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INTRODUCTION

Location :

Adasa UG mine is situated in Nagpur District of Maharashtra State and is administered by the Nagpur area of the Western Coalfields Limited.

Communication :

The project area is well connected by all weathered metalled road both to the nearest tahsil town Saoner and district headquarter Nagpur. Saoner railway station, situated on the Nagpur – Chhindawara narrow gauge railway line is at a distance of about 8 Kms. from the block.

Drainage :

The drainage of the project area is controlled by the easterly flowing Kolar and Chandrabhaga Rivers.

Climate :

The area has tropical climate with very hot summer. The temperature rises as high as 48°C in summer. The average annual rainfall is about 1050 mm. The monsoon period is between June to Sept.

Pollution due to other sources :

There are a few small industries near the town. There is no major industry, other than Saoner coal mines, near to the project. The state highway and road to Kalmeshwar, which is very busy due to vehicular movement, produce lot of dust. Transportation roads, agricultural and local activities , vehicular traffic etc also contributes to the pollution.

The above-mentioned industries are also expected to contribute in increasing the pollution load of the area. The air pollution due to working of the UG mine is insignificant.

Sampling Location :

Ambient Air Quality Monitoring location :

<u>S.No.</u>	<u>Location Details</u>	<u>Location Code</u>
1.	Project Manager Office	- NAUA-1
2.	Pathakhakhedi G.P. Office	- NAUA-2
3.	Colony (W.T.Plant)	- NAUA-3
4.	Kotodi village	- NAUA-4

Water Quality Monitoring location :

<u>S.No.</u>	<u>Location Details</u>	<u>Location Code</u>
1.	Mine water discharge	- NAUW-1

Noise Level Monitoring location :

<u>S.No.</u>	<u>Location Details</u>	<u>Location Code</u>
1.	Near Fan House	- NAUN-1
2.	Manager Office	- NAUN-2
3.	Colony (Saoner)	- NAUN-3

Frequency of Monitoring :

- Air** : Frequency of monitoring is as per the Env. (Protection) Amendment Rules published vide Gazette dt. 25.9.2000.
- Water** : Water quality is monitored on fortnightly basis.
- Noise** : Noise level is monitored on fortnightly basis.

Methodology of Sampling and Analysis :

- Air** : 24 hourly air samples are collected with Respirable Dust Sampler at selected locations to monitor ambient air quality w.r.t. Suspended particulate matter (SPM), Respirable Particulate Matter (PM-10), Sulphur di-oxide (SO₂) and Oxides of nitrogen (NO_x) etc.
- TPM** : Ambient air laden with suspended particulates enters the Respirable Dust Sampler through the inlet pipe of sampler by means of a high flow rate blower (1.1 to 1.5 m³/min.). As the air passes through the cyclone, coarse, non-respirable dust (size >10 μ) is separated from the air stream by centrifugal forces acting on the solid particles. These separated particles fall through the cyclone's conical hopper and collect in the sampling bottle placed at bottom. The fine dust forming the respirable fraction (size <10 μ) of the Total Suspended Particulates passes through the cyclone and is carried by the air stream to the Glass Micro Fibre Filter Paper. The Respirable dust (PM-10) is retained by the filter and the carrier air exhausted from the system through the blower. The mass concentration (μg/m³) of Suspended Particulate Matter (non-respirable dust and respirable dust) and Respirable Particulate Matter in the ambient air is computed by measuring the mass of collected particulates and the volume of air sampled.
- PM-2.5** : Ambient air enters the Fine dust sampler through an omni-directional air inlet designed to provide a clear aerodynamic cut point for particles greater than 10 microns. Particles in the air stream finer than 10 microns proceed to a second impactor that has an aerodynamic cut point at 2.5 microns. The air sample and fine particulates exiting from the PM 2.5 impactor are passed through a 47 mm diameter Teflon filter membrane that retains the PM-2.5. The mass concentrations (μg/m³) of PM-2.5 in the ambient air are computed by measuring the mass of collected particulates and the volume of air sampled.
- NO_x** : Determination of oxides of Nitrogen is based on the procedure of "Jacobs and Hochheiser method". In this method the air sample is collected 24 hourly in the field and analysed in the laboratory using spectronic 20 D+ Spectrophotometer. Nitrogen oxides as Nitrogen di-oxide are collected by bubbling air through a Sodium hydroxide solution to form a stable solution of Sodium nitrite. The nitrite ion produced during sampling is determined colorimetrically (with the help of Spectrophotometer, measuring absorbance at 540 nm) by reacting the exposed absorbing reagent with Phosphoric acid, Sulphanilamide and N (1-naphthyl) ethylenediamine dihydrochloride. The interference of Sulphur di-oxide is eliminated by converting it to Sulphuric acid with Hydrogen peroxide before analysis.
- SO₂** : Determination of SO₂ is based on the procedure of West and Gaeke method. Sulphur di-oxide from the air stream is absorbed in a Sodium tetrachloromercurate solution to form a stable solution of Dichlorosulphitomercurate. The amount of Sulphur dioxide is then estimated by the colour produced when P-Rosaniline hydrochloride is added to the solution. The colour is estimated by a reading of absorbance at 560 nm in the Spectrophotometer.
- Water** : Mine water discharge is collected on fortnightly basis in plastic zaricane and is transported to the laboratory for analysis. As per the Env. (Protection) Amendment Rules published vide Gazette dt. 25.9.2000, water samples are analysed fortnightly for the parameters - pH, TSS, Oil & Grease and COD and once in a year for all

parameters as per Schedule VI, Env. Protection rule.

Noise : Day time and Night time Noise level data are recorded fortnightly.

Remarks :

Air : All parameters of air samples monitored in this quarter are within permissible limit, except TPM & PM – 10. Values of TPM & PM – 10 have been observed high at location no NAUA – 3. Values of PM – 10 have been observed high at location no NAUA – 2 (Apr'16).

Water : All parameters of water samples monitored in this quarter are within permissible limit.

Noise : Recorded Noise level data have been observed within permissible limits during most of the time of data collection in this quarter.

Recommendations :

Air : 1. Regular water sprinkling is required to keep the TPM level within TLV.
2. Green barrier may be developed around mine and colony area.

Water 1. Mine discharge to be treated properly before discharge into natural water course.

Noise 1. Noise levels should be kept below TLV at industrial as well as residential site.

Environment Laboratory
CMPDI, RI IV, Nagpur

Test Report



Test Report No. : RIN/TR/QE-J16/A-8 Date of Issue : 16.08.16
 Name of the Customer : Env.,CMPDI,Nagpur Sampling method : IS-5182
 Customer letter Ref. No. : क्षे.स.4/प.अ./पा.का./16-17
 Sample Description : Air sample No. of pages : 2
 Test Required : IS-5182 [PM-10(04:1999), NOx (06:2006), SO2(02:2001)] & TPM*.

AIR QUALITY MONITORING DATA

NAME OF THE COMPANY : WCL YEAR : 2016
 NAME OF THE AREA : NAGPUR Q.E. : JUNE.
 NAME OF THE PROJECT : ADASA UG

1. Project Manager Office : NAUA-1

(24 hourly values in $\mu\text{g}/\text{m}^3$)

Month	Date of Sampling		Parameters				
	From	To	TPM	PM-10	NOx	SO2	PM-2.5
APRIL.2016	07.04.16	08.04.16	204	64	17	17	48
APRIL.2016	20.04.16	21.04.16	197	82	5	26	59
MAY.2016	24.05.16	25.05.16	222	157	5	25	29
JUNE.2016	09.06.16	10.06.16	355	188	5	12	46
TLV as per Env.(Protection) Amendment Rule 2000			600	300	120	120	60

2. At Pathakhakhedi G. P. Office: NAUA-2

(24 hourly values in $\mu\text{g}/\text{m}^3$)

Month	Date of Sampling		Parameters				
	From	To	TPM	PM-10	NOx	SO2	PM-2.5
APRIL.2016	07.04.16	08.04.16	249	71	17	14	45
APRIL.2016	20.04.16	21.04.16	201	67	5	25	58
MAY.2016	05.05.16	05.05.16	66	50	6	17	40
MAY.2016	24.05.16	25.05.16	184	60	5	12	27
JUNE.2016	08.06.16	09.06.16	149	64	3	8	20
JUNE.2016	23.06.16	24.06.16	83	59	16	17	37
TLV as per Env.(Protection) Amendment Rule 2000			200	100	80	80	60

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Test Report No. : RIN/TR/QE-J16/A-8

3. Colony (Water Treatment Plant): NAUA-3**(24 hourly values in $\mu\text{g}/\text{m}^3$)**

Month	Date of Sampling			Parameters				
	From	-	To	TPM	PM-10	NOx	SOx	PM-2.5
APRIL.2016	08.04.16	-	09.04.16	205	119	17	14	55
APRIL.2016	19.04.16	-	20.04.16	195	86	6	20	29
MAY.2016	04.05.16	-	05.05.16	118	95	5	18	-
MAY.2016	24.05.16	-	25.05.16	289	162	5	23	27
JUNE.2016	23.06.16	-	24.06.16	206	124	15	12	21
TLV as per Env.(Protection) Amendment Rule 2000				200	100	80	80	60

4. Kotodi Village : NAUA-4**(24 hourly values in $\mu\text{g}/\text{m}^3$)**

Month	Date of Sampling			Parameters				
	From	-	To	TPM	PM-10	NOx	SOx	PM-2.5
APRIL.2016	07.04.16	-	09.04.16	118	98	16	18	50
MAY.2016	04.05.16	-	05.05.16	133	55	6	21	53
MAY.2016	23.05.16	-	24.05.16	45	29	4	31	20
JUNE.2016	09.06.16	-	10.06.16	61	30	6	15	27
JUNE.2016	22.06.16	-	23.06.16	129	40	17	15	19
TLV as per Env.(Protection) Amendment Rule 2000				200	100	80	80	60

**(Scientific Assistant)
Manager)****(Technical**

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 3) * - Test parameter not under NABL scop

Environment Laboratory
CMPDI, RI IV, Nagpur

Test Report



Test Report No. : RIN/TR/QE-J16/W-8 Date of Issue : 16.08.16
 Name of the Customer : Env.,CMPDI,Nagpur Sampling method : By the party
 Customer letter Ref. No. : क्षे.स.4/प.अ./पा.का./16-17
 Sample Description : Water sample No. of pages : 1

EFFLUENT WATER QUALITY MONITORING DATA

NAME OF THE COMPANY : WCL YEAR : 2016
 NAME OF THE AREA : NAGPUR Q.E. : JUNE.
 NAME OF THE PROJECT : ADASA UG

1. Name of the Location : Mine water discharge - NAUW-1

Month	Date of Sample collection	Analysis Results			
		pH IS-3025/11:1983	COD (mg/l) APHA- Closed reflux	TSS (mg/l) IS-3025/17:1984	O & G (mg/l) IS-3025/39:1991
Below Detection Limit		0.2	4.0	10.0	2.0
APRIL.2016	08.04.16	7.87	32	28	<2
APRIL.2016	20.04.16	7.69	44	38	<2
MAY.2016	04.05.16	7.63	48	26	<2
MAY.2016	24.05.16	7.78	48	42	<2
JUNE.2016	10.06.16	7.57	32	28	<2
JUNE.2016	23.06.16	7.86	20	24	<2
TLV as per Env.(Protection) Amendment rule 2000		5.5 - 9.0	250	100	10

(Scientific Assistant)
Manager)

(Technical

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NOISE LEVEL DATA

NAME OF THE COMPANY: WCL
 NAME OF THE AREA : NAGPUR
 NAME OF THE PROJECT : ADASA UG

YEAR :2016
 QE: JUNE.

Name of the Location : Near Fan House - NAUN-1

Month	Date of Data collection	Noise Level in dB(A)	
		Day Time	Night Time
APRIL.2016	05.04.16	69.1	66.2
APRIL.2016	21.04.16	69.0	65.1
MAY.2016	05.05.16	70.5	69.2
MAY.2016	19.05.16	70.9	67.2
JUNE.2016	09.06.16	71.2	68.7
JUNE.2016	23.06.16	70.8	69.9
Noise Level Standard as per Env. (Protection) Amendment rule 2000		75	70

Name of the Location : Near Manager Office – NAUN-2

Month	Date of Data collection	Noise Level in dB(A)	
		Day Time	Night Time
APRIL.2016	05.04.16	54.3	52.6
APRIL.2016	21.04.16	55.2	51.6
MAY.2016	05.05.16	51.4	49.9
MAY.2016	19.05.16	56.9	46.2
JUNE.2016	09.06.16	55.7	45.2
JUNE.2016	23.06.16	56.5	55.3
Noise Level Standard as per Env. (Protection) Amendment rule 2000		75	70

Name of the Location : Colony (Saoner) - NAUN-4

Month	Date of Data collection	Noise Level in dB(A)	
		Day Time	Night Time
APRIL.2016	05.04.16	42.5	41.0
APRIL.2016	21.04.16	42.7	41.6
MAY.2016	05.05.16	45.4	43.7
MAY.2016	24.05.16	50.3	41.7
JUNE.2016	09.06.16	51.2	41.5
JUNE.2016	23.06.16	44.5	43.7
Permissible Limit		55	45

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ENVIRONMENTAL MONITORING REPORT

**GHONSA OC EXPN.
(WITHIN EXISTING LAND)**

(WANI NORTH AREA)

WESTERN COALFIELDS LTD.

*Environmental Clearance issued by MOEF, New Delhi
Vide Letter No. J-11015/165/2009 IA.II(M) dated 29-02-2012*

(JOB No. 8000002)



QUARTER ENDING – JUNE 2015

Environment Laboratory
NABL Accredited vide Cert. No. T-2969

CMPDI

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

AN ISO 9001:2000 COMPANY

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INTRODUCTION

Location :

Ghonsa Open Cast Project is located in Wani Tahsil of Yeotmal district of Maharashtra State. It is administered by Wani North Area of Western Coalfields Limited.

Communication :

The project is located at a distance of nearly 18 km SW of Wani township. It is approachable from Wani by a metalled, motorable road (Wani – Patan road). The nearest railway station is Wani on Majri-Rajur branch line of Central Railway.

Drainage : Vidarbha river serves as the main drainage of the area during rainy season.

Climate :

The climate of this area is tropical with maximum and minimum temperature 48°C in summer and 10°C in winter respectively. The average annual rainfall is about 1200 mm.

Pollution due to other Sources:

Transportation roads, agricultural and local activities ,vehicular traffic etc also contributes to the pollution.

Sampling Locations :

Ambient Air Quality Monitoring location :

<u>S.No.</u>	<u>Location Details</u>	<u>Location Code</u>
1.	Ghonsa village	- W _N GOA-1
2.	Kumbarkhani Guest house /Colony	-- W _N GOA-2
3.	SAM Office/ canteen	- W _N GOA-3
4.	Project Manager Office (Ghonsa)	- W _N GOA-4

Water Quality Monitoring locations :

<u>S.No.</u>	<u>Location Details</u>	<u>Location Code</u>
1.	Mine water discharge	- W _N GOW-1

Noise Level Monitoring locations :

<u>S.No.</u>	<u>Location Details</u>	<u>Location Code</u>
1.	Near Manager Office	-- W _N GON-1

Frequency of Monitoring :

Air : Frequency of monitoring is as per the Env. (Protection) Amendment Rules published vide Gazette dt. 25.9.2000.

Water : Water quality is monitored on fortnightly basis.

Noise : Noise level is monitored on fortnightly basis.

Methodology of Sampling and Analysis :

- Air** : 24 hourly air samples are collected with Respirable Dust Sampler at selected locations to monitor ambient air quality w.r.t. Suspended particulate matter (TPM), Respirable Particulate Matter (RPM), Sulphur di-oxide (SO₂) and Oxides of nitrogen (NO_x) etc.
- TPM** : Ambient air laden with suspended particulates enters the Respirable Dust Sampler through the inlet pipe of sampler by means of a high flow rate blower. As the air passes through the cyclone, coarse, non-respirable dust (size >10 μ) is separated from the air stream by centrifugal forces acting on the solid particles. These separated particles fall through the cyclone's conical hopper and collect in the sampling bottle placed at bottom. The fine dust forming the respirable fraction (size <10 μ) of the Total Suspended Particulates passes through the cyclone and is carried by the air stream to the Glass Micro Fiber Filter Paper. The Respirable dust (RPM) is retained by the filter and the carrier air exhausted from the system through the blower. The mass concentration (μg/m³) of Suspended Particulate Matter (non-respirable dust and respirable dust) and Respirable Particulate Matter in the ambient air is computed by measuring the mass of collected particulates and the volume of air sampled.
- NO_x** : Determination of oxides of Nitrogen is based on the procedure of "Jacobs and Hochheiser method". In this method the air sample is collected 24 hourly in the field and analysed in the laboratory using spectronic 20 D+ Spectrophotometer. Nitrogen oxides as Nitrogen di-oxide are collected by bubbling air through a Sodium hydroxide solution to form a stable solution of Sodium nitrite. The nitrite ion produced during sampling is determined colorimetrically (with the help of Spectrophotometer, measuring absorbance at 540 nm) by reacting the exposed absorbing reagent with Phosphoric acid, Sulphanilamide and N(1-naphthyl) ethylenediamine dihydrochloride. The interference of Sulphur di-oxide is eliminated by converting it to Sulphuric acid with Hydrogen peroxide before analysis.
- SO₂** : Determination of SO₂ is based on the procedure of West and Gaeke method. Sulphur di-oxide from the air stream is absorbed in a Sodium tetrachloromercurate solution to form a stable solution of Dichlorosulphitomercurate. The amount of Sulphur dioxide is then estimated by the colour produced when P-Rosaniline hydrochloride is added to the solution. The colour is estimated by a reading of absorbance at 560 nm in the Spectrophotometer.
- Water** : Mine water discharge is collected on fortnightly basis in plastic zaricane and is transported to the laboratory for analysis. As per the Env. (Protection) Amendment Rules published vide Gazette dt. 25.9.2000, water samples are analysed fortnightly for the parameters - pH, TSS, Oil & Grease and COD and once in a year for all parameters as per Schedule VI, Env. Protection rule.
- Noise** : Day time and Night time Noise level data are recorded fortnightly.

Remarks :

- Air** : All parameters of air samples monitored during this quarter are within permissible limit.
- Water** : All parameters of water samples monitored during this quarter are within permissible limit

Noise : Recorded Noise level data have been observed within permissible limits during this quarter.

Recommendations :

Air

1. Regular water sprinkling is required to keep the TPM level within TLV.
2. Proper maintenance of CHP is required to minimize dust generation.
3. Dust suppression by mist in CHP should be tried.
4. Green barrier may be developed around village and colony area.
5. Covering of coal carrying trucks with tarpaulin.

Water

1. Mine discharge to be treated properly before discharge into natural water course.

Noise

1. Noise levels should be kept below TLV at industrial as well as residential site.

Environment Laboratory
CMPDI, RI IV, Nagpur

Test Report



Test Report No. : RIN/TR/QE-J15/A Date of Issue : 23.07.2015
 Name of the Customer: Env.CMPDI,Nagpur Sampling method : IS-5182
 Customer letter Ref. No. : क्षे.स.4/प.अ./पा.का./15-16
 Sample Description : Air sample No. of pages : 2
 Test Required : IS-5182 [PM-10(04:1999), NO_x(06:2006), SO₂(02:2001)]
 & TPM*.

AIR QUALITY MONITORING DATA

NAME OF THE COMPANY : WCL YEAR : 2015
 NAME OF THE AREA : WANI NORTH Q.E. : JUNE
 NAME OF THE PROJECT : GHONSA OC

1. Ghonsa Village

: W_NGOA-1

(24 hourly values in µg/m³)

Month	Dates of Sampling		Parameters				
	From	To	TPM	PM-10	NO _x	SO ₂	PM-2.5*
APRIL.2015	06.04.15	07.04.15	70	23	5	10	-
MAY.2015	08.04.15	09.05.15	125	67	16	21	-
MAY.2015	23.05.15	24.05.15	120	34	5	18	-
JUNE.2015	19.06.15	20.06.15	70	23	5	10	-
PERMISSIBLE LIMIT			200	100	80	80	60

2. Colony / Guest house

: W_NGOA-2

(24 hourly values in µg/m³)

Month	Dates of Sampling		Parameters				
	From	To	TPM	PM-10	NO _x	SO ₂	PM-2.5*
APRIL.2015	21.04.15	22.04.15	155	45	15	11	-
MAY.2015	08.05.15	09.05.15	138	61	20	22	-
MAY.2015	22.05.15	23.05.15	167	74	4	19	-
JUNE.2015	19.06.15	20.06.15	39	18	3	5	-
PERMISSIBLE LIMIT			200	100	80	80	60

CMPDI, RI-IV, NAGPUR

3. SAM Office / Canteen : W_NGOA-3
(24 hourly values in µg/m³)

Month	Dates of Sampling		Parameters				
	From	To	TPM	PM-10	NO _x	SO ₂	PM-2.5*
APRIL.2015	06.04.15	07.04.15	347	262	7	28	-
APRIL.2015	21.04.15	22.04.15	186	98	15	24	-
MAY.2015	22.05.15	23.05.15	143	61	16	23	-
TLV as per Env.(Protection) Amendment Rule 2000			600	300	120	120	60

4. Project Manager office- Ghonsa OC : W_NGOA-4
(24 hourly values in µg/m³)

Month	Dates of Sampling		Parameters				
	From	To	TPM	PM-10	NO _x	SO ₂	PM-2.5*
APRIL.2015	06.04.15	07.04.15	38	27	6	7	-
APRIL.2015	21.04.15	22.04.15	165	36	12	19	-
MAY.2015	08.04.15	09.05.15	225	158	25	31	-
MAY.2015	22.05.15	23.05.15	382	171	6	24	-
JUNE.2015	06.06.15	07.06.15	63	44	15	23	-
JUNE.2015	19.06.15	20.06.15	38	27	6	7	-
TLV as per Env.(Protection) Amendment Rule 2000			600	300	120	120	60

**(Scientific Assistant)
Manager)**

(Technical

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3) * - Test parameter not under NABL scope.

Environment Laboratory
CMPDI, RI IV, Nagpur

Test Report



Test Report No. : RIN/TR/QE-J15/W Date of Issue : 23.07.2015

Name of the Customer : Env.,CMPDI,Nagpur Sampling method : By the party

Customer letter Ref. No. : क्षे.स.4/प.अ./पा.का./15-16

Sample Description : Water sample No. of pages : 1

EFFLUENT WATER QUALITY MONITORING DATA

NAME OF THE COMPANY : WCL

YEAR : 2015

NAME OF THE AREA : WANI NORTH

Q.E. : JUNE.

NAME OF THE PROJECT : GHONSA OCP

Name of the Location : Mine water discharge - W_NGOW-1

Month	Date of Sample collection	Analysis Results			
		pH	COD (mg/l)	TSS (mg/l)	O & G (mg/l)
Below Detection Limit		0.2	4.0	10.0	2.0
APRIL.2015	07.04.15	7.87	40	28	<2
APRIL.2015	21.04.15	7.58	80	58	<2
MAY.2015	09.05.15	7.62	40	46	<2
MAY.2015	23.05.15	7.79	40	44	<2
JUNE.2015	06.06.15	7.87	40	28	<2
JUNE.2015	20.06.15	7.58	80	58	<2
TLV as per Env.(Protection) Amendment rule 2000		5.5 - 9.0	250	100	10

(Scientific Assistant)
Manager)

(Technical

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NOISE LEVEL DATA

NAME OF THE COMPANY : WCL YEAR : 2015
NAME OF THE AREA : WANI NORTH Q.E. : JUNE.
NAME OF THE PROJECT : GHONSA OC

Name of the Location : Manager Office - W_NGON-1

Month	Date of Data collection	Noise Level in dB(A)	
		Day Time	Night Time
APRIL.2015	06.04.15	55.7	46.2
APRIL.2015	21.04.15	51.6	51.4
MAY.2015	08.05.15	55.9	56.8
MAY.2015	22.05.15	56.1	53.2
JUNE.2015	06.06.15	55.8	54.9
JUNE.2015	20.06.15	55.2	45.1
Noise Level Standard as per Env. (Protection) Amendment rule 2000		75	70

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ENVIRONMENTAL MONITORING REPORT MURPAR UG

(UMRER AREA)

WESTERN COALFIELDS LTD.

(JOB No. 8000002)



QUARTER ENDING – JUNE 2015

Environment Laboratory
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CMPDI

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

AN ISO 9001:2000 COMPANY

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INTRODUCTION

Location :

Morpar Underground Project is located in Chandrapur district of Maharashtra State and is administered by Umrer Area of Western Coalfields Limited.

Communication :

This project is situated on Warora - Wani State High Way. Chimur, a small block town is situated about 8 Kms from the project. Warora is the nearest Railway Station about 43 Kms away from the project, located in Chennai - Nagpur C. R. Line.

Drainage : Drainage of the area is controlled by Gani nalla, which flows through central part of the project area.

Climate : The climate of the area is tropical with well-defined summer from April to June, rainy season from July to September and winter from December to January. In summer, the temperature generally goes to a maximum of 47°C whereas in winter, it generally falls to a minimum of 7°C. The average annual rainfall is about 1200 mm.

Other Industries : There is no other major industries in the vicinity of the project area.

Pollution due to other sources : As there is no other major industry nearby the project area, only road transport is the other source, which may contribute to the air pollution.

Sampling Location :

Ambient Air Quality Monitoring locations :

<u>S.No.</u>	<u>Location Details</u>		
1.	Near Pit office	-	UMUA-1
2.	Near Magazine Building	-	UMUA-2
3.	Colony	-	UMUA-3
4.	Morpar village	-	UMUA-4

Water Quality Monitoring location :

<u>S.No.</u>	<u>Location Details</u>		<u>Location Code</u>
1.	Mine water discharge	-	UMUW-1

Noise Level Monitoring location :

<u>S.No.</u>	<u>Location Details</u>		<u>Location Code</u>
1.	Fan house	-	UMUN-1
2.	Colony	-	UMUN-2

Frequency of Monitoring :

Air : Frequency of monitoring is as per the Env. (Protection) Amendment Rules published vide Gazette dt. 25.9.2000.

Water : Water quality is monitored on fortnightly basis.

Noise : Noise level is monitored on fortnightly basis.

Methodology of Sampling and Analysis :

Air : 24 hourly air samples are collected with Respirable Dust Sampler at selected locations to monitor ambient air quality w.r.t. Suspended particulate matter (SPM), Respirable Particulate Matter (PM-10), Sulphur di-oxide (SO₂) and Oxides of nitrogen (NO_x) etc.

- TPM** : Ambient air laden with suspended particulates enters the Respirable Dust Sampler through the inlet pipe of sampler by means of a high flow rate blower. As the air passes through the cyclone, coarse, non-respirable dust (size $>10 \mu$) is separated from the air stream by centrifugal forces acting on the solid particles. These separated particles fall through the cyclone's conical hopper and collect in the sampling bottle placed at bottom. The fine dust forming the respirable fraction (size $<10 \mu$) of the Total Suspended Particulates passes through the cyclone and is carried by the air stream to the Glass Micro Fiber Filter Paper. The Respirable dust (PM-10) is retained by the filter and the carrier air exhausted from the system through the blower. The mass concentration ($\mu\text{g}/\text{m}^3$) of Suspended Particulate Matter (non-respirable dust and respirable dust) and Respirable Particulate Matter in the ambient air is computed by measuring the mass of collected particulates and the volume of air sampled.
- NO_x** : Determination of oxides of Nitrogen is based on the procedure of "Jacobs and Hochheiser method". In this method the air sample is collected 24 hourly in the field and analysed in the laboratory using spectronic 20 D+ Spectrophotometer. Nitrogen oxides as Nitrogen di-oxide are collected by bubbling air through a Sodium hydroxide solution to form a stable solution of Sodium nitrite. The nitrite ion produced during sampling is determined colorimetrically (with the help of Spectrophotometer, measuring absorbance at 540 nm) by reacting the exposed absorbing reagent with Phosphoric acid, Sulphanilamide and N(1-naphthyl) ethylenediamine dihydrochloride. The interference of Sulphur di-oxide is eliminated by converting it to Sulphuric acid with Hydrogen peroxide before analysis.
- SO₂** : Determination of SO₂ is based on the procedure of West and Gaeke method. Sulphur di-oxide from the air stream is absorbed in a Sodium tetrachloromercurate solution to form a stable solution of Dichlorosulphitomercurate. The amount of Sulphur dioxide is then estimated by the colour produced when P-Rosaniline hydrochloride is added to the solution. The colour is estimated by a reading of absorbance at 560 nm in the Spectrophotometer.
- Water** : As per the Env. (Protection) Amendment Rules published vide Gazette dt. 25.9.2000, mine water discharge are analysed fortnightly for the parameters - pH, TSS, Oil & Grease and COD and once in a year for all parameters as per Schedule VI, Env. Protection rule. Due to non-availability of mine water discharge, mine water sample could not be analysed from this project during this quarter.
- Noise** : Day time and Night time Noise level data are recorded fortnightly.

Remarks :

- Air** : All parameters of air samples collected and analysed during this quarter are within permissible limit except TPM and PM-10. Values of TPM and PM-10 have been observed high in respect of location no. UMUA-3 and UMUA-4 during this quarter.
- .
- Water** : All parameters of water samples collected and analysed during this quarter are within permissible limit.
- Noise** : Recorded Noise level data for most of the times are within permissible limits.

Recommendations :

- Air : 1.Regular water sprinkling is required to keep the SPM level within TLV.
2.Green barrier may be developed around village and colony area.
- Water 1. Mine discharge to be treated properly before discharge into natural water course.
- Noise 1. Noise levels should be kept below TLV at industrial as well as residential site.

Environment Laboratory
CMPDI, RI IV, Nagpur

Test Report



Test Report No. : RIN/TR/QE-J15/A Date of Issue : 16.07.2015
 Name of the Customer : Env.,CMPDI,Nagpur Sampling method : IS-5182
 Customer letter Ref. No. : क्षे.स.4/प.अ./पा.का./14-15
 Sample Description : Air sample No. of pages : 2
 Test Required : IS-5182 [PM-10(04:1999), NO_x(06:2006), SO₂(02:2001)]
 & TPM*.

AIR QUALITY MONITORING DATA

NAME OF THE COMPANY : WCL YEAR : 2015
 NAME OF THE AREA : UMRER Q.E. : JUNE.
 NAME OF THE PROJECT : MURPAR UG

1. Near Pit Office

: UMUA-1

(24 hourly values in $\mu\text{g}/\text{m}^3$)

Month	Dates of Sampling From - To	Parameters			
		TPM	PM-10	NO _x	SO _x
APIRL.2015	17.04.15 - 18.04.15	214	68	7	26
JUNE.2015	26.06.15 - 27.06.15	122	111	5	10
TLV as per Env. (Protection) Amendment Rule 2000		600	300	120	120

2. Near Magazine Building

: UMUA-2

(24 hourly values in $\mu\text{g}/\text{m}^3$)

Month	Dates of Sampling From - To	Parameters			
		TPM	PM-10	NO _x	SO _x
APIRL.2015	03.04.15 - 04.04.15	521	244	8	20
APIRL.2015	17.04.15 - 18.04.15	73	47	8	14
JUNE.2015	26.06.15 - 27.06.15	132	81	6	6
TLV as per Env. (Protection) Amendment Rule 2000		600	300	120	120

3. Colony : UMUA-3**(24 hourly values in $\mu\text{g}/\text{m}^3$)**

Month	Dates of Sampling From - To	Parameters			
		TPM	PM-10	NO _x	SO _x
APIRL.2015	03.04.15 - 04.04.15	142	45	9	29
APIRL.2015	17.04.15 - 18.04.15	144	29	7	17
MAY.2015	29.05.15 - 30.05.15	304	117	7	29
JUNE.2015	10.06.15 - 11.06.15	148	27	7	18
JUNE.2015	26.06.15 - 27.06.15	90	47	5	20
PERMISSIBLE LIMIT		200	100	80	80

4. Morpar village : UMUA-4**(24 hourly values in $\mu\text{g}/\text{m}^3$)**

Month	Dates of Sampling From - To	Parameters			
		TPM	PM-10	NO _x	SO _x
APIRL.2015	03.04.15 - 04.04.15	227	91	9	14
MAY.2015	11.05.15 - 12.05.15	301	186	7	18
MAY.2015	29.05.15 - 30.05.15	493	274	7	12
JUNE.2015	26.06.15 - 27.06.15	428	150	7	18
PERMISSIBLE LIMIT		200	100	80	80

**(Scientific Assistant)
Manager)****(Technical**

- Note: 1) This Report refers to the values related to the items tested as received.
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 3) * - Test parameter not under NABL scope.

Environment Laboratory
CMPDI, RI IV, Nagpur

Test Report



Test Report No. : RIN/TR/QE-J15/W Date of Issue : 16.07.2015
 Name of the Customer : Env.,CMPDI,Nagpur Sampling method : By the party
 Customer letter Ref. No. : क्षे.स.4/प.अ./पा.का./14-15
 Sample Description : Water sample No. of pages : 1

EFFLUENT WATER QUALITY MONITORING DATA

NAME OF THE COMPANY : WCL YEAR 2015
 NAME OF THE AREA : UMRER Q.E. JUNE.
 NAME OF THE PROJECT : MURPAR UG

1. Name of the Location : Mine water discharge - **UMUW-1**

Month	Date of Sample collection	Analysis Results			
		pH IS-3025/11:1983	COD (mg/l) APHA-Closed reflux	TSS (mg/l) IS-3025/17:1984	O & G (mg/l) IS-3025/39:1991
Below Detection Limit		0.2	4.0	10.0	2.0
APIRL.2015	03.04.15	8.25	80	78	<2
APIRL.2015	17.04.15	8.17	80	64	<2
MAY.2015	11.05.15	8.11	80	68	<2
MAY.2015	29.05.15	7.77	120	90	<2
JUNE.2015	10.06.15	7.93	120	82	<2
JUNE.2015	26.06.15	7.45	80	54	<2
TLV as per Env.(Protection) Amendment rule 2000		5.5 - 9.0	250	100	10

(Scientific Assistant)
Manager)

(Technical

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Test Report



Test Report No. : RIN/TR/QE-J15/W Date of Issue : 16.07.2015
 Name of the Customer : Env.,CMPDI,Nagpur Sampling method : By the party
 Customer letter Ref. No. : क्षे.स.4/प.अ./पा.का./15-16
 Sample Description : Water sample No. of pages : 2
 Test Required : IS 10500:2012

DRINKING WATER QUALITY MONITORING DATA

NAME OF THE COMPANY : WCL YEAR : 2015
 NAME OF THE AREA : UMRER Q.E. : JUNE.
 NAME OF THE PROJECT : MORPAR UG Sampling Date : 11.05.2015
 NAME OF LOCATION : DRINKING WATER FROM SAM Office

Sl. No	Parameters	Test Method	Analysis Result	Standard (IS : 10500 : 2012)	
				Desirable limit	PLV in the absence of alternate source
1	Colour (Hz)	APHA, 22 nd Edition Platinum Cobalt	1	5	15
2	Odour	IS 3025 /05:1983, Physical,	Unobjectionable	Unobjectionable	Unobjectionable
3	Turbidity (NTU)	IS-3025/10:1984 Nephelometric	1	1	5
4	pH Value	IS-3025/11:1983 Electrometric	7.47	6.5 to 8.5	No relaxation
5	Total Hardness as CaCO ₃ -mg/l	IS-3025/21:1983 EDTA	144	200	600
6	Iron (as Fe) -mg/l	IS-3025/53:2003 AAS-Flame	<0.06	0.3	No relaxation
7	Chlorides (as Cl)- mg/l	IS-3025/32:1988, Argentometric	38	250	1000
8	Residual Chlorine -mg/l (min)	APHA, 22 nd Edition DPD	0.03	0.2	1
9	Fluoride (as F)- mg/l	APHA, 22 nd Edition SPADNS	0.81	1.0	1.5
10	TDS -mg/l	IS-3025/16:1984 Gravimetric	320	500	2000
11	Calcium (as Ca) -mg/l	IS-3025/40:1991 EDTA	44	75	200
12	Magnesium -mg/l*	IS-3025/40:1991 EDTA	8	30	100
13	Copper as(Cu) -mg/l	IS-3025/42:1992 AAS-Flame	<0.03	0.05	1.5
14	Manganese as (Mn)- mg/l	APHA, 22 nd Edition AAS-Flame	<0.02	0.1	0.3
15	Sulphate (as SO ₄) -mg/l	APHA, 22 nd Edition Turbidity	56	200	400
16	Nitrates (as NO ₃) - mg/l	IS-3025/34:1988 Nessler's	12	45	No relaxation

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Sl. No	Parameters	Test Method	Analysis Result	Standard (IS : 10500 : 2012)	
				Desirable limit	PLV in the absence of alternate source
17	Cadmium as (Cd)- mg/l	APHA, 22 nd Edition AAS-GTA	<0.0005	0.003	No relaxation
18	Lead as (Pb) -mg/l	APHA, 22 nd Edition AAS-GTA	<0.005	0.01	No relaxation
19	Selenium (Se) –mg/l*	APHA, 22 nd Edition AAS-VGA	<0.005	0.01	No relaxation
20	Arsenic (Ar)-mg/l*	APHA, 22 nd Edition AAS-VGA	<0.005	0.05	No relaxation
21	Zinc as (Zn) -mg/l	IS-3025/49:1994 AAS-Flame	<0.01	5	15
22	Total Chromium -mg/l	IS 3025 (Part 52) : 2003 AAS-Flame	<0.01	0.05	No relaxation
23	Boron as (B) -mg/l	APHA, 22 nd Edition Carmine	<0.2	0.5	1.0
24	Alkalinity -mg/l	IS-3025/23:1986, Titration	180	200	600
25	Nickel-mg/l	IS 3025 (Part 54) : 2003, AAS-Flame	<0.02	0.02	No relaxation
26	Aluminum (Al)-mg/l*	APHA, 22 nd Edition AAS-VGA	<0.03	0.1	0.2

(BDL- Below Detection Limit)

(Scientific Assistant)**(Technical Manager)**

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NOISE LEVEL DATA

NAME OF THE COMPANY : WCL YEAR : 2015
 NAME OF THE AREA : UMRER Q.E. : JUNE.
 NAME OF THE PROJECT : MORPAR UG

Name of the Location : Near Fan House - UMUN-1

Month	Date of Data collection	Noise Level in dB(A)	
		Day Time	Night Time
APRIL.2015	03.04.15	61.5	61.3
APRIL.2015	17.04.15	67.7	67.0
MAY.2015	11.05.15	70.0	61.1
MAY.2015	29.05.15	67.7	67.1
JUNE.2015	10.06.15	64.9	64.7
JUNE.2015	28.06.15	67.9	67.5
Noise Level Standard as per Env. (Protection) Amendment rule 2000		75	70

Name of the Location : Colony - UMUN-2

Month	Date of Data collection	Noise Level in dB(A)	
		Day Time	Night Time
APRIL.2015	03.04.15	42.9	42.3
APRIL.2015	17.04.15	43.8	43.5
MAY.2015	11.05.15	38.0	35.0
MAY.2015	29.05.15	45.5	45.1
JUNE.2015	10.06.15	42.1	42.0
JUNE.2015	28.06.15	44.3	43.7
Permissible Limit		55	45