area due to mining operations such as open pit, embankments, dumps of overburden and coal. As a result, there might be marginal change in the drainage and surface run-off. During these courses, soil is more susceptible for changes due to erosion, leaching phenomena/process etc. Further the fine dust particles of coal & overburden may adversely affect the porosity of soils. The external dumps will result in silting on soils and local drains thereby marginal change in topography and drainage of the area.

Within the core zone area, cracks and loosening of soil has occurred due to mining and associated activities such as drilling, blasting etc. thereby resulting in physical/textural changes in soil/formations. This mine-induced process increases the rate of infiltration and recharge. So also the backfilled area may be a good media for high groundwater recharge due to high-induced permeability. These mine-induced effects may change the surface run-off in the core zone area resulting in a difference in hydrological regime of local drains.

It may be appropriate to highlight the fact that temporary groundwater loss/deficit created during active mining stage would be compensated by these different means in the post mining stage so that the initial groundwater levels are regained to normalcy at the earliest for the utility of the area.

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It may be appropriate to highlight the fact that temporary groundwater loss/deficit created during active mining stage would be compensated by these different means in the post mining stage so that the initial groundwater levels are regained to normalcy at the earliest for the utility of the area.

Impact on surface water & quality

As mentioned earlier, there is a minor change in the ground topography and infiltration capacity/rate of soil/formation due to mining operations resulting in some local change in drainage pattern and surface run-off in core zone. It is established that high infiltration zone serve as good media for high groundwater recharge and reduces the surface run-off considerably in the core zone. In view of this, the mine has to handle more water in the monsoon besides the additional contribution from the surface run-off from the catchment area. As such the surface run-off contribution to the natural drains from the mining area has been reduced / minimized thereby some minor change is expected in hydrologic regime of the river system.

Impact on Wardha River:

In general, mining of coal by **open cast method** causes changes in topography. The change of ground relief in a mine area influences the local drainage. This may alter the drainage at the micro level.

In the subject case, Wardha River flows at a distance minimum distance of 175 m from the quarry surface and around 1.4 km from the quarry center in the down dip side of the mine. The south-easterly flowing Wardha River is the major drainage and perennial source of water for the area.

Part of Mine lease hold area of New Majri UG to OC mine comes under the watersheds of Koradi Nala and Shirnai nadi at the downstream part of both watersheds. Only about 0.97 sq.km and 2.098 sq. km of the Koradi nala and Shirnai nadi watersheds (which ultimate drains the water to Wardha River) intersects the concerned mine leasehold area respectively. However the total area of Koradi nala and Shirnai nadi watersheds is about 33.07 sq.km and 278.58 sq.km respectively. Mine leasehold area that lie within the Koradi Nala and Shirnai Nadi micro-watershed area constitutes only 2.93% and 0.75% of the respective micro-watersheds. The detailed morphometric analysis is given below (also included in EIA-EMP report):

Morphometric analysis of Micro-Watershed of Koradi Nala and Shirnai Nadi (part of Shirnai nadi before it joins Konda nala). Drainage plan of the buffer zone of mine (10km radius) and location of the micro-watersheds is shown below:

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Basic morphometric analysis of the Koradi Nala micro water shed

	Attributes		Stream Order				
Micro Watershed	Attributes		II	III			
	Number of streams	23	3	1			
	Stream length (km)	19.62	7.20	9.54			
	Cumulative stream length (km)	19.62	26.82	36.36			
	Mean Stream Length (km)	0.85	2.40	9.54			
Koradi Nala	Bifurcation Ratio	7.67	3				
	Mean Bifurcation Ratio	5.34					
	Area (sq.km)		33.07				
	Stream Frequency	0.82					
	Drainage Density						

Basic morphometric analysis of the Shirnai Nadi micro water shed

basic morphometric analysis of the Similar Hadi micro water shed								
Micro	Attributes	Stream Order						
Watershed	Allributes		П	III	IV	V		
	Number of streams	146	29	8	3	1		
	Stream length (km)	179.66	54.34	54.41	12.59	14.56		
Shirnai Nadi	Cumulative stream length (km)	179.66	234.00	288.41	301.00	315.56		
	Mean Stream Length (km)	1.23	1.87	6.80	4.20	14.56		
	Bifurcation Ratio	5.03	3.62	2.67	3			

Mean Bifurcation Ratio	3.77
Area (sq.km)	278.58
Stream Frequency	0.67
Drainage Density	1.13

Mine leasehold area that lie within the Koradi Nala and Shirnai Nadi micro-watershed area constitutes only 2.93% and 0.75% of the respective micro-watersheds. Moreover, excess mine pumped out water after proper treatment would be discharged to these nala which will be ultimately discharged to Wardha River. Hence, there would be a marginal impact on surface water of Wardha River.

Impact on groundwater & its quality

Mining is associated with groundwater problems, particularly when it is below water table. The impact of mining on groundwater is dependent mainly on mine and aquifer parameters, groundwater recharge-discharge process etc. In opencast mining, the unconfined aquifer gets affected more whereas the semi-confined aquifers are least affected due to continuous gravity drainage and conventional sump pumping or advance dewatering schemes for efficient and safe working. As such, during this exercise, basically the water level is to be depressed /depleted below the working seam depth in which case large scale mine water pumping cannot be avoided. Consequently the mine dewatering drain out some area around the mine with decline in groundwater levels. However, these mine-induced effects are temporary. Further, the mine effluent would contaminate the other resources of water if discharged untreated The water quality monitoring would be continued at the stipulated intervals during mine development.

Groundwater inflow has been estimated and the groundwater monitoring is undertaken as corrective measure to avoid adverse effects. The artificial recharge by water conservation structures in mine influence area proper may not be a viable solution because of the reason that recharged water would drain to the mine at a faster rate due to the steep hydraulic gradients resulted in during mining activity. As mentioned earlier the mine impact is for temporary period during mine life and the area would regain the normalcy/benefits in many ways by appropriate reclamation measures during post-mining period. However, the water

shortage in the mine influence area would be supplemented from the treated mine water discharge for both domestic & irrigation use of affected villages if any.

2.9 Ground Water Management Plan

Augmentation of groundwater recharge potential

To minimize the impact of mining on ground water system, the project/mine authority has been adopting all possible measure to increase the ground water recharge potential.

Roof Top Rainwater harvesting exists at: 1) Coal testing Lab, 2)Vocational Training Centre Building(VTC), 3)Majri Area Hospital 4) Area GM office building and 5) Kendriya Vidyalaya, WCL, New Majri. In addition to these measures there exists artificial recharge through structures such as an artificial recharge Pond (Near NMUG Coal stockyard/ Railway Siding Back side).

The photographs of above mentioned Roof-top Rainwater Harvesting and artificial recharge structures is given as follows:



ROOF TOP RAINWATER HARVESTING AT COAL TESTING LAB (ROOF TOP AREA 150m²)



VTC MAJRI AREA (ROOF TOP AREA 200 m²)



ROOF TOP RAINWATER HARVESTING AT VTC



RECHARGE PIT AT VTC



MAJRI AREA HOSPITAL (ROOF TOP AREA-2250 m²)



ROOF TOP RAINWATER HARVESTING AT MAJRI AREA HOSPITAL





ROOF TOP RAIN WATER HARVESTING AT KENDRIYA VIDYALAYA, WCL, NEW MAJRI, MAJRI AREA (ROOF TOP AREA-2000 m²)



ARTIFICIAL RECHARGE POND NEAR NEW MAJRI UG COAL STOCKYARD (DIMENSION-88 m x 18 m x 1.2 m)

Status of Application for issue of NOC to Abstract Ground Water:

In order to obtain NOC from CGWA, for ground water abstraction from New Majri UG to OC Mine, application for the same has been made via application no. 21-4/509/MH/MIN/2016 on 13.12.2016. The application has been duly recommended for grant of NOC by Regional Office, CGWA. The NOC for groundwater abstraction of 4293 m3/day from New Majri UG to OC mine has been issued vide NOC number CGWA/NOC/MIN/ORIG/2020/7125 with validity upto 08-01-2022.

Chapter 3

FLORA FAUNA ANALYSIS

3.1 Flora & Fauna

Study of the biological environment is one of the most important aspect. This again has a special importance in case of mining project due its location. Mining leases and surrounding area are mostly located in the Agricultural Land, minor Forest area, Commercial area, Habitations and water body. The biological communities are good indicators of climatic and edaphic factors. It is important to conserve natural flora and fauna of an area. In the present study, mainly terrestrial ecosystem has been considered.

Primary survey was under taken in the Core zone and Buffer Zone in the year 2016.

The objectives of this study are as follows:

- > To conduct brief study in cultivated and naturally occurring species in the core and buffer zone.
- > Survey of terrestrial & aquatic flora and fauna for core and buffer zone.
- > Survey of flora covering types e.g. agricultural crops, commercial crops, natural vegetation/forest types, grass lands.
- > Survey of species protected by specific legislation (Rare, endangered, critically endangered, endemic and vulnerable).
- > To identify locations and features of ecological significance.
- > To generate secondary information with the help of public consultation for assessment of flora / fauna /avifauna and other life forms for different activity phases in the study area.

3.2 Activities Undertaken During The Study

1. Flora survey

- Identification and enumeration of different plant species such as Tree, shrub, herb, climber and grasses.
- Diversity assessment for different plant species
- Analysis of Rare-Endangered-Threatened flora
- 2. Fauna survey
- Documentation of Avian, Reptilian, Insect, Amphibian, Mammal and other faunal diversity

- Observations by direct and indirect evidences (Direct evidence- Sighting and hearing, Indirect evidence- Tracks and signs, nests, feathers/ hairs, Pellets/ scats and other signs
- Analysis of Scheduled species
- 3. Habitat/microhabitat diversity in the project site and surrounding areas within 10 km range from the site.

3.3 Survey Limitation

The survey recorded the flora and fauna evident during site visit and field survey. It does not record any flora or fauna that may appear at other times of the year, and as such, were not evident at the time of the visit. The report represents ecological status of the area evident during the period of the study.

The survey team has tried to collect the secondary information for the species which are not observed during site visit but can see in the study area through public consultation.

Methodology of the Study:

Survey is conducted in the core zone as well as buffer zone of the project. Methodology of the survey is described as below:

Flora Survey

Identification of vegetation in relation to natural forest flora and croplands is conducted through reconnaissance field surveys and insight observations. The plant species identification is done based on the morphological characteristics and reproductive materials i.e. flowers, fruits and seeds. Land use pattern in relation to agriculture practices and crop verities are identified through physical verification of farmlands.

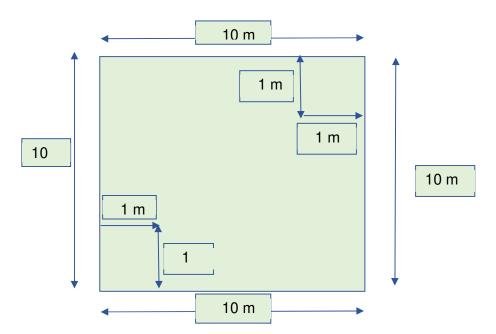
Natural vegetation, invaded species, avenue trees, home garden plants, hedge vegetation of agriculture fields, plants present in the ponds, rivers are noted down. Identity of the herbs, climber, and trees are confirmed using the regional floras. Local names of trees are collected from the villagers. Photograph of the study locations are taken. Latitude and longitude of the location are also recorded.

Co-existence and competition both are affected directly by the number of individuals in the community. Therefore, it is essential to know the quantitative structure of the community. To characterize the community as a whole, certain derived parameters (Density and

Biodiversity Simpson index) which give a clear picture of community structure in quantitative are used.

Secondary data and local names of species are collected from the villagers.

Sampling Technique: A simple stratified random sampling technique was adopted for carrying out ecological sampling in the Core and Buffer zone of the project sites. Sample plots of uniform size 10 X 10 m were laid to enumerate and measure trees and shrub species. Sub plots of 1X1 m were laid diagonally opposite to the main plots to enumerate shrub and grass species. A total number of 16 sample plots (including core and buffer zone) of 10 X 10 m size were laid to assess the vegetation of area. In each sample plots, height and girth of the tree species are measured. A conservative approach was followed to consider pre-project trees, wherein all the vegetation type having girth more than 10 cm were considered as trees, while vegetation less than or equal to 10 cm girth were considered as shrubs. All the tree species data i.e. scientific name, girth class, height and presence of any rare and endangered species were collected from the three strata in a standard format. The herbs, shrubs and grass species were also gathered from the sample plots.



Fauna Survey

The survey is carried out during early hours of morning and late hours of evening time. In the Evening, we observed the insects available in the study area. To assess the potential of the area as habitat of avian fauna, transects method is used. Birds, Insects and Butterflies were observed by walking carefully through transect. A single observer walks at a constant pace using Binocular. Birds either flying or perched were recorded.

Avian fauna (Bird species) identification has been done from ornithological notes and pictorial descriptions of various authors.

Faunal elements of core and buffer zone were assessed from direct sightings and indirect evidences viz. pug marks, skeletal remains and droppings. The authenticity of occurrence of faunal elements was confirmed by interacting with locals about their presence in the project area. Information pertaining to the local ecology and species of high conservation importance, migratory corridors and wild animal paths were gathered by interacting with locals. The status of each faunal species recorded from the project areas were ascertained as per schedules of Indian Wildlife (Protection) Act, 1972.

Biodiversity Study

Species diversity is one of the efficient ways to analyze community structure. Biodiversity of flora in the core zone and buffer zone were carried out with the help of quadrate sampling by using Simpson's index. Simpson diversity Index takes in to account the density of individual species.

Simpson's Diversity Index is a measure of diversity which takes into account the number of species present, as well as the relative abundance of each species. As species richness and evenness increase, so diversity increases. With this index, 1 represents infinite diversity and 0, no diversity

Simpson index of biodiversity (D) = 1- C

Where
$$C = \sum_{i=0}^{n} \left(\frac{n}{N}\right)^2$$

D = Simpson's index of Diversity

 \mathbf{n} = the total number of organisms of a species,

N = the total number of organisms of all species

The value of this index also ranges between 0 and 1, and the greater the value, the greater the sample diversity.

Comparison of floral biodiversity between core zone and buffer zone is given table below:

Core Zone Quadrant 1: (20°07'39.8"N: 079° 01'05.5"E)

SI.	Species -	Species (Scientific	No	Stem	Height in	
No	Common	name)	of	circumference	meter	
	name		trees	(DBH in cm)		
1	Sesam	Dalbergia sissoo Roxb.	1	80	4.5	
2	Yellow	Cassia siamea Lam.	3	80-100	9-12	
	cassia					
Tot	al	1	4			
Climber/herbs/grasses/tree saplings				NA		
1	Indian	Calotropis gigantea (L.)	1		1.5	
	madder	R.Br.				
2	American	Hyptis suaveolens (L.)	10		1	
	Mint	Poit				
3	Wild sage	Lantana camera L.	5		2	
4	Mesquite	Prosopis juliflora (Sw.)	2		1.5-2	
		DC.				
	Majri co	re zone		Em-		
(20°07'39.8"N; 79°01'05.5"E)						



Quadrant 2 (20°07.367N; 079° 01.125E) Cotton, Red gram cultivation (Weeds and marginal flora)

SI.	Species -	Species (Scientific	No	Stem	Height in
No	Common	name)	of	circumference	meter
	name		trees	(DBH in cm)	
1	Jangli	Moringa concanensis	2	50 -110	6-8
	sargua	Nimmo ex Dalzell &			
		A.Gibson			
Tota	al		2		
Clin	nber/herbs/gra	asses/tree saplings		NA	NA
1	Petari	Abutilon indicum (L.)	6		
		Sweet			
2	Kusal	Alternanthera ficoidea	4		
		(L.) P. Beauv.			
3	Farid buti	Cocculus hirsutus (L.)	1		
		Diels			
4	Sahadevi	Cyanthillium cinereum	6		
		(L.) H.Rob			
5	Alay	Mimosa hamata Willd.	1		
6	Kakajanga	Peristrophe bicalyculata	8		
		(Retz.) Nees			
7	Sharpunka	Tephrosia purpurea (L.)	4		
		Pers			
	AND RESIDENCE OF THE PARTY OF T	the product of the second state of the second	And the second of the	sendant makes the man in the con-	



Quadrant 3 (20°07.484N; 079° 00.994E) Cotton cultivation

(Weeds and border vegetation)

S. No	Species - Common name	Species (Scientific name)	No of trees	Stem circumference (DBH in cm)	Height in meter
1	Neem	Azadirachta indica A. Juss.	1	220	11
	Ber	Ziziphus mauritiana Lamk.	1	10	2
	Total		2		
Clin	nber/herbs/gra	asses/tree saplings		NA	NA
1	Chir chita	Achyranthus aspera L.	5		
2	Kusal	Alternanthera ficoidea (L.) P. Beauv.	4		
3	Pigeon pea	Cajanus cajan. (L.) Millsp.	5		
4	Sahadevi	Cyanthillium cinereum (L.) H.Rob	6		
5	Karpas	Gossypium hirsutum L	4		
6	Kali Tulasi	Ocimum americanum L.	6		
7	Kakajanga	Peristrophe bicalyculata (Retz.) Nees	6		
8	Til	Sesamum orientale L.	4		
9	Kanphuli	Tridax procumbens L.	2		
			42		



Buffer Zone

Quadrant 1 (20°08.703N; 079° 00.921E)

Village plantation

S.	Species -	Species (Scientific	No	Stem	Height in
No	Common	name)	of	circumference	meter
	name		trees	(DBH in cm)	
1	Imli	Tamarindus indicus	1	350	13
	Total		1		



Quadrant 2 (20°08.645N; 079° 00.849E)

Commercial crop

S. No	Species - Common name	Species (Scientific name)	No of trees	Stem circumference (DBH in cm)	Height in meter			
1	Amla	Phyllanthus emblica L.	1	95	9			
			1					
Culti	Cultivation							
1	Turmeric	Curcuma longa L.	5		1			



Quadrant 3 (20°08.764N; 079° 01.000E)

Field margin vegetation

S. No	Species - Common name	Species (Scientific name)	No of trees	Stem circumference (DBH in cm)	Height in meter
1	Subabul	Leucaena leucocephala (Lam.) deWit	1	25-30	5-6
	Arni	Clerodendrum phlomidis L. f.,	2	15	5
	Total		3		
Clin	nber/herbs/g	rasses/tree saplings		NA	
1	Atibala	Abutilon indicum L.	4		2
2	Chir chita	Achyranthus aspera L.	6		1
3	Farid buti	Cocculus hirsutus (L.) Diels	1		
4	Sahadevi	Cyanthillium cinereum (L.) H.Rob	4		
5	Karpas	Gossypium hirsutum L	4		
6	Kakajanga	Peristrophe bicalyculata (Retz.) Nees	6		
7	Mesquite	Prosopis juliflora (Sw.) DC.	1		4
8	Castor	Ricinus communis L.	2		2
9	makoy	Solanum americanum Mill.	4		
10	Giloy	Tinospora cordifolia (Willd.) Miers	1		
11	Wild snake guard	Trichosanthes cucumerina subsp. cucumerina	1		
			34		



Quadrant 4 (20°10.953N; 079° 00.301E)

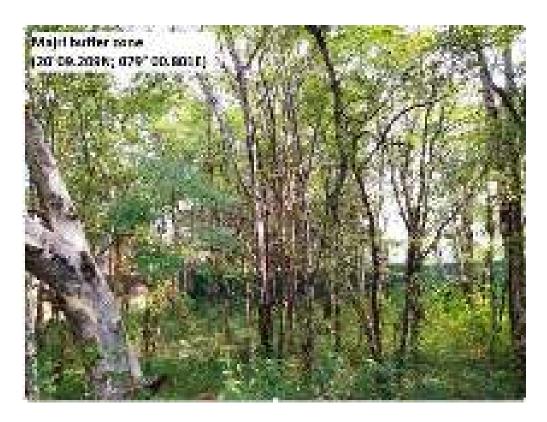
S. No	Species - Common name	Species (Scientific name)	No of trees	Stem circumfere nce (DBH in cm)	Height in meter
1	Karanj	Pongamia pinnata (L.) Pierre	1	10	1.5
2	Seemal	Salmalia malabarica (DC) Schott &Endl.	1	160	10
3	Ber	Ziziphus mauritiana Lamk.	1	10	1
	Total		3		
Clin	nber/herbs/gras	sses/tree saplings		NA	NA
1	Chir chita	Achyranthus aspera L.	5		
2	Kokilaksha	<i>Barleria longifolia</i> L	12		
3	Obscura morning glory	<i>Ipomoea obscura</i> (L.) Ker Gawler	1		
4	Brazilian jute	Malachra capitata (L.) L	6		
5	Babchi	Psoralea corylifolia Linn.	7		
6	kharmor	Rungia repens (L.) Nees	4		
7	Panwar	Senna tora (L.)Roxb.	10		
8	One leaf senna	Senna uniflora (Mill.)H.S.Irwin & Barneby	4		

9	Camel bush	Trichodesma zeylanicum (Burm. fil.) R. Br.	2	
			51	



Quadrant 5 (20°09.209N; 079° 00.801E)

S.	Species -	Species (Scientific	No	Stem circumference	Height in
No	Common	name)	of	(DBH in cm)	meter
	name		trees		
Culti	vation				
1	Three lobe	Malvastrum	6		
	false	coromandelianum			
	mallow	(L.) Garcke			
2	Grass	Oplismenus	3		
		compositus (L.)			
		P.Beauv.			
3	Kakajanga	Peristrophe	2		1
		bicalyculata (Retz.)			
		Nees			
4	Wire weed	Sida acuta L.	8		
			19		



Quadrant 6 (20°07.778N; 078° 59.845E)

S. No	Species - Common name	Species (Scientific name)	No of trees	Stem circumference (DBH in cm)	Height in meter
1	White acacia	Acacia leucophloea (Roxb.) Willd.	1	10	2
2	Babul	Acacia nilotica (L.) Willd ex Delile	4	35-90	8-9
3	Paras	Butea monosperma (Lam.) Taub.	1	10	1
	Total		6		
Clir	nber/herbs/gra	asses/tree saplings		NA	
1	Petari	Abutilon indicum (L.) Sweet	9		1.5
2	Chir chita	Achyranthus aspera L.	4		1
3	Mauratian grass	Apluda mutica L.	12		
4	shivlinga	Bryonia laciniosa L.	2		4
5	American Mint	Hyptis suaveolens (L.) Poit	15		1.2
6	Obscura morning glory	Ipomoea obscura (L.) Ker Gawler	1		3
7	Wire weed	Sida acuta L.	7		
8	Panwar	Senna tora (L.)Roxb.	10		1
			60		



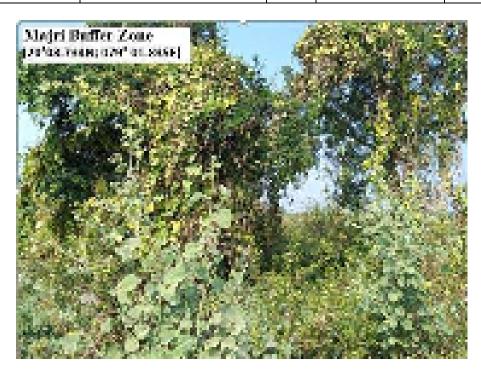
Quadrant 7 (20°08.740N; 079° 00.967E)

S. No	Species - Common	Species (Scientific name)	No of	Stem circumference	Height in meter
INO	name	riairie)	trees	(DBH in cm)	meter
1	Bargad	Ficus benghalensis L.	1	120	8
	-	_	1		



Quadrant 8 (20°08.734N; 078° 01.835E)

S. No	Species - Common name	Species (Scientific name)	No of trees	Stem circumference (DBH in cm)	Height in meter
1	Neem	Azadirachta indica A. Juss.	1	60	6
2	Arni	Clerodendrum phlomidis L. f.,	1	10	2
3	Jangli jilebi	Pithecellobium dulce (Roxb.) Benth	1	65	6
	Total		3		
Clin	nber/herbs/gra	sses/tree saplings		NA	
1	Petari	Abutilon indicum (L.) Sweet	7		1.5
2	Chir chita	Achyranthus aspera L.	7		1
3	Akash bel	Cassytha filiformis L.	4		
4	Ridged guard	Luffa acutangula (L.) Roxb.	3		5
5	Brazilian jute	Malachra capitata (L.) L	10		1.5
6	Three lobe false mallow	Malvastrum coromandelianum (L.) Garcke	6		
7	Bristly fox tail.	Setaria verticillata (L.) P. Beauv.	5		
8	Cocklebur	Xanthium strumarium L.	6		1
			48		



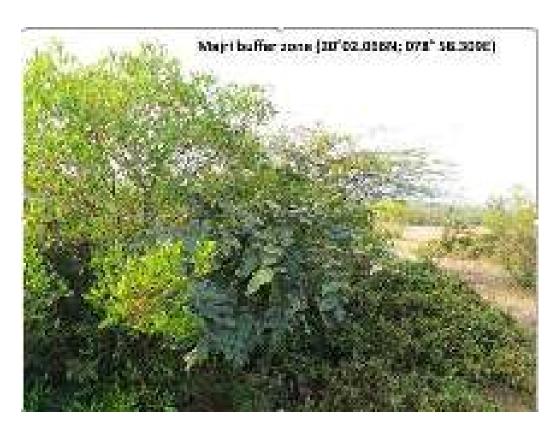
Quadrant 9 (20°02.335N; 078° 58.616E)

S.	Species -	Species (Scientific	No	Stem	Height in
No	Common	name)	of	circumference	meter
	name		trees	(DBH in cm)	
1	Tendu	Diospyros melanoxylon		20-30	2-3
		Roxb	_		
	Total		5		
		sses/tree saplings		NA	
1	Petari	Abutilon indicum (L.)	7		1.5
_		Sweet			
2	Chir chita	Achyranthus aspera L.	7		1
3	Chanothi	Aerva monsonia Mart.	5		
4	Blumea	Blumea axillaris(Lam.) DC.	4		
5	Kirma	Canthium	4	15	3
		coromandelicum			
		(Burm.f.) Alston			
6	Pala	Carmona retusa (Vahl)	2		1
		Masamune			
7	Sahadevi	Cyanthillium cinereum	10		
		(L.) H.Rob			
8	Sanatta	Dodonaea viscosa (L.)	3	10	1-2
		Jacq.			
9	Love grass	Eragrostis amabilis (L.)	25		
		Wight &Arn			
10	Vishnugranti	Evolvulus alsinoides (L.)	15		
11	Kokoray	Getonia floribunda Roxb.	10	10	2-3
12	Henkel	Gymnosporia	5	10-15	2
		senegalensis var.			
		spinosa Engl. ex Loes			
13	Ratan	Hybanthes	5		
	purush	enneaspermus (L.) F.			
		Muell.			
14	Wild sage	Lantana camera L.	3		2
15	Ban methi	Merremia tridentata (L.) Hall. fil.	4		
16	Red	Phyllanthus virgatus G.	5		
	bhuiamla	Forst.			
			114		



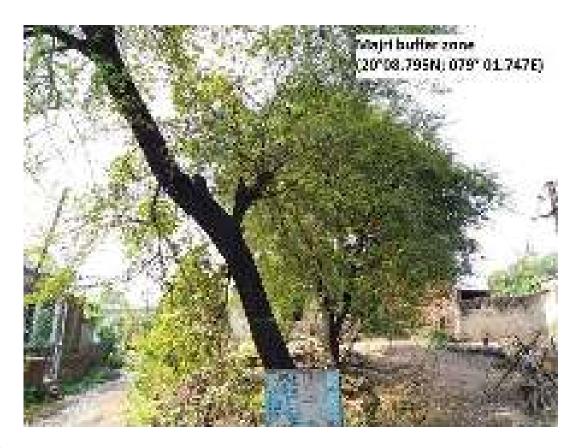
Quadrant 10 (20°02.066N; 078° 58.309E)

S. No	Species - Common name	Species (Scientific name)	No of trees	Stem circumference (DBH in cm)	Height in meter
1	Amaltas	Cassia fistula L.	1	30	3
2	Mesquite	Prosopis juliflora (Sw.) DC.	2	40	5
	Total		3		
Clin	nber/herbs/gra	asses/tree saplings		NA	
1	Kusal	Alternanthera ficoidea (L.) P. Beauv.	4		2
2	Kudaliya	Desmodium triflorum (L.) DC	4		
3	Love grass	Eragrostis amabilis (L.) Wight &Arn	10		
4	Vishnugranti	Evolvulus alsinoides (L.) L	15		
5	Kagner	Justicia procumbens L.	7	_	2
6	Bhui Gend	Lepidagathis cristata Willd	7	_	
7	Panwar	Senna tora (L.)Roxb.	10		
	_		57		



Quadrant 11 (20°08.795N; 079° 01.747E)

SI no	Species - Common name	Species (Scientific name)	No of trees	Stem circumference (DBH in cm)	Height in meter
1	Babul	Acacia nilotica (L.) Willd ex Delile	1	170	13
2	Karipattha	Murraya koenigii (L.) Spreng.	1	25	6
	Imli	Tamarindus indica L.	1	75	6
	Saguan	Tectona grandis L.	1	40	6
	Total		4		
Clir	nber/herbs/gra	asses/tree saplings		NA	
1	Kusal	Alternanthera ficoidea (L.) P. Beauv.			
2	Kanphuta	Cardiospermum halicacabum L			1
3	Kundru	Coccinia grandis (L.) Voigt			
4	Sahadevi	Cyanthillium cinereum (L.) H.Rob			
5	Malow	Malachra capitata (L.) L.			



Quadrant 12 (20°08.880N; 079° 00.119E)

S. No	Species - Common name	Species (Scientific name)	No of trees	Stem circumference (DBH in cm)	Height in meter
1	Hingota	Balanites aegyptiaca (L.) Del.	4	40 -60	4
	Total		4		
Clim	ber/herbs/gra	asses/tree saplings		NA	
1	Chir chita	Achyranthus aspera L	7		1
2	Kusal	Alternanthera ficoidea (L.) P. Beauv.	5		
3	Cow itch vine	Cissus trifoliata. (L.) L.	1		
4	Sponge guard	Luffa cylindrica (L.) M. Roem.	2		



Quadrant 13 (20°09.807N; 079° 00.573E) (Sapota cultivation)

S. No	Species - Common name	Species (Scientific name)	No of trees	Stem circumference (DBH in cm)	Height in meter
1	Chikoo	Manilkara zapota (L.) P.van Royen;	3	30 -40	3
	Total		3		
Clin	nber/herbs/gra	sses/tree saplings		NA	NA
1	Agnibuti	Ammannia baccifera L	4		
2	Kokilaksha	Barleria longifolia L	6		
3	Durva grass	Cynodon dactyon (L.) Pers	10		1
4	Sahadevi	Cyanthillium cinereum (L.) H.Rob	4		
5	Brazilian jute	Malachra capitata (L.) L	7		
6	Santa maria	Parthenium	7		
	fever few	hysterophorus L.			
7	Babchi	Psoralea corylifolia Linn.	7		
8	kharmor	Rungia repens (L.) Nees	4		
			49		



Simpson's Index of Biodiversity

Species diversity is one of the efficient ways to analyze community structure. Simpson diversity Index takes in to account the density of individual species.

Simpson's Diversity Index is a measure of diversity which takes into account the number of species present, as well as the relative abundance of each species. As species richness and evenness increase, so diversity increases. With this index, 1 represents infinite diversity and 0, no diversity

Simpson index of biodiversity (D) = 1- C

Where
$$C = \sum_{i=0}^{n} \left(\frac{n}{N}\right)^2$$

D = Simpson's index of Diversity

n = the total number of organisms of a species,

N = the total number of organisms of all species

The value of this index also ranges between 0 and 1, and the greater the value, the greater the sample diversity.

Comparison of floral biodiversity between core zone and buffer zone is given table below:

Table Biodiversity of the project

Zone	Quadrat Location	Simpson index of Biodiversity	% Simpson index of Biodiversity
	20°07'39.8"N; 079° 01'05.5"E	0.375	37.5
Core	20°07.367N; 079° 01.125E	0	0
	20°07.484N; 079° 00.994E	0.5	50
	20°08.703N; 079° 00.921E	0	0
	20°08.645N; 079° 00.849E	0	0
	20°08.764N; 079° 01.000E	0.44	44.44
	20°10.953N; 079° 00.301E	0.66	66.66
	20°09.209N; 079° 00.801E	0.5	50
	20°07.778N; 078° 59.845E	0.5	50
Buffer	20°08.740N; 079° 00.967E	0	0
	20°08.734N; 078° 01.835E	0.66	66.66
	20°02.335N; 078° 58.616E	0	0
	20°02.066N; 078° 58.309E	0.44	44.44
	20°08.795N; 079° 01.747E	0.75	75
	20°08.880N; 079° 00.119E	0	0
	20°09.807N; 079° 00.573E	0	0

The above shows that, biodiversity in core zone ranged between 0 - 0.5. Biodiversity in buffer zone ranged between 0 - 0.75. Buffer zone mostly comprises of agricultural fields and degraded forests. Higher value of biodiversity indicates abundance in variety of flora in the sampling area. Both buffer and core zone have abundance in variety of flora.

FLORA OF THE STUDY AREA

Flora of the project areas is classified in to Terrestrial and Aquatic flora.

Terrestrial Flora

Terrestrial flora consists of the following:

- (i) Agriculture crops cultivated (Cereals, Pulses, Vegetables) during rainy season (Kharif) and post rainy months of winter season (Rabi);
- (ii) Commercial Crops;
- (iii) Natural vegetation of Forest type includes endemic species/ endangered species.
- (iv) Plantations and Agro-forestry species and

(v) Grass lands

(i) AGRICULTURAL CROPS

Important categories of crops include cereals, pulses (legumes), fruits and vegetables. Cropping systems vary across farms depending on the available resources and constraints; geography and climate of the area. To a certain extent most of the agriculture activities are confined to Southwest monsoon period of June to September. Agriculture crops of study area are cultivated in backyards and farmlands during post-rainy months. A checklist of vegetables of the core and buffer zone are presented below in table.

Table List of Vegetables in the Core Zone

S.No	Botanical name	English	Common /Hindi	Name of
		name	name	class/Family
1	Capsicum annum L.	Chilly	Lalmirchi	Solanaceae
2	Cucurbita maxima Duch ex Lam.	Pumpkin	Kaddoo	Cucurbitaceae
3	Lagenaria siceraria (Molina) Standl	Bottle guard	Laukee	Cucurbitaceae
4	Luffa cylindrica (L.) M.Roem.	Spong gourd	Spanjlaukee	Cucurbitaceae
5	Lycopersicum esculentum L.	Tomato	Tamatar	Solanaceae
6	Rhapanus sativus L.	Radish	Moolee	Brassicaceae
7	Solanum melongena L.	Brinjal	Baingan	Solanaceae
8	Trichosanthes dioica Roxb.	Pointed guard	Parwal	Cucurbitaceae
So	urce: Field survey, Interacti	on with local	people	

Table List of Vegetables in the Buffer Zone

S.No	Botanical name	English name	Common /Hindi Name	Name of class/Family
1	Capsicum annum L.	Chilly	Lalmirchi	Solanaceae
2	Citrus limon (L.) Burm f	Lemon	Nimbu	Rutaceae
3	Cucurbita maxima Duch ex Lam.	Pumpkin	Kaddoo	Cucurbitaceae
4	Ipomoea batatas (L.) Lam.	Sweet potato	Shakarakand	Convolvulaceae
5	Lagenaria siceraria (Molina) Standl	Bottle guard	Laukee	Cucurbitaceae
6	Luffa cylindrica (L.) M.Roem.	Spong gourd	Spanjlaukee	Cucurbitaceae

7	Lycopersicum esculentum	Tomato	Tamatar	Solanaceae		
	L.					
8	Rhapanus sativus L.	Radish	Moolee	Brassicaceae		
9	Solanum melongena L.	Brinjal	Baingan	Solanaceae		
10	10 Trichosanthes dioica Roxb. Pointed guard Parwal Cucurbitaceae					
Source: Field survey, Interaction with local people						

(ii) COMMERCIAL CROPS

Farmers grow grains, legumes, and vegetables to feed their families and their livestock. But anything beyond that grown to make money would be a commercial crop. The check list of commercial crops is presented below in table.

Table List of Commercial Crops in Core Zone

	Botanical name	Engligh name	Common /Hindi Name	Name of class/Family
1	Cajanus cajan (L) Millsp	Pigeon pea	Tur dal	Leguminosae
2	Cicer arietinum L.	Chickpea	Kaabuleechana	Leguminosae
3	Curcuma longa L.	Turmeric	Haldi	Zingiberaceae
4	Gossypium hirsutum L	Cotton	Karpas	Malvaceae
5	Oryza sativa L.	Paddy	Dhaan	Poaceae
6	Sesamum orientale L.	Sesame	Til	Pedaliaceae
7	Sorghum bicolor	Sorghum	Jowari	Poaceae
8	Zea mays L.	Maize	Makka	Poaceae
	Source: Field survey. Interact	tion with loca	al people	

Table List of Commercial Crops in Buffer Zone

	Table Election Commencial Crops in Pariet Lette					
	Botanical name	Engligh	Common	Name of		
		name	/Hindi Name	class/Family		
1	Cajanus cajan (L) Millsp	Pigeon pea	Tur dal	Leguminosae		
2	Cicer arietinum L.	Chickpea	Kaabuleechana	Leguminosae		
3	Curcuma longa L.	Turmeric	Haldi	Zingiberaceae		
4	Gossypium hirsutum L	Cotton	Karpas	Malvaceae		
5	Manilkara zapota (L.)	Sapota	chikoo	Sapotaceae		
	P.van Royen;					
6	Oryza sativa L.	Paddy	Dhaan	Poaceae		
7	Sesamum orientale L.	Sesame	Til	Pedaliaceae		
8	Sorghum bicolor	jowari		Poaceae		
9	Zea mays L.	Maize	Makka	Poaceae		

(iii) NATURAL VEGETATION/ FOREST TYPE

These are uncultivated and uninhabited pieces of land covered by trees and shrubs. They play a vital role in the life and culture of the people. They form an important renewable natural resource. In the absence of scientific management in the past, forests of the study area have suffered from heavy deforestation. Biotic pressure exerted by human beings and domestic animals of surrounding areas is also tremendous. The buffer zone forest is a scrub jungle.

The status of natural vegetation / forest flora of the study is presented below in tables.

Table: List of Natural Vegetation in Core Zone

			getation in Core 2		Egglagia
	Botanical name	English	Common	Name of	Ecologic
		name	/Hindi name	class/Fami	al
				ly	sensitivi
					ty status
					ŔEET
Tree	es		I		
1	Acacia leucophloea	White Acacia	Hiwar	leguminosa	-
-	(Roxb.) Willd.	TTIME / TOUGHA		e	
2	Acacia nilotica (L.)	Babul	Babool	Leguminos	_
2		Dabui	Бароог		-
	Willd ex Delile			ae	
3	Aegle marmelos (L.)	Stone apple	Bael	Rutaceae	-
	Corrêa				
4	Albizia procera (Roxb.)	White sirish	Safedsirish	Leguminos	-
	Benth.			ae	
5	Albizia lebbeck (L.)	Sirish	Shirish	Leguminos	_
	Benth			ae	
6		Blackboard	Contonorni C		
ь	Alstonia scholoris (L.)		Saptaparni,C	Apocynace	-
	R.Br	tree	hitvan	ae	
7	Anogeissus latifolia	Axle Wood	Dhonkda	Combretac	-
	(Roxb. ex DC.) Wall.	Tree		eae	
	ex Guillem. &Perr				
8	Balanites aegyptiaca	Egyptian	Hingot	Zygophyllac	-
	(L.) Del.	myrobalan	9	eae	
9	Buchanania	myrobaian	Chhar	Anacardiac	_
9	cochinchinensis (Lour.)	_	Official	eae	_
				eae	
40	M.R.Almeida	FI (D D' '		
10	Butea monosperma	Flame of the	Palash, Dhak	Leguminos	-
	(Lam.) Taub.	forest		ae	
11	Casearia tomentosa		Tondri	Salicaceae	-
	Roxb				
12	Cassia fistula L.	Indian	Amaltas	Leguminos	-
		laburnum		ae	
13	Chloroxylon swietenia	East Indian	Bhirra	Rutaceae	_
13	DC.		חווום	Tutaceae	=
4.4		satinwood	Dis a la ins	1	
14	Dalbergia paniculata		Dhobin	Leguminos	-
	Roxb			ae	

15	Dalbergia sissoo Roxb	Sissoo	sesam	Leguminos ae	
16	Diospyros melanoxylon Roxb.	Coromandel ebony	Tendu	Ebenaceae	-
17	Ficus benghalensisL.	Banyan	Bargad	Moraceae	-
18	Ficus racemosaL.	Cluster Fig	Goolar	Moraceae	-
19	Ficus religiosaL.	Sacred fig	Pipal	Moraceae	-
20	Gmelina arborea Roxb.	Beech wood	Gamhar	Lamiaceae	-
21	Haldina cordifolia (Roxb.) Ridsdale	Haldu	Karam	Rubiaceae	-
22	Holoptelea integrifoila (Roxb.) Planch	Indian elm	arjan	Ulmaceae	-
23	<i>Ixora parviflora</i> Lam	White ixora	Kotogandal	Rubiaceae	-
24	Lagerstroemia parviflora Roxb.	Small Flowered Crape Myrtle	Dawra	Lythraceae	-
25	Lannea coromandelica (Houtt.) Merr	Indian ash tree	Mohin	Anacardiac eae	-
26	Madhuca longifolia var. latifolia (Roxb.) A.Chev.	Indian butter tree	Mahua	Sapotaceae	-
27	Mangifera indica L.	Mango	Aam,	Anacardiac eae	•
28	Moringa concanensis Nimmo ex Dalzell & A.Gibson	Wild drum stick	Jangli sargua	Moringacea e	-
29	Phoenix sylvestris(L.) Roxb.	Wild Date Palm	Khajur	Arecaceae	-
30	Phyllanthus emblica L.	Emblicmyrob alan	Amla	Phyllanthac eae	-
31	Pithecellobium dulce (Roxb.) Benth.	Manila tamarind	Ganga imli	Leguminos ae	-
32	Pongamia pinnata (L.) Pierre	Indian beech	Karanjva	Legumonos ae	-
33	Pterocarpus marsupium Roxb.	Indian kino	Bijay	leguminosa e	-
34	Salmalia malabarica (DC) Schott &Endl.	Silk cotton	Salmale	Bombacace ae	-
35	Shorea robusta Gaertn.	Sal	sarai	Dipterocarp aceae	
36	Syzygium cuminii (L.) Skeels	Rose apple	Jamun	Myrtaceae	-
37	Tectona grandis L.	Teak,	saghvan	Lamiaceae	-
38	Terminalia arjuna (Roxb.) Wt&Arn.	Arjun	Arjun, mathi	Combretac eae	-
39	Terminalia tomentosa Wight & Arn	Marda	Saja	Combretac eae	-

40	Wrightia tinctoria R.Br.	Sweet	Kutajau	Apocynace -	
41	Ziziphus mauritiana	Indrajao Indian plum	Ber	ae Rhamnace -	
	Lamk.			ae	
Shr		T -	Γ -		
1	Annona squamosa L.	Custard apple	Custard apple	Annonaceae	-
2	Calotropis gigantean (L.) R.Br.	Indian mader	Indian mader	Apocynaceae	-
3	Chromolaena odorata (L.) R.M.King &H.Rob.	Jack in the bush	Jack in the bush	Asteraceae	-
4	Dodonaea viscosa (L.) Jacq.		Sanatta	Sapindaceae	-
5	Gardenia gummifera L.f	Dikamalli	Dikamalli	Rubiaceae	-
6	Ipomoea carnea Jace	Bush morning glory	besharam	Convolvulacea e	-
7	Lantana camera L.	Wild sage	Raimuniya	Lamiaceae	-
8	Mimosa hamata Willd.		Alay	Leguminosae	-
9	Phyllanthus reticulates L.	Black-Honey Shrub	Kanbojini	Phyllanthacea e	-
10	Randia dumetorum Lamk		Mainphal	Rubiaceae	-
11	Ricinus communis L.	Castor	Arandi	Euphorbiaceae	-
12	Senegalia pennataMizo	Climbing wattle	Biswal	Leguminosae	-
13	Senna alata (L.) Roxb.	Candle bush	Ergaj	Leguminosae	-
14	Thevetia neriifolia Juss. exSteud.	Yellow oleander	Peelikaner	Apocynaceae	-
15	Vachellia farnesiana(L.) Wight &Arn.	Sweet acacia	Guhbaboool,	Leguminosae	-
16	Vitex negundo L.	Chaste Tree.	Nirgundi	Verbenaceae	-
17	Zizyphus oenoplia (L.)Miller	Small-Fruited Jujube	Makora	Rhamnaceae	-
Clin	nbers	. <u> </u>	•	1	
1	Bryonia laciniosa L.		shivlinga	Cucurbitaceae	-
2	Caesalpinia bonduc (L.) Roxb.	fever nut	Kankarej,	Leguminosae	-
3	Cassytha filiformis L.		Akash bel	Convolvulacea e	-
4	Cissampelos pareiraL.	False Pareira Brava	Padh	Menispermace ae	-
5	Cocculus hirsutus (L.) Diels		Farid buti	Menispermace ae	-
6	Dioscorea pentaphylla L.	Five Leaf Yam	Kantaalu,	Dioscoreaceae	-
7	Hemidesmus indicus (L.) R. Br. ex Schult.	Indian sarsaparilla	Anantmul	Apocynaceae	-

8	Ichnocarpus frutescens	Black	Kali doddee	Apocynaceae	_
	(L.) R.Br.	Creeper	raii doddcc		
9	<i>Ipomoea obscura</i> (L.) Ker Gawler	Obscura morning glory		Convolvulacea e	-
10	Quisqualis indica L.	Rangoon creeper	Not available	Combretaceae	-
11	Getonia floribunda Roxb	·	Kokoray	Combretaceae	
12	Tinospora sinensis (Lour.) Merr.	Malabar Gulbel	Giloy	Menispermace ae	-
13	Wattakaka volubilis (L.f) Stap f	Sneeze Wort	dugdhive	Apocynaceae	-
Herl					
1	Abutilon indicum (L.) Sweet		Petari	Malvaceae	
2	Achyranthus aspera L.	Prickly Chaff Flower	Chirchita	Amaranthaceae	-
3	Alternanthera ficoidea (L.) P. Beauv.	Smooth Joy weed	Kusal	Amaranthaceae	-
4	Alysicarpus monilifer (L.) DC.	Alyce Clover	-	Leguminosae	-
5	Alysicarpus vaginalis (L.) DC	Alyce Clover	Chauli/Sauri	Leguminosae	-
6	Blumea axillaris(Lam.) DC.	Not available	Not available	Asteraceae	-
7	Celosia argentea L.	silver cock's comb	Common Cockscomb	Amaranthaceae	-
8	Cyanthillium cinereum (L.) H.Rob		Sahadevi	Compositae	-
9	Desmodium triflorum (L.) DC	Threeflowerti cktrefoil	Kudalia	Leguminosae	-
10	Eclipta prostrata (L.) L.	False Daisy	Bringaraj	Asteraceae	-
11	Euphorbia hirta L.	Asthma Weed	Laldudhi	Euphorbiaceae	-
12	Evolvulus alsinoides (L.) L.	Dwarf Morning Glory	Vishnugranth a	Convolvulaceae	-
13	<i>Hyptis suaveolens</i> (L.) Poit	American Mint	Vilaititulasi	Lamiaceae	-
14	Justicia procumbens L.		Kagner		-
15	Lepidagathis cristata Willd		Bhui Gend	Acanthaceae	-
16	Leucas indica (L.) R.Br ex Vatke	Not known	Dronapushpi	Lamiaceae	-
17	Malachra capitata (L.) L	Brazilian jute		Malvaceae	
18	Merremia tridentata (L.) Hall. fil.		Ban methi	Convolvulaceae	-
19	Mimosa pudica L.	Touch me not	Lajjalu	Leguminoae	-

20	Mollugo pentaphylla L.	Carpet weed	Jharasi	Molluginaceae	-
21	Ocimum americanum L.	Lemon tulasi	Kali Tulasi		-
22	Oldenlandia tenelliflora (Blume) Kuntze	Wild weed	-	Rubiaceae	-
23	Peristrophe bicalyculata (Retz.) Nees	Panicled Foldwing	Kakajanga	Acanthaceae	•
24	Phyllanthus virgatus G. Forst.	Red bhuiamla	-	Phyllanthaceae	•
25	Scoparia dulcisL.	Sweet Broom Weed,	Mithipatti.	Scrophulariacea e	•
26	Senna uniflora (Mill.)H.S.Irwin & Barneby	One leaf senna	-	Leguminosae	-
27	Senna tora (L.) Roxb.	Stinking Cassia	Panwar	Leguminosae	-
28	Sida acutaL.	Common Wireweed	Baraira	Malvaceae	
29	Sida cordata (Burm.f.) Borss.Waalk	Long stalked sida	Bhuinii	Malvaceae	
30	Sida rhombifolia L.	Sahadeva	-	Malvaceae	
31	Spermacoce hispida L.	Shaggy Buttonweed	Madanaghant i	Rubiaceae	•
32	Spilanthes acmella (L.) L.		Akarkar	Compositae	
33	Tephrosia purpurea (L.) Pers	Common Tephrosia	Sharpunka	Leguminosae	-
34	Tridax procumbens L		Kanphuli	Compositae	-
35	Triumfetta rhomboideae Jacq.	Burr Bush,	Chikti	Malvaceae	-
36	Xanthium strumarium L.	Cocklebur	Chota Dhatura,	Asteraceae	-

Source: Field survey, Interaction with local people

	Botanical name	English name	Common /Hindi name	Name of class/Family	Ecologi cal sensitivi ty status REET
Tree	Acacia leucophloea (Roxb.) Willd.	White Acacia	Hiwar	leguminosae	-
2	Acacia nilotica (L.) Willd ex Delile	Babul	Babool	Leguminosae	-
3	Aegle marmelos (L.) Corrêa	Stone apple	Bael	Rutaceae	-

4	Albizia procera (Roxb.) Benth.	White sirish	Safedsirish	Leguminosae	-
5	Albizia lebbeck (L.) Benth	Sirish	Shirish	Leguminosae	-
6	Alstonia scholoris (L.) R.Br	Blackboard tree	Saptaparni, Chitvan	Apocynaceae	-
7	Anogeissus latifolia (Roxb. ex DC.) Wall. ex Guillem. &Perr	Axle Wood Tree	Dhonkda	Combretaceae	-
8	Balanites aegyptiaca (L.) Del.	Egyptian myrobalan	Hingot	Zygophyllacea e	-
9	Buchanania cochinchinensis (Lour.) M.R.Almeida		Chhar	Anacardiaceae	-
10	Butea monosperma (Lam.) Taub.	Flame of the forest	Palash, Dhak	Leguminosae	-
11	Casearia tomentosa Roxb		Tondri	Salicaceae	-
12	Cassia fistula L.	Indian Iaburnum	Amaltas	Leguminosae	-
13	Chloroxylon swietenia DC.	East Indian satinwood	Bhirra	Rutaceae	-
14	Dalbergia paniculata Roxb		Dhobin	Leguminosae	-
15	<i>Dalbergia sissoo</i> Roxb	Sissoo	sesam	Leguminosae	
16	Diospyros melanoxylon Roxb.	Coromandel ebony	Tendu	Ebenaceae	-
17	Ficus benghalensisL.	Banyan	Bargad	Moraceae	-
18	Ficus racemosaL.	Cluster Fig	Goolar	Moraceae	-
19	Ficus religiosaL.	Sacred fig	Pipal	Moraceae	-
20	<i>Gmelina arborea</i> Roxb.	Beech wood	Gamhar	Lamiaceae	-
21	Haldina cordifolia (Roxb.) Ridsdale	Haldu	Karam	Rubiaceae	-
22	Holoptelea integrifoila (Roxb.) Planch	Indian elm	arjan	Ulmaceae	-
23	Ixora parviflora Lam	White ixora	Kotogandal	Rubiaceae	-
24	Lagerstroemia parviflora Roxb.	Small Flowered Crape Myrtle	Dawra	Lythraceae	-
25	Lannea coromandelica (Houtt.) Merr	Indian ash tree	Mohin	Anacardiaceae	-
26	Madhuca longifolia var. latifolia (Roxb.) A.Chev.	Indian butter tree	Mahua	Sapotaceae	-

27	Mangifora indica	Mango	Aam	Anacardiaceae	_
	Mangifera indica L.	Mango	Aam,		-
28	Moringa concanensis Nimmo ex Dalzell & A.Gibson	Wild drum stick	Jangli sargua	Moringaceae	-
29	Phoenix sylvestris(L.) Roxb.	Wild Date Palm	Khajur	Arecaceae	-
30	Phyllanthus emblica	Emblicmyrob alan	Amla	Phyllanthaceae	-
31	Pithecellobium dulce (Roxb.) Benth.	Manila tamarind	Ganga imli	Leguminosae	-
32	Pongamia pinnata (L.) Pierre	Indian beech	Karanjva	Legumonosae	-
33	Pterocarpus marsupium Roxb.	Indian kino	Bijay	leguminosae	-
34	Salmalia malabarica (DC) Schott &Endl.	Silk cotton	Salmale	Bombacaceae	-
35	Shorea robusta Gaertn.	Sal	sarai	Dipterocarpace ae	
36	Syzygium cuminii (L.) Skeels	Rose apple	Jamun	Myrtaceae	-
37	Tectona grandis L.	Teak,	saghvan	Lamiaceae	-
38	Terminalia arjuna (Roxb.) Wt&Arn.	Arjun	Arjun, mathi	Combretaceae	-
39	Terminalia tomentosa Wight & Arn	Marda	Saja	Combretaceae	-
40	Wrightia tinctoria R.Br.	Sweet Indrajao	Kutajau	Apocynaceae	-
41	<i>Ziziphus mauritiana</i> Lamk.	Indian plum	Ber	Rhamnaceae	-
Shru	bs	,	.		
1	Annona squamosa L.	Custard apple	Custard apple	Annonaceae	-
2	Calotropis gigantean (L.) R.Br.	Indian mader	Indian mader	Apocynaceae	-
3	Chromolaena odorata (L.) R.M.King &H.Rob.	Jack in the bush	Jack in the bush	Asteraceae	-
4	Dodonaea viscosa (L.) Jacq.		Sanatta	Sapindaceae	-
5	Gardenia gummifera L.f	Dikamalli	Dikamalli	Rubiaceae	-
6	Ipomoea carnea Jace	Bush morning glory	besharam	Convolvulacea e	-
7	Lantana camera L.	Wild sage	Raimuniya	Lamiaceae	-
8	<i>Mimosa hamata</i> Willd.		Alay	Leguminosae	-
9	Phyllanthus reticulates L.	Black-Honey Shrub	Kanbojini	Phyllanthaceae	-

40	Dan dia di matana	I	Mainala al	Dudalasasas	
10	Randia dumetorum		Mainphal	Rubiaceae	-
44	Lamk Ricinus communis L.	Cootor	Arandi	Euphorbiosos	
11 12		Climbing		Euphorbiaceae	-
12	Senegalia pennataMizo	Climbing wattle	Biswal	Leguminosae	-
13	Senna alata (L.) Roxb.	Candle bush	Ergaj	Leguminosae	•
14	Thevetia neriifolia Juss. exSteud.	Yellow oleander	Peelikaner	Apocynaceae	-
15	Vachellia farnesiana(L.) Wight &Arn.	Sweet acacia	Guhbabooo I,	Leguminosae	-
16	Vitex negundo L.	Chaste Tree.	Nirgundi	Verbenaceae	-
17	Zizyphus oenoplia (L.)Miller	Small-Fruited Jujube	Makora	Rhamnaceae	-
	bers	·		1	
1	Bryonia laciniosa L.		shivlinga	Cucurbitaceae	-
2	Caesalpinia bonduc (L.) Roxb.	fever nut	Kankarej,	Leguminosae	-
3	Cassytha filiformis L.		Akash bel	Convolvulacea e	-
4	Cissampelos pareiraL.	False Pareira Brava	Padh	Menispermace ae	-
5	Cocculus hirsutus (L.) Diels		Farid buti	Menispermace ae	-
6	Dioscorea pentaphylla L.	Five Leaf Yam	Kantaalu,	Dioscoreaceae	-
7	Hemidesmus indicus (L.) R. Br. ex Schult.	Indian sarsaparilla	Anantmul	Apocynaceae	-
8	Ichnocarpus frutescens (L.) R.Br.	Black Creeper	Kali doddee	Apocynaceae	-
9	Ipomoea obscura (L.) Ker Gawler	Obscura morning glory		Convolvulacea e	-
10	Quisqualis indica L.	Rangoon creeper	Not available	Combretaceae	-
11	Getonia floribunda Roxb		Kokoray	Combretaceae	
12	Tinospora sinensis (Lour.) Merr.	Malabar Gulbel	Giloy	Menispermace ae	-
13	Wattakaka volubilis (L.f) Stap f	Sneeze Wort	dugdhive	Apocynaceae	-
Herb					
1	Abutilon indicum (L.) Sweet		Petari	Malvaceae	
2	Achyranthus aspera L.	Prickly Chaff Flower	Chirchita	Amaranthacea e	-

3	Alternanthera ficoidea (L.) P. Beauv.	Smooth Joy weed	Kusal	Amaranthacea e	-
4	Alysicarpus monilifer (L.) DC.	Alyce Clover	-	Leguminosae	-
5	Alysicarpus vaginalis (L.) DC	Alyce Clover	Chauli/Sauri	Leguminosae	-
6	Blumea axillaris(Lam.) DC.	Not available	Not available	Asteraceae	-
7	Celosia argentea L.	silver cock's comb	Common Cockscomb	Amaranthacea e	-
8	Cyanthillium cinereum (L.) H.Rob		Sahadevi	Compositae	-
9	Desmodium triflorum (L.) DC	Threeflowerti cktrefoil	Kudalia	Leguminosae	-
10	Eclipta prostrata (L.) L.	False Daisy	Bringaraj	Asteraceae	-
11	Euphorbia hirta L.	Asthma Weed	Laldudhi	Euphorbiacea e	-
12	Evolvulus alsinoides (L.) L.	Dwarf Morning Glory	Vishnugrant ha	Convolvulacea e	-
13	Hyptis suaveolens (L.) Poit	American Mint	Vilaititulasi	Lamiaceae	-
14	Justicia procumbens L.		Kagner		-
15	Lepidagathis cristata Willd		Bhui Gend	Acanthaceae	-
16	Leucas indica (L.) R.Br ex Vatke	Not known	Dronapushp i	Lamiaceae	-
17	Malachra capitata (L.) L	Brazilian jute		Malvaceae	
18	Merremia tridentata (L.) Hall. fil.		Ban methi	Convolvulacea e	-
19	Mimosa pudica L.	Touch me not	Lajjalu	Leguminoae	-
20	Mollugo pentaphylla L.	Carpet weed	Jharasi	Molluginaceae	-
21	Ocimum americanum L.	Lemon tulasi	Kali Tulasi		-
22	Oldenlandia tenelliflora (Blume) Kuntze	Wild weed	-	Rubiaceae	-
23	Peristrophe bicalyculata (Retz.) Nees	Panicled Foldwing	Kakajanga	Acanthaceae	-
24	Phyllanthus virgatus G. Forst.	Red bhuiamla	-	Phyllanthacea e	-
25	Scoparia dulcisL.	Sweet Broom Weed,	Mithipatti.	Scrophulariace ae	-

26	Senna uniflora (Mill.)H.S.Irwin & Barneby	One leaf senna	-	Leguminosae	-
27	Senna tora (L.) Roxb.	Stinking Cassia	Panwar	Leguminosae	-
28	Sida acutaL.	Common Wireweed	Baraira	Malvaceae	-
29	Sida cordata (Burm.f.) Borss.Waalk	Long stalked sida	Bhuinii	Malvaceae	-
30	Sida rhombifolia L.	Sahadeva	-	Malvaceae	
31	Spermacoce hispida L.	Shaggy Buttonweed	Madanagha nti	Rubiaceae	-
32	Spilanthes acmella (L.) L.		Akarkar	Compositae	-
33	Tephrosia purpurea (L.) Pers	Common Tephrosia	Sharpunka	Leguminosae	-
34	Tridax procumbens L		Kanphuli	Compositae	-
35	Triumfetta rhomboideae Jacq.	Burr Bush,	Chikti	Malvaceae	-
36	Xanthium strumarium L.	Cocklebur	Chota Dhatura,	Asteraceae	-

(iv) GRASS LANDS

No prominent grass land ecosystem was found in the study area. However, the grass lands were mixed with natural vegetation forest patches in low lands and the cultivable waste lands are now being utilized as grazing grounds to the livestock species. The grass land species of the study area are presented below in tables.

Table List of Grasslands in Core Zone

	Botanical name	Engligh name	Common /Hindi name	Name of class/Family	Ecological sensitivity status REET
1	Apluda mutica L.	Mauration grass	Tachula	Poaceae	-
2	Aristida setacea Retz.	Broom grass	-	Poaceae	-
3	Arundo donax L.	Giant Reed	Baranal	Poaceae	-
4	Bambusa arundinaceae L.	Bamboo	Bambu	Poaceae	-
5	Cynodon dactyl (L.) Pers.	Bermuda grass	Durva	Poaceae	-
6	Dactyloctenium aegyptium (L.) Willd.	Crow foot grass	-	Poaceae	-

7	Eleusine indica Gaertn.		Pandur	Poaceae	-
8	Eragrostis amabilis (L.) Wight &Arn.	Love grass	Bilaayateejau	Poaceae	-
9	Heteropogon contortus (L.) P.Beauv. ex Roem. &Schult.	Spear grass,	Kher, Kumryaghas	Poaceae	-
10	Imperata cylindrical (L.) Raeusch	Cogon grass	-	Poaceae	_
11	Oplismenus hirtellus (L.)P.Beauv.	Basket grass	-	Poaceae	-
12	Panicum proliferum Lamk	-	Panga	Poaceae	-
13	Setaria verticillata (L.) P. Beauv.	Bristly fox tail		Poaceae	-

Table List of Grasslands in Buffer Zone

SI. No	Botanical name	Engligh name	Common /Hindi name	Name of class/Family	Ecological sensitivity status REET
1	Apluda mutica L.	Mauration grass	Tachula	Poaceae	-
2	Aristida setacea Retz.	Broom grass	-	Poaceae	-
3	Arundo donax L.	Giant Reed	Baranal	Poaceae	-
4	Bambusa arundinaceae L.	Bamboo	Bambu	Poaceae	-
5	Cynodon dactyl (L.) Pers.	Bermuda grass	Durva	Poaceae	-
6	Dactyloctenium aegyptium (L.) Willd.	Crow foot grass	-	Poaceae	-
7	Eleusine indica Gaertn.		Pandur	Poaceae	-
8	Eragrostis amabilis (L.) Wight &Arn.	Love grass	Bilaayateejau	Poaceae	-
9	Heteropogon contortus (L.) P.Beauv. ex Roem. &Schult.	Spear grass,	Kher, Kumryaghas	Poaceae	-
10	Imperata cylindrical (L.) Raeusch	Cogon grass	-	Poaceae	_
11	Oplismenus hirtellus (L.)P.Beauv.	Basket grass	-	Poaceae	-
12	Panicum proliferum Lamk	-	Panga	Poaceae	-

13	Setaria verticillata (L.)	Bristly fox	Poaceae	-
	P. Beauv.	tail		

(v) PLANTATIONS AND AGRO-FORESTRY SPECIES

The agro forestry species developed in vacant farm lands and barren areas as a means of preserving or enhancing the productivity of the land. It combines shrubs and trees of local varieties in agricultural and forestry technologies to create more diverse, productive, profitable, healthy, ecologically sound, and sustainable land-use systems. The agro forestry species planted by WCL are Imli (*Tamarindus indicus*) and Amla(*Phyllanthus emblica* L.).

Aquatic Flora

Aquatic flora are identified by inspecting River, Nala and small ponds of the study area. There are no perennial water bodies present in the Core Zone, therefore aquatic Flora is not present.

The water bodies present in Buffer Zone are Wardha River, Shrina Nallah, Koradi nallah, Kund Nala and Kondha Nala. Aquatic Flora present in the Buffer Zone are listed in table below.

Table List of Aquatic flora in the Buffer zone

SI.No	Botanical name	Engligh name	Common /Hindi name	Name of class/Family	Ecological sensitivity status REET
1	Colocasia esculenta (L.) Schott	Taro	Arvi, Kachalu	Araceae	-
2	Cyperus articulatus Linn	Jointed flat sedge		Cyperaceae	-
3	Cyperus corymbosus Rottb.		Nagar motha	Cyperaceae	-
4	Hygrophila ringens (L.) R. Br. ex Spreng.	Wild hygrophila		Acanthaceae	-
5	Ipomoea aquatic Forssk.	Water Morning Glory	Nali	Convolvulaceae	-
6	Marsilea quadrifolia L.	Four leaved clover	Caupatiya	Marsiliaceae	-
7	Monochoria vaginalis (Burm.f.) C.Presl	Nanka	Panpatta	Pontedraceae	

8	<i>Nymphaea</i> nouchali Burm f	Water lily	Neelkamal	Nymphaeaceae	-
9	Phyla nodiflora (L.) Grene	Jalapippali	bukkan	Verbenaceae	-
10	Typha domingensis Pers.	southern cattail	Patera	Typhaceae	-

The aquatic flora of the survey area is of common type and there are no rare and endangered species found in the core and buffer zone.

Green Belt Development

Creation of a greenbelt with local species will enhance the project area. The greenbelt should be developed around the mining area, infrastructure sites, service building area and township besides avenue plantation on both sides of the roads.

The purpose of a green belt around the mining site is to capture the fugitive emissions, attenuate the noise generated and improve aesthetics. Green vegetation cover is beneficial in many ways in terms of conservation of biodiversity, retention of soil moisture, recharge of ground water and maintaining pleasant microclimate of the region. In addition, vegetation cover can also absorb pollutants from the environment and helps in effective pollution control.

The list of species recommended for green belt development are presented below. Apart from this, it is suggested that concerned forest department may be consulted for planting of native species for green belt development.

Table List of Plants recommended for green belt development/ land reclamation

Common Name	Family Name	Botanical Name
Amla	Phyllanthaceae	Phyllanthus emblica
Babool	Leguminosae	Acacia nilotica (L.) Willd ex Delile
Neem	Meliaceae	Azadirachta indica (L.) A.Juss.
Bamboo	Bombacaceae	Bambusa arundinaceae L.
Polash	Leguminosae	Butea monosperma (Lam.) Taub.
Avenue cassia	Leguminosae	Cassia siamia Lamk.
Seasam	Leguminosae	Dalbergia sissoo Roxb. ex DC
Gulmohur	Leguminosae	Delonix regia (Boj. ex Hook) Raffin
Silk cotton	Bombacaceae	Ceiba pentandra (L.) Gaertn
Coral tree	Leguminosae	Erythrina indica Lam.
Silver oak	Proteaceae	Grevillea robusta A.Cunn ex R.Br.
Bitter orange	Rutaceae	Citrus aurantium L.
Subabol	Leguminosae	Lucina leucophloea (Lamk) de wit
Jungle Jilepe	Leguminosae	Pithecellobium dulce L.
Karanj	Leguminosae	Pongamia pinnata (L.) Pierre

Common Name	Family Name	Botanical Name
Kusum	Sapindaceae	Schleichera oleosa (Lour.) Oken.
Sal	Dipterocarpace	Shorea robusta Gaertn f
	ae	
Teak	Verbenaceae	Tectona grandis L.

BASELINE STATUS OF FAUNA

Among the faunal groups avian fauna of terrestrial inhabitants of passerine category birds are conspicuous in grass lands (degraded forest) within the study area of the project.

The domesticated animals like Goat (*Capra aegagrus*); Buffalo (*Bubalus bubalis*); Cow (*Bos primigenius*), Cat (*Felis catus*), and Dog (*Canis lupus familiaris*) were found in villages.

The aquatic habitats consist of River, Nala, Ponds; Ditches and water-logged areas represented by fin-fish (fishes) of seasonal varieties.

Table List of Terrestrial Fauna in in the Core Zone

	Table	Scheduled	101111		
SI. No.	Scientific	English	Common / Hindi	Status (WAP, 1972)	ICUN Status
Mam	ımal				
1	Bandicota bengalensis	Bandicoot Rat	Chuha	IV	LC
2	Canis aureus	Jackal	Geedhad	П	LC
3	Felis chaus	Jungle Cat	Jangli Billi	II	LC
4	Funambulus pennant	3 Strip Palm squirrel	Gilahari	IV	LC
5	Macaca mulatta	Monkey	Bandar	П	LC
6	Mus booduga	Indian Field Mouse	Chuha	IV	LC
7	Rattus rattus	Common House Rat	Chuha	IV	LC
8	Semnopithecus dussumieri	Hanuman	Langur	-	LC
Bird		.	T.		
1	Acridotheres tristis	Common Myna	Myna	IV	LC
2	Apus affinis	House Swift	Babeela	IV	LC
3	Ardeola grayii	Indian pond heron	Andha bagula	IV	LC
4	Bubulcus ibis	Cattle egret	Bagula	IV	LC
5	Corvus splendens	House Crow	Kauva	IV	LC
6	Centropus sinensis	Crow pheasant	Couckoo	IV	LC

SI.		Name		Scheduled	ICUN
No.	Scientific	English	Common / Hindi	Status (WAP, 1972)	Status
7	Columbia livia	Pigeon	Kabutar	IV	LC
8	Egretta garzetta	Little egret	Kilchia Bagla	IV	LC
9	Eudynamys scolopacea	Koel	Koyal	IV	LC
10	Milvus migrans	Black kite	Cheel	IV	LC
11	Passer domesticus	House sparrow	Gauriyya	IV	LC
12	Psittacula krameri	Rose ringed parakeet Red-vented	Tota	IV	LC
13	Pycnonotus cafer Streptopelia	bulbul	Bulbul	IV	LC
14	chinensis	Spotted Dove	Kabutar	IV	LC
15	Sturnus contra	Asian pied starling	Maina	IV	LC
Rept	tile				
1	Bungamus caeruleus	Common Krait	Sanmp	IV	LC
2	Calotes versicolor	Garden lizard	Girgit	IV	LC
3	Enhydris enhydris	Smooth water snake	Sanmp	IV	LC
4	Hemidactylus sp.	House lizard	Chipkali	IV	LC
5	Naja Naja	Cobra Common water	Cobra	II	LC
6	Natrix piscator	snake	Sanmp	II	LC
7	Ptyas mucosus	Rat snake	Sanmp	IV	LC
8	Vipera russeli	Russel's viper	Sanmp	II	LC
Amp	hibian				
1	Bufo melanostictus	Common toad	Medhak	IV	LC
2	Euphlyctis hexadactyla	Common frog	Medhak	IV	LC
3	Rana hexadactyla	Green pond frog	Medhak	IV	LC
4	Rana tigrina	Indian bull frog	Medhak	IV	LC
Insects					
1	Anisoptera	Dragon flies	Vyaadh-Patang	IV	LC
2	Antheria mylita	Moth	Phulpakharu	IV	LC
3	Bacillus rossii	Grasshopper	Tidda	IV	LC
Butte	eflies				

SI.		Name		Scheduled Status	ICUN
No.	Scientific	English	Common / Hindi	(WAP, 1972)	Status
	Catopsilia			•	
	pomona	Common		NA	NE
1	(Fabricius)	Emigrant	Titli		
	Tirumala limniace			NA	NE
2	leopardus (Butler)	Blue Tiger	Titli	INA	INE

Buffer Zone

Table List of Terrestrial Fauna in the Buffer Zone

CI		Name	duna in the bunch Zonk	Scheduled	IOUN
SI. No.	Scientific	English	Common / Hindi	Status (WAP, 1972)	ICUN Status
Mam	mal				
1	Bandicota bengalensis	Bandicoot Rat	Chuha	IV	LC
2	Canis aureus	Jackal	Geedhad	П	LC
3	Felis chaus	Jungle Cat	Jangli Billi	П	LC
4	Funambulus pennant Herpestes	3 Strip Palm squirrel Common	Gilahari	IV	LC
5	edwardsi	Mongoose	Nevlaa	П	LC
6	Lepus nigricollis	Indian Hare	Khargosh	IV	LC
7	Macaca mulatta	Monkey	Bandar	П	LC
8	Mus booduga	Indian Field Mouse	Chuha	IV	LC
9	Rattus rattus	Common House Rat	Chuha	IV	LC
10	Semnopithecus dussumieri	Hanuman	Langur	-	LC
11	Vulpes bengalensis	Indian Fox	Lomri	II	LC
Birds		1	1		
1	Acridotheres tristis	Common Myna	Myna	IV	LC
2	Alcedo atthis	Small blue kingfisher	Ramchiraya	IV	LC
3	Apus affinis	House Swift	Babeela	IV	LC
4	Ardeola grayii	Indian pond heron	Andha bagula	IV	LC
5	Bubulcus ibis	Cattle egret	Bagula	IV	LC

CI		Name		Scheduled	IOUN
SI. No.	Scientific	English	Common / Hindi	Status (WAP, 1972)	ICUN Status
6	Corvus splendens	House Crow	Kauva	IV	LC
7	Centropus sinensis	Crow pheasant	Couckoo	IV	LC
8	Columbia livia	Pigeon	Kabutar		LC
9	Dinopium benghalensis	Wood pecker	Sutar	IV	LC
10	Egretta garzetta	Little egret	Kilchia Bagla	IV	LC
11	Eudynamys scolopacea Francolinus	Koel Painted	Koyal	IV	LC
12	picyus	partirideg	Kala teetar	IV	LC
13	Gracula religiosa	Bastar Hill Myna	Kali Myna	IV	LC
14	Milvus migrans	Black kite	Cheel	IV	LC
15	Passer domesticus	House sparrow	Gauriyya	IV	LC
16	Psittacula krameri	Rose ringed parakeet	Tota	IV	LC
18	Pycnonotus cafer	Red-vented bulbul	Bulbul	IV	LC
19	Streptopelia chinensis	Spotted Dove	Kabutar	IV	LC
20	Sturnus contra	Asian pied starling	Maina	IV	LC
21	Turdoides caudatus	Common Babbler	Gaigai	IV	LC
22	Vanellus indicus	Red-wattled lapwing	Titeeri	IV	LC
Rept	ile	, 0			•
1	Bungamus caeruleus	Common Krait	Sanmp	IV	LC
2	Calotes versicolor	Garden lizard	Girgit	IV	LC
3	Enhydris enhydris	Smooth water snake	Sanmp	IV	LC
4	Hemidactylus sp.	House lizard	Chipkali	IV	LC
5	Naja Naja	Cobra	Cobra	II	LC
6	Natrix piscator	Common water snake	Sanmp	II	LC
7	Ptyas mucosus	Rat snake	Sanmp	IV	LC
8	Varanus monitor	Monitor lizard	Ghorpad	П	LC

CI		Name		Scheduled	ICUN
SI. No.	Scientific	English	Common / Hindi	Status (WAP, 1972)	ICUN Status
9	Vipera russeli	Russel's viper	Sanmp	П	LC
Amp	hibian				
1	Bufo melanostictus	Common toad	Medhak	IV	LC
2	Euphlyctis hexadactyla	Common frog	Medhak	IV	LC
3	Rana hexadactyla	Green pond frog	Medhak	IV	LC
4	Rana tigrina	Indian bull frog	Medhak	IV	LC
Insec	cts				
1	Anisoptera	Dragon flies	Vyaadh-Patang	IV	LC
2	Antheria mylita	Moth	Phulpakharu	IV	LC
3	Bacillus rossii	Grasshopper	Tidda	IV	LC
Butte	eflies				
1	Catopsilia pomona (Fabricius)	Common Emigrant	Titli	NA	NE
2	Tirumala limniace leopardus (Butler)	Blue Tiger	Titli	NA	NE

Aquatic Fauna of Core Zone

Aquatic flora and fauna are identified by inspecting River, Nala and small ponds of the study area. Perenneal water bodies (river, nala) are not present in core zone, therefore aqualtic fauna is not present.

Aquatic Fauna of Buffer Zone

Aquatic flora and fauna in the buffer zone are identified by inspecting River, Nala and small ponds of the study area such as Wardha River, Shirna Nallah etc are presented below in table.

Table List of Aquatic Fauna in the Buffer Zone

SI.	Name			Scheduled	ICUN	Zo	ne
No.	Scientific	English	Common	Status	Statu	Cor	Buff
140.	Scientific	Liigiisii	/ Hindi	(WAP, 1972)	S	е	er
1	Catla catla	Catla	Murrai	NA	LC	+	+
	Channa	Spotted			LC		
2	punctatus	murrel	Maggri	NA	LO	+	+
	Clarias				LC		
3	batrachus	Magur	Boyi	NA	LO	+	+
4	Labeo rohita	Rohu	Rohu	NA	LC	+	+

Source: Field survey, Interaction with local peoples and Available literature

Secondary Data Source:

- Discussion with local people and Project Authorities.
- IUCN Red Data Book

CONCLUSION

During survey it is observed that, areas which are important or sensitive for ecological reasons – geological formations, dunes, beaches, coral reefs, mangroves and swamps are not present within the study area. Also, areas used by protected, important or sensitive species of flora and fauna are not present within the study area.

The land will undergo changes during mining. The biologically reclaimed land will improve the green cover in the area and help in biodiversity conservation. As already, the mining activities are going on in the area.

Summary of Flora Fauna Study Details (Post Monsoon 2013)

The baseline data on flora & fauna generated in Post Monsoon Season, 2013 for the nearby Juna-Kunada OC of Majri Area is detailed below:

Table Flora of Core Zone

	Table Tibla 01 Co	I C ZUI C			
Flora	Local Name	Botanical Name	Family		
Agricultura	Agricultural crops				
Cereals	Makka (Maize)	Zea mays	Poaceae		
Cereais	Jawas	Linum usitatissimum	Linaceae		
Pulses	Tuar	Cajanus cajan	Fabaceae		
Puises	Mung	Phaseolus mungo	Fabaceae		
Commercia	al crops / Cash Crops				
	Aloo (Sweet Potato)	Ipomoea batatas	Convolvulaceae		

Flora	Local Name	Botanical Name	Family
	Onion/ Kanda	Allium cepa	-
	Baigan	Solanum melongena	Solanaceae
	Tamator (Tomato)	Lycopersicum	Solanaceae
	Tamator (Tomato)	esculentum	Joianaceae
Vegetable	Bean	Lablab purpureus	Leguminosae
S	Band Gobi	Brassica spp.	Cruciferae
	(Cobbage)		
	Bhindi	Abelmoschus esculentus	Malvaceae
	Pumpkin	Cucurbeta moschata	Cucurbetaceae
0.11	Karela	Momordica charantia	Cucurbetaceae
Oil yielding plants	Sarson (Mustard)	Brassica compestris	Brassicaceae
Cash	Arandi	Ricinus communis	Euphorbiaceae
Crops	Kappas	Gossypium hirsutum	Malvaceae
	Dhaniya	Coriandrum sativum	Umbelliferae
Spices	Lahsun (Garlic)	Allium stivum	Liliaceae
Spices	Mirchi	Capsicum annum	Solanaceae
	Haldi (Turmeric)	Curcuma domestica	Zinziberaceae
	Jam (Guava)	Psidium guajava	Myrataceae
	Bor	Ziziphus mauritiana	Rhamnaceae
	Jackfruit (Kathal)	Artrocarpus hetarophylla	Moraceae
Fruits	Bel	Aegl marmalas	Rutaaceae
Tuits	Jambhul/Jamun	Syzygium cumini	Myrtaceae
	Amba	Magnifera indica	Anacardiaceae
	Lemon	Citrus Lemon	Rutaceae
	Sitaphal	Annona squamosa	Annonaceae
Plantation			
	Ashok	Sarracca indica	-
Planted	Neem	Azadirachta indica	Meliaceae
by WCL	Karanj	Pongamia pinnata	Fabaceae
	Babul	Acacia nilotica	Fabaceae
Natural veg	etation / Forest type		
	Tulsi	Ocimum sancturm	Lamiaceae
	Bhui neem	Andrographis paniculata	Acanthaceae
Herbs	Gajar gawat	Parthenium	Compositeae
		hysterophorus	
	Dhudhi	Euphorbia hirta	Euphorbiaceae
	Katumbar	Ficus hispida	Moraceae
Shrubs	Arandi	Ricinus communis	Euphorbiaceae
	Bhor	Ziziphus jujuba	Rhamnaceae
	Sagwan	Tectona grandis	Verbenaceae
	Amba	Magnifera indica	Anacardiaceae
Trees	Sisam	Dalbergia sissoo	Fabaceae
	Karanj	Pongamia pinnata	Fabaceae
	Peepal	Ficus religiosa	Moraceae
	Maharukh	Ailanthus excelsa	Simarubiaceae

Flora	Local Name	Botanical Name	Family
	Ashok	Sarracca indica	-
	Neem	Azadirachta indica	Meliaceae
	Arjun	Terminalia arjuna	Combretaceae
Endanger ed species	Nil	Nil	Nil
Endemic species	Nil	Nil	Nil

Table Flora of Buffer Zone

Flora	Local Name	Botanical Name	Family
Agricultur		1 Dotamour Hamo	1 anny
, ignountan	Dhan (Paddy)	Oryza sativa	Poaceae
	Makka (Maize)	Zea mays	Poaceae
Cereals	Jewas	Linum usitatissimum	Poaceae
	Ragi (Mundua)	Eleusine coracana	Poaceae
	Urad (Black Gram)	Vigna mungo	Fabaceae
	Chana	Cicer arietinum	Fabaceae
Pulses	Tuar (Red Gram)	Cajanus cajan	Fabaceae
	Kulthi (Horse Gram)	Dilichos biflorus	Fabaceae
	Mung (Green Gram)	Vigna radiata	Fabaceae
Commerc		3	
	Baigan	Solanum melongena	Solanaceae
			Convolvulace
	Aloo (Sweet Potato)	Ipomoea batatas	ae
	Kanda (Onion)	Allium cepa	
	Tamator (Tomato)	Lycopersicum	Solanaceae
		esculentum	
	Bean	Lablab purpureus	Leguminosae
	Band Gobi (Cobbage)	Brassica spp.	Cruciferae
	Bhindi	Abelmoschus esculentus	Malvaceae
	University		Cucurbetace
	Jhinga	Luffa acutangula	ae
Vegetabl	Varala	Mamardiae abarantia	Cucurbetace
es	Karela	Momordica charantia	ae
	Kohra	Benincasa hispida	Cucurbetace
	Notifia	Белінсава нівріца	ae
	Kundri	Coccinia grandis	Cucurbetace
		_	ae
	Kaddu	Hibiscus esculentus	Malvaceae
	Nenua	Luffa cylindrica	Cucurbetace
	I TOTICA	Lana dynnanda	ae
	Kheera	Cucumis stiva	Cucurbetace
	13.10014	Casarrio stiva	ae
	Kheera	Cucrbaltus sativus	Cucurbetace
			ae
	Phool Gobi	B. oleracea var, botrytis	Cruciferae

Flora	Local Name	Botanical Name	Family
	Muli	Raphanus sativus	Cruciferae
	Sarson (Mustard)	Brassica compestris	Brassicaceae
Oil	Arandi	Ricinus communis	Euphorbiacea
yielding	7 11 01 101	Themas serminams	е
plants	Soyabean	Glucine max	Fabaceae
Cash	Soyabean	Glucine max	Fabaceae
Crops	Kappas	Gossypium hirsutum	Malvaceae
	Mirch (Capsicum)	Capsicum species	Solanaceae
	Dhaniya	Coriandrum sativum	Apiaceae
	Lahsun (Garlic)	Allium stivum	Alliaceae
Spices	Haldi (Turmeric)	Curcuma domestica	Zingiberacea
			е
	Adrak (Ginger)	Zingiber officinale	Zingiberacea
			е
	Aam	Magnifera indica	Anacardiacea
			е
	Anar	Punica granatum	Lythraceae
Fruits	Amrud (Guava	Psidium guajava	Myrataceae
1 Tailo	Jamun (Black Berry)	Sysygium jambolana	Myrtaceae
	Kathal (Jackfruit)	Articarous heterophyllus	Moraceae
	Bel	Angle marmelos	Rutaaceae
	Papaya	Carica papaya	Caricaceae
Plantation		T =	Т.
	Shisam	Dalbergia sisso	Leguminosae
	Mango	Magnifera indica	Anacardiacea
	Amaltas		l comminaces
	Kathal (Jackfruit)	Casia fistula	Leguminosae
Planted	Gulmohar	Articarous heterophyllus Delonix regia	Moraceae
	Guilliollai	Delonix regia	Caesalpiniac eae
by WCL	Arium		Combretacea
	Arjun	Terminalia arjuna	
	Babul	Acasia nilotica	e Momoseae
	Karanj	Pongamia pinnata	Fabaceae
		• .	
	Leaguan	Tootona grandic	Marhanacaa
Maturaly	Sagwan	Tectona grandis	Verbenaceae
Natural ve	egetation / Forest type		
Natural ve	egetation / Forest type Karanj	Pongamia pinnata	Fabaceae
Natural ve	egetation / Forest type Karanj Sitaphal	Pongamia pinnata Annona squamosa	Fabaceae Annonaceae
Natural ve	egetation / Forest type Karanj Sitaphal Bija	Pongamia pinnata Annona squamosa Pterocarpus marsupium	Fabaceae Annonaceae Leguminosae
Natural ve	egetation / Forest type Karanj Sitaphal	Pongamia pinnata Annona squamosa	Fabaceae Annonaceae Leguminosae Graminae
	egetation / Forest type Karanj Sitaphal Bija Katang bamboo	Pongamia pinnata Annona squamosa Pterocarpus marsupium Bambusa arundinacea	Fabaceae Annonaceae Leguminosae Graminae Anacardiacea
Trees	egetation / Forest type Karanj Sitaphal Bija	Pongamia pinnata Annona squamosa Pterocarpus marsupium	Fabaceae Annonaceae Leguminosae Graminae Anacardiacea e
Trees (Top	egetation / Forest type Karanj Sitaphal Bija Katang bamboo Aam	Pongamia pinnata Annona squamosa Pterocarpus marsupium Bambusa arundinacea Mangifera indica	Fabaceae Annonaceae Leguminosae Graminae Anacardiacea e Anacardiacea
Trees (Top	egetation / Forest type Karanj Sitaphal Bija Katang bamboo	Pongamia pinnata Annona squamosa Pterocarpus marsupium Bambusa arundinacea	Fabaceae Annonaceae Leguminosae Graminae Anacardiacea e Anacardiacea e
Trees (Top	egetation / Forest type Karanj Sitaphal Bija Katang bamboo Aam Bhilma	Pongamia pinnata Annona squamosa Pterocarpus marsupium Bambusa arundinacea Mangifera indica Semicarpus ancardium	Fabaceae Annonaceae Leguminosae Graminae Anacardiacea e Anacardiacea e Anacardiacea
Trees (Top	egetation / Forest type Karanj Sitaphal Bija Katang bamboo Aam	Pongamia pinnata Annona squamosa Pterocarpus marsupium Bambusa arundinacea Mangifera indica	Fabaceae Annonaceae Leguminosae Graminae Anacardiacea e Anacardiacea e

Flora	Local Name	Botanical Name	Family
	Gulmohor	Delonix regia	Caesalpiniac
			eae
	Apta	Bauhinia racemosa	Leguminosae
	Chinch (Imli)	Tamarindus indica	Leguminosae
	,		Combretacea
	Dhawda	Anogiessus latifolia	е
			Combretacea
	Ain	Terminalia alata	е
	Arjun/kahu	T. arjuna	Combretacea
			е
			Combretacea
	Behada	T. bellarica	е
	Tendu	Diospyros melanoxylon	Ebenaceae
			Euphorbiacea
	Awla	Phyllanthus emblica	е
	Palas	Butea monosperma	Leguminosae
	Sisam	Dalbergia sissoo	Leguminosae
	Khair	A. catechu	Leguminosae
	Hiwar	A. leucophloea	Leguminosae
	Babul	A. nilotica	Leguminosae
	Sirish	Albizzia lebbeck	Leguminosae
	Sagwan	Tectona grandis	Verbenaceae
	Wad	Ficus benghalensis	Urticaceae
	Neem	Azadirachta indica	Meliaceae
	Pimpal	F. religiosa	Moraceae
	Shevga	Moringa oleifera	Moringaceae
	Sirish	A. procera	Leguminosae
	Jambhul/jamun	Syzygium cumini	Myrtaceae
	Bel	Aegle marmelos	Rutaceae
	Kumbhi	Careya arborea	Myrtaceae
	Limbu	Citrus aurantifolia	Rutaceae
	Austrelian babul	Acacia auriculoformis	Mimosaceae
	Kukada	Celosia argentia	-
	Aradhi	Achyranthus aspera	-
	Amaltas	Cassia fistula	Leguminosae
	Tarota	C tora	-
	Kamarmodi	Tridax procumbens	Astraceae
Herbs		Parthenium	
(Lower	Gajar gawat	hysterophorus	Astraceae
Story)	Tulsi	Ocimum basilicum	Lamiaceae
Oldry)	Ratantulsi	O.bassilicum	Lamiaceae
	Kala dhotra	Datura metal	Solanaceae
	Ratrani	Cestrum nocturnum	Solanaceae
	Gokhru	Tribulus teristris	Zygophyllace
			ae
Shrubs		Holarrhena	
5111400	Pandra kuda	antidysenterica	Apocynaceae

Flora	Local Name	Botanical Name	Family
(Middle	Kanher	Nerium indicum	-
Story)	Bharati	Maytenus emarginata	Celastraceae
	Ratanjyoti	Jatropha gossypifolia	Euphorbiacea
			е
	Katumbar	Ficus hispida	Moraceae
	Lokhandi	Ventilago denticulata	Rhamnaceae
	Bhor	Ziziphus jujuba	Rhamnaceae
	Eroni	Z. oenoplia	Rhamnaceae
	Mehndi	Lowsonia immermis	-
	Nirgundi	Vitex nigunda	-
		Cuscuta reflexa	Convolvulace
	Amar vel		ae
	Indrayani	Citrullus calexynthis	-
		Cephalandra indica	Cucurbitacea
	Jangli kundru		е
Climbers			Periplocacea
	Dudhi	Cryptolepis buchanani	е
			Asclepiadace
	Rabarachavel	Cryptostegia grandiflora	ae
			Periplocacea
	Arasphari	Olax scandens	е
	Doob	Cynodon dactylum	Gramineae
	Bans/Bamboo	Dendrocalamus strictus	Gramineae
Grasses	Sabai	Eulaliopsis binata	Gramineae
Ciasses	Munj	Sacchanum munja	Gramineae
	Jharoo grass	Thysanolaena agrostis	Gramineae
	Chor kanta	Chrysopogon auciculatus	Gramineae
Endang			
ered	Nil	Nil	
species			
Endemic	Nil	Nil	
species	1 4	1 411	

Table Fauna of Core Zone

	Table Taulia of Core Zorie				
Fauna	Common Name	Zoological Name			
LISTED UNDER WILDI	LIFE PROTECTION ACT,19	72			
Terrestrial Fauna					
Schedule-I	Nil	-			
Schedule-II	Nil	-			
Schedule-III	Nil	-			
SchII, Part II, Sec.	Jungle cat	Felis chaus			
2C					
Schedule-IV, Section	Indian Grey Mongoose	Herpestes edwardsi			
6A					
Schedule-V, Section 6,	Indian Mouse	Bandicota bengalensis			
Section 3	House rat	Rattus rattus			
Schedule-V, Section 3	Fulvous Fruit Bat	Rousettus			
		Leschenaulti			

Fauna	Common Name	Zoological Name		
Amphibians & Reptiles				
Schedule-II	Nil	Calotes verosicolor		
Schedule-IV	Toad	Bufo melanostictus		
Avi Fauna				
	Bhagule	Ardea purpurea		
		Eudynamys		
	Koel	scolopacea		
Schedule-IV, Section	Kabutar	Columbia livia		
11	House swift	Apus affinis		
	Titavi	Vanellus indicus		
	Bhardwaj	Centropus sinesis		
	Pandubi	Prodiceps ruficollis		
Schedule-V	Kavvwa	Corvus splendens,		
NOT LISTED UNDER	WILDLIFE PROTECTION AC	CT,1972		
	Goat	Capra species		
Mammals / (Domestic	Bull	Bos indicus		
Animals)	Cow	Bos indicus		
	Buffalo	Bubalus bubalis		
Birds	Tota (Parrot)	Pisttaculus krameri		
	Marad	Channa punctatus		
Aquatic fauna	Magur	Clarias batrachus		
	Katla	Catla catla		
	Cockroach	Blata orientalis		
	Madhumakkhi	Apis indica		
	Tilchatta	Blata orientails		
	Chinti	Solpopsis Spp.		
Invertebrates	Honey bee	Apis dorsata		
	Lahi	Kerria laxxa		
	Birni	Polistis Spp.		
	Jugnu	Photinus Spp.		
	Gojar	Scolopendra Spp.		
ENDANGERED SPECIES	Nil	-		
ENDEMIC SPECIES	Nil	-		
MIGRATORY SPECIES	Nil	-		

Table Fauna of Buffer Zone

	1 00010 1 000110 1 20110 1 20110			
Fauna Common Name		Zoological Name		
LISTED UNDER WILDL	IFE PROTECTION ACT,197	72		
Terrestrial Fauna				
Schedule-I Nil -		-		
	Lomdi (Common Fox)	Vulpes bengalensis		
	Siyar (Jackal)	Vulpes vulpes		
Schedule-II	Jungle Cat	Felis chaus		
	Common langur	Presbytis chtellus		
	Ban suar	Sus scrofa		

Fauna	Common Name	Zoological Name	
	Mongoose	Herpestes edwardsi	
	Squirrel	Funambulus pennanti	
Schedule-IV	House Rat	Rattus species	
	Mice	Mus Musculas	
Schedule-V, Section 3	Fulvous Fruit Bat	Rousettus	
	Taivous Frant But	Leschenaulti	
Amphibians & Reptiles		Localidada	
1	Common Garden Lizards	Varanus species	
Schedule-II	Cobra	Naja species	
	Dhamon or Rat Snake	Ptyas Mucosus	
	Tode	Bufo melanostictus	
0.1	Karait	Bungurus Caeruleaus	
Schedule-IV	Water snake	Natrix piscator	
	Dhorwa	Natrix Sp.	
Avi Fauna		1	
	House swift	Apus affinis	
	Bhagule	Ardea purpurea	
		Eudynamys	
Schedule-IV, Section	Koel	scolopacea	
11	Kabutar	Columbia livia	
	Titavi	Vanellus indicus	
	Bhardwaj	Centropus sinesis	
	Pandubi	Prodiceps ruficollis	
Schedule-V	Common Crow	Corvus splendens	
NOT LISTED UNDER WILDLIFE PROTECTION ACT,1972			
	Goat	Capra species	
	Bull	Bos indicus	
	Cow	Bos indicus	
Mammals (Domestic	Buffalo	Bubalus bubalis	
Animals)	Dog	Canis familaris	
	Sheep	Capra Sp.	
	Pig	Sus scrofa	
	Horse	Equus Sp,	
Birds (Domestic Birds)	Sparrow	Passer domesticus	
	Duck	Nettopus	
		Coromandelianus	
Fauna	Common Name	Zoological Name	
	Frog	Rana Tigerina	
Amphibian	Tree frog	Hyle Spp.	
	Flying frog	Rhacopnonis Spp.	
		1.1	
	Rohu	Labco rohita	
	Rohu Catla	Cyprindiae	
Aquatic fauna (Fishes)	Catla	Cyprindiae	
Aquatic fauna (Fishes)	Catla Garai	Cyprindiae Channa punctatus	
Aquatic fauna (Fishes)	Catla Garai Mangoor	Cyprindiae Channa punctatus Clarias batrachus	

Fauna	Common Name	Zoological Name
	Birni	Polistis Spp.
	Grosshopper	Hierogylphus banian
	Tidha	Schistocerca gregaria
	Moth	Antheria mylita
	Black Bee	Apis dorsata
	Bee	Apis indica
Invertebrates	Stem Borer	Chilo auricilia
	Cockroach	Blata orientalis
	Madhumakkhi	Apis indica
	Chinti	Solpopsis Spp.
	Lahi	Kerria laxxa
	Jugnu	Photinus Spp.
	Gojar	Scolopendra Spp.
Agustia Incost	Daphnia	Nepa Spp.
Aquatic Insect	Prawn	Chaetogaster
ENDANGERED	Nil	-
SPECIES		
ENDEMIC SPECIES	Nil	-
MIGRATORY	Tree Pipit	Anthus Trivialis
SPECIES	Cuckoo	Cuculus Micropterus

Observation

The floristic component of the study area does not include any rare or endangered species.

Thus, impact on rare and endangered species of flora is not envisaged. The project does not envisage destruction or displacement of any fauna species. Thus, indirect impact on fauna due to loss of habitat is not foreseen. However, it is reported that animals like Langur, Jangli Billi, Jackal, etc. enter into the agricultural field of the villages and need conservation.

New Majri UG to OC is an existing mine of WCL. The present proposal seeks expansion in production capacity and ML area. The additional area required is mostly agricultural land. No forest land is involved in the present project.

Common Species of Flora & Fauna observed in the study area are as follows:

Table Common Species of Flora

Flora	Local Name
Agricultural crops	
Cereals	Dhan , Makka
Pulses	Urad (Black Gram), Chhana, Tuar (Red gram), Kulthi (Horse Gram), Mung (Green Gram)
Commercial crops	
Vegetables	Baigan, Tamator, Cobbage, Bean, Jhinga, Kohra, Bhindi
Oil yielding plants	Sarson, Arandi etc
Spices	Mirch, Dhania, Adrak, Lahsun etc.

Fruits	Aam, Amrudh, Jamun, Papita, Kathal, Ber, Orange	
	etc	
Cash crops	Kappas, Soyabean	
Natural vegetation / forest type		
Herbs Amaltas, Dhudhi, Rantulsi, Ratrani etc		
Shrubs Ratanjoyati, Katumber, Lokhandi, Bhor etc		
Trees Aam, Sitaphal, Neem, Peepal, Mahua etc		
Grasses	Baans, Doob,etc	

Table Common Species of Fauna

SL. No.	COMMON NAME	SCHEDULE
01.	House Rat	V
02.	Jackal	II
03.	Jungle Cat	II
04.	Fulvous Fruit Bat	V
05.	Common crow	V
06.	Common Langur	II

Results

From the above study, it is observed that there is no endangered and endemic species found in the area as per Red Book of Botanical Survey and Zoological survey of India as per Wild Life (Protection) Act 1972 and its subsequent amendments. The main agricultural crops of the village area under study is Rice and Maize. The major commercial crop grown here during the summer season is Lady Finger, Brinjal, Chilies, Onion, Beans, Karela etc. Plantation has been done by M/s WCL and Forest Department and is categorized as B-Type forest. The main constituents of forest are Palash, Sisam, Bel, Babul, Mango, Mahua, Jamun, Kathal, Neem etc. Trees of terminalla species were found, besides Palash, Sisam, Teak, Sal, Mango, Ashok, Kathal, Gulmohar etc. are planted and maintained by M/s WCL and Forest Department. The grass land vegetation mainly covered by Moraba, Chor kanta, Dubh, Munj species, Bans/Bamboo etc.

As there is B-Type forest, hence major fauna elements were absent in this area. Mainly Fox, Newla, Jungle Cat are observed/reported. No endemic and endangered species of fauna elements has been reported as per Wild Life (Protection) Act 1972 and its subsequent amendments. No migratory species and path/corridors have been found/reported in the area.

Hence, the flora fauna (Ecology Biodiversity) studies carried out during 2013 and 2019 shows no significant change has occured in flora fauna of the study area.

3.9 Supportive Carrying Capacity of The Riverine Ecosystem

Ground Water Draft

Table Gross Groundwater Draft for 'All Uses'

	GROUNDWATER DRAFT	Monsoon (120 days)	Non- monsoon (245 days)	Total
		M m ³	M m ³	M m ³
1	Net irrigation use			
i.	Proportional quantity for 1570 Ha area	0.00	0.17	0.17
2	COMMUNITY USE			
i.	Projected population (i.e. 2025 AD) = 55601	0.32	0.66	0.98
ii.	Mine use (mine water & tubewell):			
1	New Majri UG to OC	0.03	0.06	0.09
	New Majri II A OC	0.12	0.24	0.36
	Kolar Pimpri OC	0.10	0.20	0.30
	Junad OC	0.05	0.10	0.15
	Total	0.30	0.60	0.90
	Sub-Total (2(i)+2(ii))	0.62	1.26	1.88
3	Net Annual Mine Discharge (M m³)	Monsoon	Non- monsoon	Total
i	New Majri UG to OC	0.51	1.05	1.56
	New Majri II A OC	0.83	1.69	2.52
	Kolar Pimpri OC	0.53	1.07	1.60
	Junad OC	0.41	0.85	1.26
Total Mine Pumping in the Area		2.28	4.66	6.94
Mine ι	use	0.30	0.60	0.90
Total discharge after mine use		1.98	4.06	6.04
Net mine discharge in the area		1.98	4.06	6.04
	s Annual Groundwater Draft for 'All uses' ffer Zone	2.60	5.49	8.09

Ground Water Recharge:

<u>Table Rainfall Recharge in the study area by Rainfall Infiltration Method during Monsoon and Non-Monsoon Period</u>

	Description of items	
1	Area	
	a. Sedimentary Area (km²)	314
	i) Alluvium/Kamthi	284
	ii) Lametas	30
	b. Hard Rock Area (km²)	-

	i) Basalt	-	
2	Average Rainfall (mm) during	1163.1	
	a. Monsoon season rainfall (mm) (June to Sept)	1017.5	
	b. Non-monsoon season rainfall (mm) (Oct to May)	145.6	
	c. Minimum threshold value of rainfall (mm)	116.31	
	d. Maximum threshold value of rainfall (mm)	3000	
		Sedimentary	Hard Rock
3	Rainfall infiltration factor	Alluvium/Kamthi- 0.15 Lameta – 0.06	-
4	Rainfall recharge in the study area by rainfall infiltration factor method		
	b. Monsoon season (M m³) = $[(1) * {(2d)-(2c)} *(3)/1000]$ if $(2a) > (2d)$ = $[(1) * {(2a)-(2c)} * (3)/1000]$ if $(2a) <= (2d)$	40.01	
		Alluvium/ Kamth	i – 38.39
	i) Sedimentary	Lameta - 1	.62
		Total – 40	.01
	ii) Hard Rock	-	
	b. Non-monsoon season (M m^3) = Nil if (2b) <= (2c) = [(1) * {(2b) - (2c)} * (3)/1000 if (2b) > (2c)]	1.30	
	_	Alluvium/ Kamt	
_	i) Sedimentary	Lameta - (
	ii) Hard Rock	Total – 1.30	
	Gross Rainfall Recharge [a) + (b)]	41.31	

<u>Table Rainfall Recharge in the study area by Water Table Fluctuation Method during monsoon season</u>

	Description of items	Sedimentary		
1	Area (km²)	Alluvium/Kamthi	Lameta	
		284	30	
2	Water table fluctuation (m)	2.61	1.07	
3	Specific yield	0.04	0.025	
4	Change in groundwater storage [$(1) * (2) * (3)$] $(M m^3)$	29.65	0.80	
5	Total (M m³)	30.45		
6	Gross groundwater extraction for 'All Uses' during monsoon season (M m ³)	2.60		
7	Recharge from 'Other Sources' during monsoon season (M m³)	0.46		
8	Gross Rainfall Recharge (M m ³) [(5) + (6)-(7)]	32.59		

<u>Table Rainfall Recharge during Monsoon season after comparing results from Water Table Fluctuation Method and Rainfall Infiltration Factor Method during monsoon season</u>

	Description of items	Quantity									
1	1 Rainfall Recharge during monsoon season										
	a. By Water Table Fluctuation Method (M m ³)										
	b. By Rainfall Infiltration Factor Method (M m³)										
2	Difference between (1a) and (1b) expressed as a percentage of (1b), 'PD' $ PD = \frac{[(1a)-(1b)]}{(1b)} * 100 $	-18.54%									
3	Rainfall Recharge in the study area during monsoon season after considering the 'PD'										
	[= (1a) if 'PD' is between -20 and +20%	32.59									
	= 0.8 * (1b) if 'PD' is less than -20%										
	= 1.20 * (1b) if 'PD' is greater than +20%]										

Table Net Groundwater Availability in the study area

	Description of items	M m ³
1	Rainfall Recharge in the study area	
	a. During Monsoon season (Rainfall Infiltration Method)	32.59
	b. During Non-monsoon season (Rainfall Infiltration Method)	1.30
	c. Annual [(1a) + (1b)]	33.89
2	Recharge from 'Other Sources'	
	a. During Monsoon season	0.46
	Return flow from Excess mine water [20% as seepage factor]	0.40
	Recharge through water bodies in the area	0.06
	b. During Non-monsoon season	0.96
	Return flow from Irrigation [20 % of Irrigation Draft]	0.03
	Return flow from Excess mine water [20% as a seepage factor]	0.81
	Recharge through water bodies in the area	0.12
	c. Annual [(2a) + (2b)] M m ³	1.42
3	Are Environmental Flows assessed (Yes/No)	No
4	Total Annual Groundwater Recharge [(1c) + (2c)]	35.31
5	Environmental flows in (M m ³)	1.76
	a. [0.05 * (4)] if response to (3) is "NO" and rainfall recharge during monsoon season computed by 'Water table Fluctuation Method'	1.76-
	b. [0.10 * (4)] if response to (3) is "NO" and rainfall recharge during monsoon season is "NOT" computed by 'Water table Fluctuation Method'	-

(6	Net Annual Groundwater Availability in the study area $[(4) - (5)]$ M m ³	33.55
-	7	Annual Gross Groundwater Draft for all uses in the study area	8.09
8	8	Balance Available Annual Groundwater Recharge (Net Annual Groundwater Availability – Gross Annual Groundwater Draft)	25.46

Table Stage of Groundwater Extraction in the study area

Description of items	Buffer Zone			
1. Net Groundwater Availability (M m ³)	33.55			
2. Annual Gross Groundwater Draft (M m³)	8.09			
3. Balance Available Annual Groundwater Recharge (M m³)	25.46			
4. Stage of Groundwater Extraction	24.11%			

The present stage of ground water extraction in and around the project area is 24.11% which can be categorized as safe area. As per CGWB, Central Region, Nagpur the 'Stage of ground water extraction' in Bhadravati tehsil, in which mine is located is 10.37%.

3.10 Consideration of Existing Mine Discharge into the Wardha River

The entire quarriable area is covered by sedimentary rocks of Gondwana Super group. These formations may possess moderately high groundwater potential. The semi-consolidated Gondwana are mostly stratified formations underlying the Alluvium/soil. The permeable beds (Sandstone horizons) act as individual hydrogeological units and develop multi-aquifer system. As such under these circumstances, the groundwater flow/velocity along the bedding planes is higher than across the plane. It is imperative that horizontal hydraulic conductivity is many folds higher than the vertical hydraulic conductivity.

The opencast mine acts as large diameter well/sink resulted in by cutting /extraction of different aquifer zones/formations overlying the working coal seam. As soon as depression / pit is created due to mine cut, the initial discharge is generally heavy due to concentration of flow to that region thereby creating depletion/draw-down in water levels in the surrounding area and the inflow stabilizes due to partial desaturation. With increase in depth of incision, the semi-confined aquifer would also be exposed /punctured thereby the total system would be converted into water table condition and a cone of depression would be formed by the gravity drainage from different aquifer zones. In opencast mining, the

unconfined aquifer is the most affected and the semi confined aquifer is least affected. The mine influence is directly proportional to the mine area and depth.

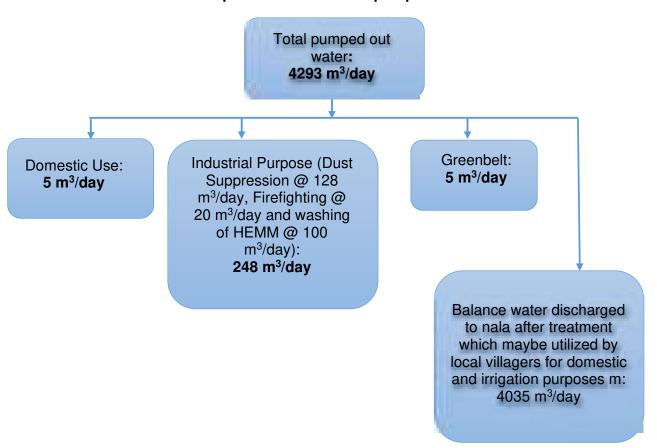
The groundwater inflow computation has been done by utilizing the above mentioned aquifer and mine parameters. Based on the Darcy's law (i.e. Q= KIA), the groundwater inflow for New Majri UG to OC Mine has been predicted at final mine depth of 250 m as given below:

Table Mine inflow Prediction of New Majri UG to OC

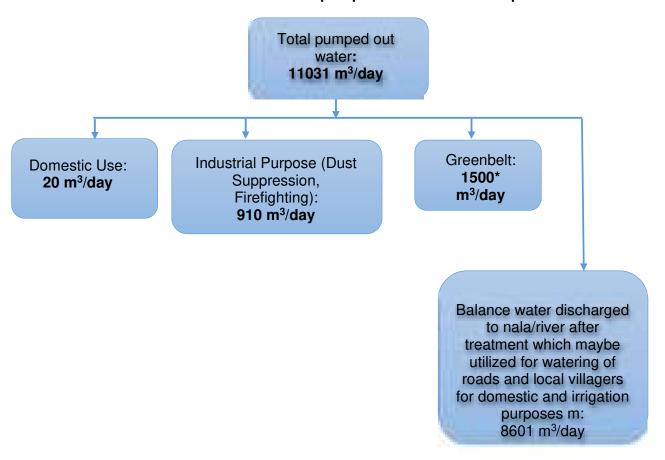
SI No.	Aquifer	Maximu m Workin g Depth (m)	Mine face length (L) in m.	Avg. saturate d OB thicknes s (m)	Seepage Area(m²) (Open area) (A)	Hydraul ic conduc tivity m/d (K)	Hydraulic gradient (I)	Mine inflow prediction (m³/day) (Q)
1	Unconfined		2163	20	43260	5	3x10 ⁻²	6489
2	Semi-confined/ confined	250	2163	35	75705	2	3x10 ⁻²	4542
				Total				11031

Note: The present value of actual mine seepage is 4293 m³/day and flowchart showing its utilization is given as follows:

Flowchart for present utilization of pumped out mine water



Flowchart for utilization of pumped out mine water at peak



Strata seepage water is first gets accumulated in the mine sump which will act as first stage / primary settling tank/ Sedimentation pond. The settled water is then be pumped out and fed into a surface sedimentation tank for secondary treatment. The treated water from the surface sedimentation tank is being utilized for internal usage like domestic use, dust suppression measures, washing of HEMM & fire-fighting purpose. The surplus water after internal usage is released onto natural water sources as shown above.

For dewatering of mine water, NOC from CGWA for Expn. of New Majri UG to OC has been obtained vide no. CGWA/NOC/MIN/ORIG/2020/7125 dated 09-01-2020 with validity upto 08-01-2022 for maximum dewatering quantity of 4293 m3/day. Copy of the NOC letter is also placed below:



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Chapter 4

CONSTRUCTION OF EMBANKMENT AT EXPANSION OF NEW MAJRI UG TO OC – CASE STUDY

4.1 Embankment Construction

The design criteria has been based on the Indian Standard Guidelines for planning and Design of river embankments from Compendium of Guidelines in the field of flood management by Ganga Flood Control Commission (G.F.C.C), Ministry of Water Resources, Govt. of India and Maharashtra Water & Irrigation Commission Report, 1999.

4.1.1 Spacing of Embankment

The spacing of embankments and their alignment needs careful consideration with respect to the vulnerability to the river and the rise of high flood levels on account of reduction in flow and also increase in peak discharge due to reduction in flood plain storage by construction of the factors embankment. Finalization of the alignment and the spacing with due consideration to the above factors and at the same time optimizing the benefits from the proposed embankment would need considerable experience of the river behavior and studies of the effects of the embankment along different alignments. In view of the widely varying nature of the rivers, no general recommendation about spacing of embankment can substitute the need for the above studies. The following general guidelines about the minimum spacing etc. are however, given mainly with an idea to check the tendency of excessive encroachment of the natural flood plain of the river.

In case of the embankment on both sides of the river, the spacing between the embankments should not be less than 3 times Lacey wetted perimeter for design flood discharge.

In case of the embankment on only one bank, the embankment should not be less than a distance equal to 1.5 times Lacey's wetted perimeter from the midstream of the river.

4.2 Calculation

Based on unlined channel / stream design on alluvial soil by Lacey's theory, Lacey's wetted perimeter = P_w = 4.75 \sqrt{Q} Where,

 P_w = Lacey's wetted perimeter in meter;

Q = Discharge in cumecs (cubic meter per second)

1. Case Study of Expansion of New Majri UG to OC

Expansion of New Majri UG to OC mine is situated in located in Village Shivji Nagar Majri, District Chandrapur (Maharashtra). Wardha River flows along the southern boundary of the Project.

The Wardha River is a major river in Vidarbha region of Maharashtra in India. The Wardha River joins the Wainganga River at Chaprala in Gadchiroli district and forms the Pranahita River which ultimately flows into Godavari.



Fig Wardha river

To find Lacey's wetted perimeter of Wardha river at Expn. of New Majri UG to OC mine situated in Village Shivji Nagar Majri, Bhadravati tehsil, District Chandrapur (Maharashtra) based on following equation:

$$P_{w} = 4.75 \sqrt{Q}$$

Where,

 P_w = Lacey's wetted perimeter in meter;

Q = Discharge in cumecs (cubic meter per second)

 $Q = 5633 * 10^6$ Cu.m per year = 178.62 cu.m per sec = Average annual yield (Discharge) of water (based on Maharashtra Water & Irrigation Commission Report 1999)

 $P_w = 4.75 \sqrt{178.62}$

= 4.75 * 13.36

= 63.46 m

As embankment is on only one bank, the embankment should not be less than a distance equal to 1.5 times Lacey's wetted perimeter from the midstream of the river i.e. 1.5 * 63.46m = 95.19 m

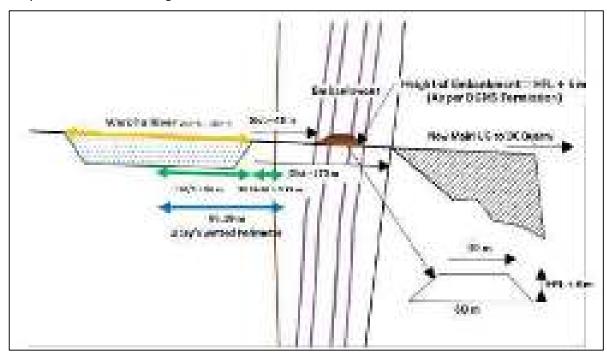
As per Lacey's theory, Design criteria for flood protection Embankment, for only one bank should not be less than 95.19 m from midstream of river.

As the physical width of river at considered cross-section is 180 m.

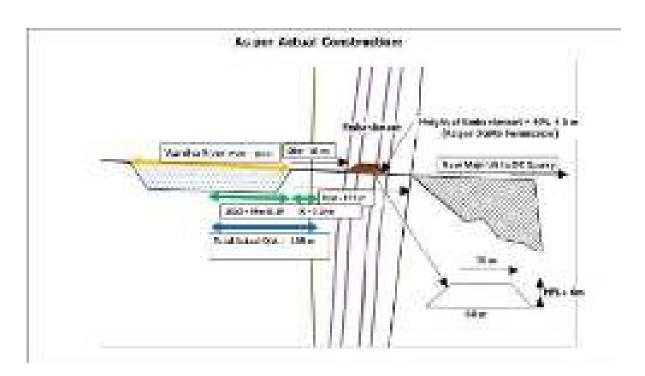




As per theoretical Design Criteria:



As per Actual construction:



Conclusion:

As per Lacey's theory, Design criteria for flood protection Embankment, for only one bank should not be less than 95.19 m from midstream of river.

As per the actual construction, the embankment at Expansion of New Majri UG to OC is at a distance of 135 m away from the midstream of Wardha river on the one bank side.

As such, there is a free space of 40 m available for between the physical bank / edge of river and toe of the embankment which will allow water to spread without any constraint thereby minimizing adverse impact in the surrounding significantly.

In other way, the construction of embankment at Expansion of New Majri UG to OC site for protection of mine from the danger of surface inrush of Water as per the requirement of Coal Mines Regulation, 2017 and relevant permission from DGMS does not pose any danger to the river and the surrounding habitation.

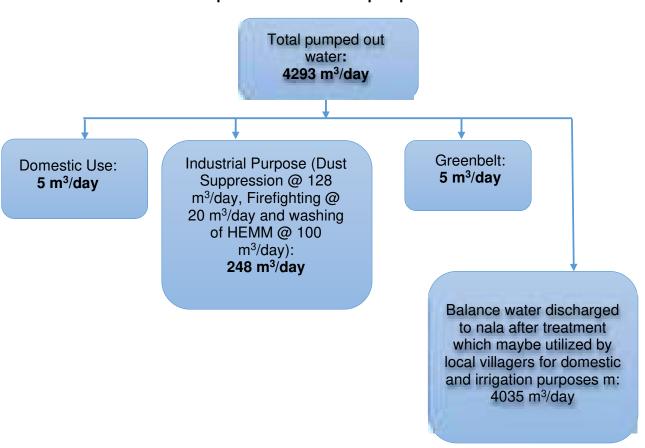
Chapter 5 DISCUSSION

5.0 Mine Discharge

As deliberated in the above paragraphs, strata seepage water first is gets accumulated in the mine sump which will act as first stage / primary settling tank/ Sedimentation pond. The settled water is then be pumped out and fed into a surface sedimentation tank for secondary treatment. The treated water from the surface sedimentation tank is being utilized for internal usage like domestic use, dust suppression measures, washing of HEMM & fire-fighting purpose. The surplus water after internal usage is released onto natural water sources.

The quantity of mine discharge water (after treatment) is very less 4035 m3/day as compared to total amount of discharge in the Wardha river.

Flowchart for present utilization of pumped out mine water



The quality of mine discharge water (after treatment) also confirming the prescribed standards.

NOC from CGWA for Expn. of New Majri UG to OC has been obtained vide no. CGWA/NOC/MIN/ORIG/2020/7125 dated 09-01-2020 with validity upto 08-01-2022 for maximum dewatering quantity of 4293 m3/day. Copy of the NOC letter is also placed in the previous sections.

Suggestion/ Recommendations:

- Mine water may be discharged in the Wardha river only after proper treatment.
- The water being discharged into the Wardha river should confirm the prescribed water quality standard.
- Any increase or decrease in the quantity of mine water discharge resulting from dewatering may be reported to Central Ground Water Authority and necessary permission from CGWA may be obtained.

5.1 Embankment

As per Lacey's theory, Design criteria for flood protection Embankment, for only one bank should not be less than 1.5 times of lacey's vetted perimeter from midstream of river.

As per the proposal for construction, the embankment at New Majri UG to OC is at a distance of 135 to 150 m from the midstream of Wardha river on the one bank side. As such, there will be free space of 40 m to 50 m available for between the physical bank / edge of river and toe of the embankment which will allow water to spread without any constraint thereby minimizing adverse impact in the surrounding significantly.

In other way, the construction of embankment at Expansion of New Majri UG to OC site for protection of mine from the danger of surface inrush of Water as per the requirement of Coal Mines Regulation, 2017 and relevant permission from DGMS does not pose any danger to the river and the surrounding habitation.

Suggestion/ Recommendations:

 Actual construction of the embankment should be carried out as per the design prescribed.

- Necessary permission may be obtained from DGMS to protect the mine from danger of surface inrush of water.
- Plantation / grass seeding may be carried out in vacant space between embankment and river bank.

5.2 Plantation / Green Belt Development

In the EIA-EMP, it is proposed that, 234.80 ha of 706.28 ha will be afforested including plantation on embankment. The stage wise reclamation and afforestation is placed in the below table:

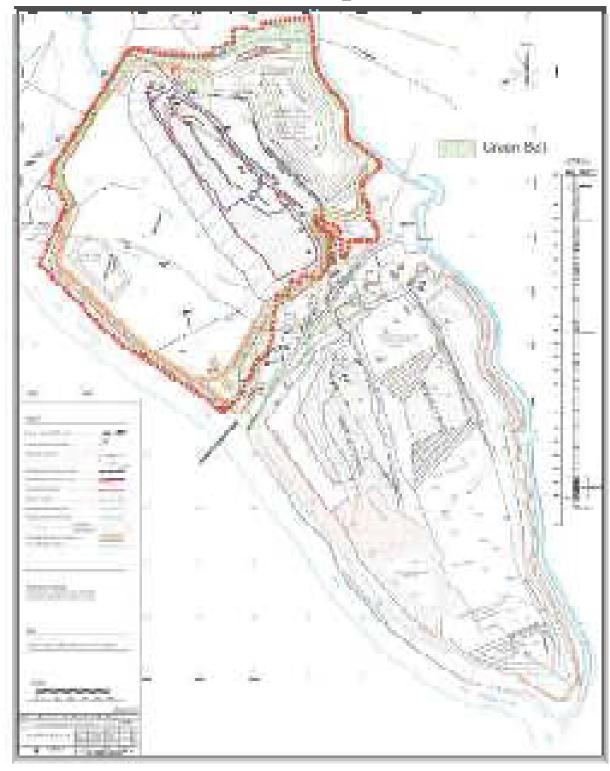
S. No.	Land use category	Present (1st year)	5 th year	10 th year	14 th Year End of Mine Life	Post Mining
1	Backfilled Area	0.00	0.00	0.00	0.00	0.00
'	Reclaimed with plantation)	0.00	0.00	0.00	0.00	0.00
2	Excavated Area (Not reclaimed) /void	51.72	155.66	325.91	358.35	358.35
3	Ext. OB dump	38.40	84.60	84.60	84.60	84.60
3	(Reclaimed with plantation)	0	0	60	84.60	84.60
4	Reclaimed Top soil dump	0	4.2	4.2	4.2	4.2
4		0	4.2	4.2	4.2	4.2
5	Green Built Area (included in 3, 6,7 & 8)					
6	Undisturbed area (brought	571.16	393.62	223.37	190.93	190.93
0	under plantation)	20	40	60	80	140
7	Colony & Infractivistics	15	15	15	15	15
'	Colony & Infrastructure	0.00	2	2	2	2
8	Embankment*	30	53.20	53.20	53.20	53.20
°	EIIIDAIIKIIIEIIL	0.0	4.0	4.0	4.0	4.0
	Total	706.28	706.28	706.28	706.28	706.28
	Plantation	20.00	50.20	130.20	174.80	234.80

^{*}Peripheral Plantation over the Embankment is proposed. Grassing will be done over the slops of Embankment.

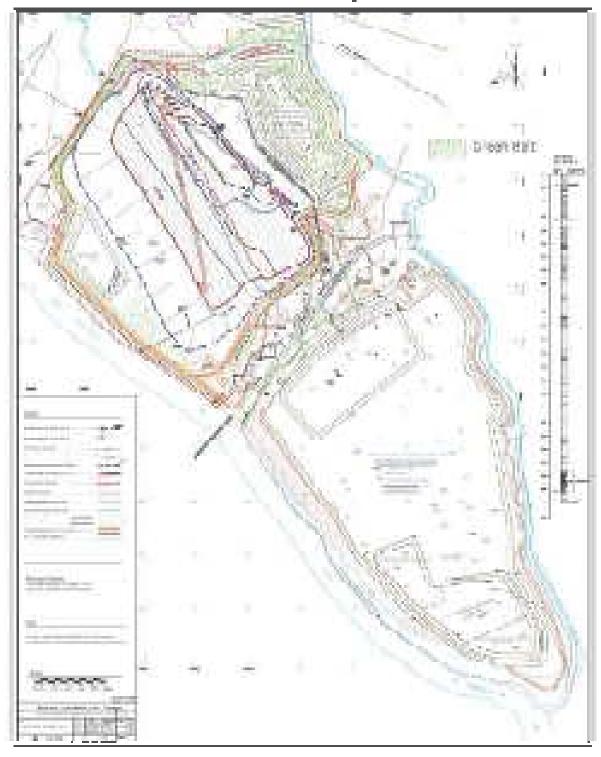
Suggestion / Recommendations:

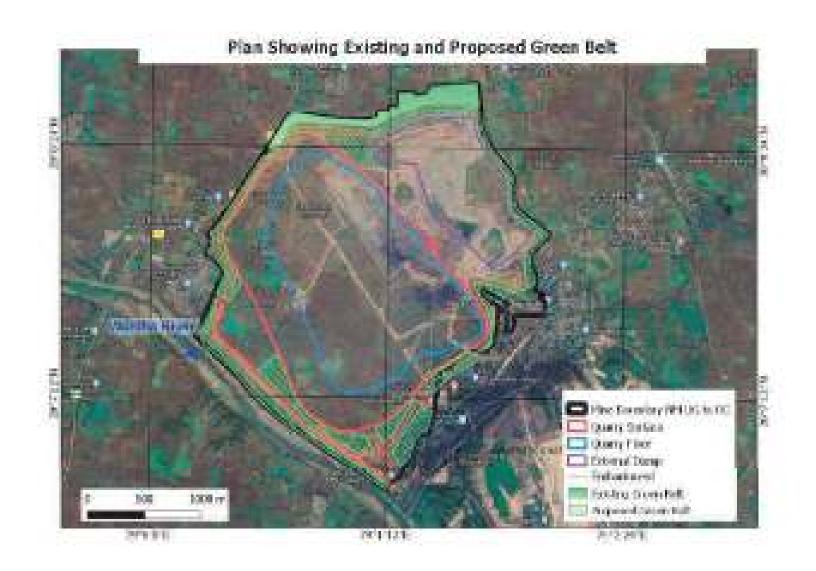
- Plantation / grass seeding may be carried out in vacant space between embankment and river bank.
- Green belt may be developed all along the periphery of the mine boundary as proposed.

5th Year Stage Plan



10th Year Stage Plan





Chapter 6

CONCLUSION

The strata seepage water is being abstracted from the mine sump for safe operation of the mine. This pumped out mine water meets the entire internal usage (Dust suppression purpose, washing of HEMM, firefighting needs, etc.). The balance quantity is let off the natural water courses after treatment. The CGWA NOC has also been secured accordingly for maximum dewatering quantity of 4293 m3/day.

The mine discharge from New Majri UG to OC into Wardha river is very less as compared to total discharge in the Wardha river. As such, this quantity of water will contribute as small aid to Wardha river volume and is not likely the affect the quality of water in Wardha river adversely. As such, there is no danger to the aquatic flora and fauna in the riverine eco system.

Construction of embankment at Expn. New Majri UG to OC site for protection of mine from the danger of surface inrush of Water as per the requirement of Coal Mines Regulation, 2017 and relevant permission from DGMS does not pose any danger to the river and the surrounding habitation.

Plantation / grass seeding in vacant space between embankment and river bank will reduce the soil erosion in the stretch.

The study reveals that, the riverine ecosystem in the study area (core zone & 10 km buffer zone) is having enough carrying capacity, both in terms of supportive and assimilative capacity, to support the development of the ecosystem of the area.

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GOVERNMENT OF MAHAE MATERIAL WATER RESOURCES DEPAIL MISST

<u>DESIGN FOR</u> DIVERSION OF KORADI NALLA UNDER WESTERN COALFIELDS LIMITED MAJRI AREA

TALL: DHACFAWATI

DIST CHANDRAPUR

<u> M.CNV.TV - 2016</u>



SUPERINTENDING ENGINEER (DAM) DESIGN CIRCLE, CENTRAL DESIGNS ORBANISATION DINDORLINGAD, NASHIK- 422004

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DESIGN FOR DIVERSION OF KORATI NALLA IN 50 (ORLOVATI TERISIL DIST. OR LYDRAPOR, WESTERN COALFEELDS LIMITED, MARRI AREA

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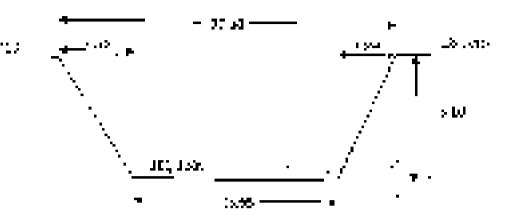
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Energy Efficient Lights in NMUG to OC Mine 2018-2023

NMUG to OC Mine has stressed upon installing energy efficient lights at various work places like – Coal Face, Coal Stock, OB Dump, Haul Road, Offices and even the colonies. In view of this, conventional lights are being continuously replaced with energy efficient LED lights. This has led to save huge amount of power. The following chart tabulates the different types of LED installed in NMUG to OC Mine since 01.04.2018.

Sr. No.	LED Type	Quantity
1.	20W Tube	95
2.	30W	113
3.	45W	235
4.	100W	84
5.	150W	8
6.	400W (High Mast Lighting Tower)	40

Energy Saved

The amount of energy saved can be understood through the following examples.

- 1. Street lights in the mine are being equipped with 45W LED
- ∴ Total wattage = 45W X 235nos. = 10,575W

Least available HPSV lights = 250W

- ∴ Total wattage for same number of HPSVs= 250W X 235nos. = 58,750W Hence, energy saved (assuming 12hrs. of operation) = (58750-10,575)W X 12 h = 578.1 kWh
 - 2. Offices and Quarters are being equipped with 20W LED tube lights
- ∴ Total wattage = 20W X 95nos. = 1,900W

Available fluorescent lights = 100W

∴ Total wattage for same number of fluorescent lights = 100W X 95nos. = 9,500W Hence, energy saved (assuming 12hrs. of operation) = (9500-1900)W X 12 h = 91.2 kWh

Solar Power Installations under Renewable Energy

Introduction

Solar PV Power Generation:

Sunlight is converted to electricity directly when made to fall on solar photovoltaic (SPV) modules. Systems /devices are made for various applications based on SPV modules connected with suitably designed power conditioning units for meeting electricity requirements.

Grid connected roof top solar PV System: Available roof-top area on the buildings can also be used for setting up solar PV power plants, and thus dispensing with the requirement of free land area. The electricity generated from SPV systems can also be fed to the distribution or transmission grid after conditioning to suit grid integration.

Advantages:

The grid connected roof top solar PV system would fulfill the partial/full power needs of large scale buildings. The following are some of the benefits of roof top SPV systems: Generation of environmentally clean energy.

- Consumer becomes generator for his own electricity requirements.
- Reduction in electricity consumption from the grid.
- Reduction in diesel consumption wherever DG backup is provided.
- Feeding excess power to the grid.

Solar Power Installations in WCL Majri Area

Majri Area has 02 Nos. On Grid Roof Top Solar Plants with installed capacity of 32 kWp and 86 kWp for large buildings structures i.e. Kendriya Vidyalaya Campus and AGM Office Complex in Kuchana Housing Complex since July-2018

• Further Proposals for large scale Solar Power Plants are in motion for Majri Area as large land bank is available to WCL by virtue of exhausted coal reserves in some of the mines of Majri Area and geographical location suitable for large solar radiation.

PHOTOGRAPHS OF SOLAR ROOF TOP SOLAR INSTALLATION





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New Majri UG to OC Mine

Capital and Revenue Expenditure Under Environment Head

<u>CAPITAL</u>

Account head	Expenditure as on 31.03.2023
Reclamation (HEMM)	Nil
Air pollution control	Rs. 35.88 lakhs
Water pollution control	Rs. 45.51 lakhs
Others	Rs 70.31 Lakhs

<u>REVENUE</u>

Account head	Expenditure as on 31.03.2023
Afforestation	Rs 178.72 Lakhs
Monitoring	Rs 108.34 Lakhs
MPCB JVS	Rs 1.81 Lakhs
Statutory expenses	Rs 218.70 Lakhs
Water pollution control	Rs 79.77 Lakhs
Air pollution control	Rs 11.12 Lakhs
Rain water harvesting pond	Rs 7.62 Lakhs
Garland drain	Rs 4.37 Lakhs
Misc. works	Rs 6.43 Lakhs
CAAQMS AMC	Rs. 4.99 lakhs
Ground Water Abstraction Charges	Rs. 86.10 Lakhs

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प्रसाधनम् विभार

आईपसओं 9001-2015 प्रमाणित Email- gmenvironment@westernooat.gov.n CN - U10100MH19760Cl018828 **Environment Department**

18G 9901:2015 Gertified TELE/FAX: 0712 -0510161 www.instlemcoa/nc.ir

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पेंच / कल्लात एवं पाधाकेश क्षेत्र।

বিষয়:- Internal Monitoring of Environmental Compliances (EC/FC conditions)

ではず:e-office file E- 746505 dated 04.05.2022.

Sin

This has reference to the competent approval for inter area inspection program for 1st QTR of FY 2022-23 vide e-office file E- 746506 dated 64.05.2022 as part of Internal Monitoring mechanism for compliance of EC and FC conditions.

The inter area inspection program for fat OTR of FY 2022-23 along with achedula for inspection for each area and tour approval is attached as Annexure – I.

Therefore, you are kindly requested to advise respective committee at your areas to prepare for the internal inspection of their concerned area and conduct the inspection of other areas vice – versa as per the schedule given.

The format for monitoring of compliance status of EC/FC conditions during inspection as received from CIL. Kolkata is enclosed as **Annexure** – III. In this regard, we would like to appraise you that committee members may kindly be advised to give special attention to the following:

- 1. Pollution control measures with respect to Air Quality & Effluent
- 2. Operation & Maintenance of CAAQMS:
- Operation of latest pollution control measures such as fog canon, sweeping machine, etc.
- 4. Status of all the conditions in EC/FC should be mentioned in the formats.

The FC checklist shall also be collected by the beam during the inspection if there is forest and is involved in the project / mine.

The Inspection Report in the above-mentioned formal in respect of each area wise / mine wise may kindly be submitted within 10 days after completion of inspection positively for appraisal to subsidiary level committee.

Matter may please be treated on priority.

Encl. as above.

सहित्यक / विस्तारिक (प्रवेषरण

प्रतिविधि

- तकनिकी सचिव विदेशक (तकनिकी) / संधानत, क्लोनि (मृ.), लायपुर.
- लकनिकी सचिव विदेशक (तकतिकी) परिचोजना एवं योजना, वैकेकि (मृ.), नामपुर.

Inter Area Inspection Schodule from 10th to 30th June 2022

St.No. Inspecting Area		Area to be inspected	Scheduly	HQ Team
10	Kantan	Padrakhera	14.66.2022 & 15.05.2022	Team "A"
2	Nagpur	Uniter	24.06.2022 & 25.06.2022	Team "H"
3	Univer	Nagour	16.06.2022 to 18.06.2022	Toom "E"
4	Perch	Kanhan	29.06.2022 & 30.06.2022	Team 'O'
5	Pathakhera	Péndi-	17.06.2022 & 18.06.2022	Team 'O+
•	Majri	Chartdrapur	13.06.2022 & 14.06.2022	Team 'C'
3	Balliopur	Majri	27,06,2022 & 28,06,2022	Team "B"
•	Chandrapur	Wani	20.06.2022 & 23.06.2022	Toum 'B'
9	Wani North	Ballaryair	16.66.2022 & 11.06.2022	Team "A"
16	Wani	Wani North	27.06.2022 & 28.06.2023	Team 'C'

Bach "A" - Shri, C.S.Reddy & Sari, K.Rakesh

Team "B" - Shei V.P.Ghattawar & Smt. P. Dheisva

Team "C" - Shri Natish R. Gabale & Arnal Badakuba:

Been "D" – Shri, Presarno Kornot Nigoro & Smt. Shriti Chaseda Taom "E" – Shri, Satyahadi Kumur Jono & Smt. Ann Boby

DISPLAY BOARD NEW MAJRI UG TO OC MINE







FORM V

(See Rule 14)

Environmental Audit Report for the financial Year ending the 31st March 2023

Unique Application Number

MPCB-ENVIRONMENT_STATEMENT-0000056782

Submitted Date

05-09-2023

PART A

Company Information

Company Name Application UAN number

MPCB-CONSENT-00000101444 New Majri Underground to OC Mine

Address

New Majri UG to OC Mine, At: Majri, PO: Shivjinagar, Ta: Bhadrawati, District: Chandrapur, Maharashtra

Plot no Taluka Village 235-249 Bhadrawati Shivjinagar

Capital Investment (In lakhs) Scale City

17314.5 LSI Chandrapur

Pincode Person Name Designation 442503 Balmiki Prasad Sub Area Manager

Telephone Number Fax Number Email

8275967138 07175285088 newmajriugtooc@gmail.com

Region **Industry Category Industry Type**

SRO-Chandrapur R35 Mining and ore beneficiation

Consent Number Last Environmental statement Consent Issue Date

format1.0/CAC/UAN No. MPCB-2023-05-12 yes

CONSENT-0000160648/CR/2305000846

Date of last environment Consent Valid Upto Establishment Year

statement submitted

2024-03-31 2015 Aug 30 2022 12:00:00:000AM

Industry Category Primary (STC Code) & Secondary (STC Code)

Product Information

submitted online

UOM Product Name Consent Quantity Actual Quantity 3000000 1864212 Coal

Ton/Y

By-product Information

By Product Name **Consent Quantity Actual Quantity UOM** NA 0 0 CMD

Part-B (Water & Raw Material Consumption)

Water Consumpti Process	ption in m3/day on for	Consent Quantity 100.00	in m3/day	Actual Quantity 50.00	/ in m3/day	7
Cooling		250.00		200.00		
Domestic		10.00		5.00		
All others		40.00		40.00		
Total		400.00		295.00		
	ation in CMD / MLD					
Particulars Daily Trade Effluent	:	Cons e 3973	ent Quantity	Actual Quantit 3000	-	UOM CMD
2) Product Wise F process water pe	Process Water Consump	tion (cubic meter of				
Name of Products			During the Previo			иом
COAL(CUBIC METER/TONNE)			0.009	Financial y 0.0072	/ear	
	Consumption (Consumpt	ion of raw material				
per unit of production Name of Raw Mat			ing the Previous ncial Year	During the cui Financial year		иом
EXPLOSIVES (KG/TC	DNNE)	0.00	024	0.00028		Ton/Ton
4) Fuel Consumpt	tion	_		_		
Fuel Name HSD		Consent quantity 0	Actual Q 6755.399	-	UO KL/	
Part-C						
	ged to environment/unit	of output (Parameter as	specified in the co	nsent issued)		
[A] Water Pollutants Detail	Quantity of Pollutants discharged (kL/day)	Concentration of Pollut discharged(Mg/Lit) Exce PH,Temp,Colour Concentration	ept from pi	tage of variation rescribed rds with reasons tion	Standard	Reason
	Quantity	Concentration				
Monitoring report attached	Quantity 0	0	-		-	-
attached [B] Air (Stack)	0	0	-		-	-
attached	0		from pre	ls with reasons	Standard	Reason

HAZARDO	US I	WAST	ES

1) From Process

Hazardous Waste TypeTotal During Previous Financial yearTotal During Current Financial yearUOM5.1 Used or spent oil50.7256.266KL/A

2) From Pollution Control Facilities						
Hazardous Waste Type	Total During Previous Financial year	Total During Current Financial year	UOM			
2.2 Sludge containing oil	15.97	4	Ton/Y			
5.2 Wastes or residues containin	g oil 2.24	1	Ton/Y			

Part-E

Overburden incl. Top Soil

SOLID WASTES		
1) From Process		
Non Hazardous Waste Type	Total During Previous Financial year	Total During Current Financial year

7393568

3) Quantity Recycled or Re-utilized within the

0

2) From Pollution Control Facilities			
Non Hazardous Waste Type	Total During Previous Financial year	Total During Current Financial year	UOM

7605750

0

UOM

M3/Anum

CMD

unit			
Waste Type	Total During Previous Financial	Total During Current Financial	UOM
	year	year	
0	Λ	0	CMD

Part-F

NA

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

1) Hazardous Waste

Type of Hazardous Waste Generated	Qty of Hazardous Waste	UOM	Concentration of Hazardous Waste
5.1 Used or spent oil	56.266	KL/A	Auhorised recycler
5.2 Wastes or residues containing oil	1	Ton/Y	CHWTSDF BUTIBORI
2.2 Sludge containing oil	4	Ton/Y	CHWTSDF BUTIBORI

2) Solid Waste

Type of Solid Waste Generated	Qty of Solid Waste	UOM	Concentration of Solid Waste
OVERBURDEN incl. TOP SOIL	7605750	M3/Anum	OB Dump, top Soil Dump and Embankment

Part-G

Impact of the pollution Control measures taken on conservation of natural resources and consequently on the cost of production.

Description	Reduction in Water Consumption (M3/day)	Reduction in Fuel & Solvent Consumption (KL/day)	Reduction in Raw Material (Kg)	Reduction in Power Consumption (KWH)	Capital Investment(in Lacs)	Reduction in Maintenance(in Lacs)
Impact of the pollution Control measures	0	0	0	0	10.65	0

Part-H

[A] Investment made during the period of Environmental Statement

Detail of measures for Environmental Protection

Pollution control measures, Statutory Fees, Plantation

Pollution control measures Capital Expenditure

Measures

Environmental Protection

Capital Investment (Lacks)

diture 10.65

Revenue Expenditure 252.16

[B] Investment Proposed for next Year

Detail of measures for Environmental Protection Environmental Protection Measures Capital Investment (Lacks)

Capital Investment Mist cannon, sweeping machine etc 80

Part-I

Any other particulars for improving the quality of the environment.

Particulars

Environment protection and abatement of pollution

Name & Designation

R.ARUMUGAM, Dy.G.M. (Min)/ Sub Area Manager

UAN No:

MPCB-ENVIRONMENT_STATEMENT-0000056782

Submitted On:

05-09-2023