

**ADASA UG**  
**Six Monthly Compliance Report of**  
**Environmental Clearance Conditions**  
**(Period: 01/10/2015 – 31/03/2016)**

**Nagpur Area**  
**Western Coalfields Limited**

## SALIENT FEATURES

NAME	ADASA UNDER GROUND COALMINE EXPN. PROJECT	
TARGET	0.50 M.T.Y.	
CAPITAL	RS 3585.73 Lakhs.	
BALANCE LIFE	19 YEARS	
MANPOWER	241 NOS. (As per PR)	
LAND (As per EMP) -		
AGRICULTURE		206 Ha.
FOREST		NIL
GOVERNMENT		15 Ha.
OTHER		NIL
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TOTAL		221 Ha.

### *SALIENT FEATURES (OF THE ENVIRONMENT MANAGEMENT PLANS)*

Name	-- Adasa UG-Expn. Project
1. Sedimentation Pond for treatment of mine discharge water.	- Two nos. sedimentation pond existing with baffle walls.
2. Dust suppression arrangement.	- 8 nos. fixed sprinklers provided, near CHP to turning point of Coal transportation road. 1 no. contractual mobile tanker in operation.
3. Dust suppression at CHP	- Close conveyor belt by sheeting & water sprinklers on Conveyor belt/hopper etc.
4. Black topping of Coal transportation Road	- 3.50 Km. of Coal Transportation Road done.
5. Afforestation	- 2500 nos. of plantation on available land.

**STATUS OF IMPLEMENTATION OF EMP COMPLIANCE CONDITIONS**  
**FOR ADASA U/G COAL MINE EXPANSION PROJECT**

**(REF.J-11015/341/2008-IA-II (M) DT.15.07.2009)**

<b>S/N</b>	<b>SPECIFIC CONDITIONS</b>	<b>COMPLIANCE</b>
1)	Regular monitoring of subsidence movement on the surface over and around the working area & impact on natural drainage, water bodies, vegetation, structure, roads and surrounding shall be continued till movement ceases completely. In case of observation of any high rate of subsidence movement, appropriate effective corrective measures shall be taken to avoid loss of life and material. Cracks shall be effectively plugged with ballast and clayey soil/suitable materials.	Mine is doing coal production through development. During development, there is no subsidence. Depillaring will be started only after taking due permission from DGMS. Monitoring of subsidence movements & necessary Control measures will be taken as per DGMS stipulations.
2)	High root density tree species shall be selected and planted over areas likely to be affected by subsidence.	2500 nos. trees are planted as shown in the plan.
3)	Coal extraction shall also be optimized in areas where agriculture production is continuing. Some pillars shall be left below the agriculture land. No coal depillaring shall be undertaken below areas of habitation.	Note and all mining activities are carried out as per the norms and guidelines of the DGMS.
4)	Subsidence shall be monitored closely and if subsidence is found exceeding the permitted limits, then the landowners shall be adequately compensated with mutual agreement of the landowners.	Subsidence will be monitored closely as per statute and adequate measures will be taken to avoid the rise of such situation.
5)	Garland drains (size, gradient & length) around the safety areas such as mine shaft and low-lying areas and sump capacity shall be designed keeping 50% safety margin over an above the peak sudden rainfall and maximum discharge in the area adjoining the mines sites. Sump capacity shall also be provided adequate retention period to allow proper settling of silt material.	Since this is an underground mine, so, no waste rock piling will be there. However, before starting depillaring, necessary measures like construction of garland drains etc will be taken up as per DGMS stipulations.
6)	Water sprinkling system shall be provided to check fugitive emission from loading operations, conveyor system, haulage roads, transfer points, etc. Mobile sprinklers shall be provided in the major haul roads and with high levels of PM/RSPM.	This is an underground mine & entire coal mining operation is carried out below ground. There is no overburden being excavated for extracting coal. As such, the only source of fugitive dust emission is coal transportation on surface and coal handling. For control of dust during coal transportation, following measures are being taken:

		<p>i) Avoiding over loading of trucks.</p> <p>ii) Covering Coal trucks with tarpaulin.</p> <p>iii) Water spraying at all transfer points along belt, conveyer route.</p> <p>iv) Black topping of coal transportation roads.</p> <p>V) 8 nos. fixed sprinklers provided near CHP to turning point of Coal transportation road.</p>
7)	Major approach roads shall be black topped and properly maintained. A 3-tier plantation shall be developed along all major roads, near CHP, coal bunker, infrastructure. A mist spray water sprinkling system shall be installed at the CHP and at transfer points.	All Coal transportation roads have been black topped and maintained properly. Mobile tanker has been deployed to control dust on coal transportation roads. Regular cleaning & brooming is also done on the same road. Fixed sprinkler like Rain guns has been fixed at Coal Handling Plant and transfer points.
8)	Drills shall be wet operated only to avoid fugitive dust emissions.	This is an underground mine & entire drilling operation is carried out below ground. The dust control is done as per Coal Mines Regulation.
9)	A progressive afforestation plan shall be prepared and implemented over the mine lease area and shall include areas under green belt development, areas along roads, infrastructure, along ML boundary and township outside the lease area, etc by planting native plant species in consultation with the local DFO/Agriculture Department. The density of the trees shall be around 2500 plants per ha.	Action is being taken for developing green belt around mine lease area, roads, etc. 2500 nos Plants have already been planted. Plantation has been carried out through Maharashtra State Forest development Agency. The density per Hectare is 2500 plants.
10)	Regular monitoring of ground water level and quality shall be carried out by, establishing a network of existing wells and construction new Piezometers. The monitoring for quantity shall be done four times in a year – pre-monsoon (May), monsoon (August), post-monsoon (November) and winter (January) seasons and for quality in May. Data thus collected should be submitted to the Ministry of Environment & Forests and to the Central Pollution Control Board quarterly within one month of monitoring,	At present, it is carried out well water level monitoring in every quarter by Central Mine Planning and Design Institute (CMPDI) and no adverse report is there. And collected data is being submitted regularly (Twice in a Year) to Regional Office, Bhopal of Ministry of Environment & Forests & Climate Change.
11)	The company shall put up artificial groundwater recharge measures for augmentation of groundwater resource in case monitoring indicates a decline in water table. The project authorities should meet water requirement of nearby village (s) in case the village wells go dry due to dewatering of mine.	Central Mine Planning & Design Institute is carrying out well water level monitoring in every quarter and there is no adverse report found so far. Groundwater quality is also monitored by analyzing pumped out mine water by Central Mine Planning & Design Institute (CMPDIL).

12)	Mine water discharge water particularly IDS shall be treated to conform to prescribe levels before discharge into the natural environment.	The mine water/strata water gets accumulated in mine sump, which allows significant settling of suspended particles. Then after, mine water is pumped out on surface. At surface, two nos. Sedimentation tanks have been constructed with adequate retention time, for treatment of mine water discharge.
13)	Besides carrying out regular periodic health check up of their workers, 10% of the workers identified from workforce engaged in active mining operations shall be subjected to health check up for occupational diseases and hearing impairment, if any, through an agency such as NIOH, Ahmadabad within a period of one year and the results reported to this Ministry and to DGMS.	Normally Periodical Medical Examination is done each year @ of 20% of total employees in mine. These also cover contractual workers. In addition to this 10% of workers examined by NIMH trained doctors of Central Govt. Organization. We take remedial action on report of every such examination.
14)	For monitoring land use pattern and for post mining land use, a time series of land use maps, based on satellite imagery (on a scale of 1: 5000) of the core zone and buffer zone, from the start of the project until end of mine life shall be prepared once in 3 years (for any one particular season which is consistent in the times series), and the report submitted to MOEF & CC and its Regional office at Bhopal.	The digital processing of the entire lease area using remote sensing techniques has been done by CMPDIL in the month of Feb. 2007 & 2011 (Uploaded in companies website) .
15)	A final Mine Closure Plan along with details of Corpus Fund should be submitted to the Ministry of Environment and Forests within six months from date of environmental clearance for approval.	The mine has got balance life of around 19 years. Mine closure plan as per MOC guidelines has been prepared & duly approved by competent authority. The Escrow Account with CCO has been opened vide no 08973161002539 & deposited separately, approval for the same got by WCL Board on dt. 28.01.2013.
16)	The project proponent shall undertake a socio-economic survey for identifying and taking up need based specific socio-economic activities / programmes / schemes, which are required in the area. Monitoring of the impacts of activities under CSR shall be carried out periodically, Educational centers shall be established in the area to create awareness and for organizing workshops, etc.	CSR activities is being done in nearby villages. Ground water is recharged by making check dam and sock pit and then water is pumped to Over head tank and water supply to Boragaon village of Saoner Tehsil ,Nagpur completed.  Two nos. class rooms completed at Z.P. School at Boragaon.

## **General Conditions**

<b>S/N</b>	<b>SPECIFIC CONDITIONS</b>	<b>COMPLIANCE</b>
1)	No change in mining technology and scope of working shall be made without prior approval of the Ministry of Environment Forests & Climate Change.	Agreed for the same.
2)	No change in calendar plan including quantum of mineral coal and waste shall be made.	Agreed for the same.
3)	Four ambient air quality-monitoring stations shall be established in the core zone as well as in the buffer zone for monitoring SPM, RSPM, SO <sub>2</sub> & Nox. Location of the stations shall be decided based on the meteorological data, topographical features and environmental and ecologically sensitive targets in consultation with the State Pollution Control Board. Monitoring of heavy metals such as Hg, As, Ni, Cd, Cr, in SPM and RSPM etc. shall be carried out at least one in six months.	Four monitoring stations are established in consultation with Maharashtra State Pollution Control Board (MPCB). Ambient air quality reports has been enclosed for Q.E. Dec,15 & March,16.
4)	Data on ambient air quality (SPM, RSPM, SO <sub>2</sub> & NO <sub>x</sub> and heavy metals such as Hg, As, Ni, Cr, etc.) shall be regularly submitted to the Ministry including its Regional Office at Bhopal and to the State Pollution Control Board and the Central Pollution Control Board once in six months. Random verification of samples through analysis from independent laboratories recognized under the EP Rules, 1986 shall be furnished as part of the compliance report.	Data on ambient air quality for four stations are submitted to Maharashtra State Pollution Control Board (MPCB) quarterly. The reports for Q.E Dec,15 & March,16 are enclosed herewith.
5)	Adequate measures shall be taken for control of noise levels below 85 dBA in the work environment. Workers engaged in blasting and drilling operations, operations of HEMM, etc. shall be provided with earplugs / muffs.	This is an underground mine & no heavy earth moving machines are employed for coal mining. Entire Operation for coal extraction is carried out below ground by machines i.e. SDLs, drills, haulages, conveyors etc, duly approved by DGMS. As such, possibility of generation of high noise levels is very remote. However, haulage operators, Belt conveyor operators are provided with earmuffs etc. Noise monitoring is also carried out near w/shop premises. Results show that levels are within the permissible limits
6)	Industrial waste water (workshop and waste water from the mine) shall be properly collected, treated so as to conform to the standards prescribed under GSR 422 (E)	Adasa being an underground mine, there is no provision of workshop to repair / wash HEMMs, thus eliminating possibility of generating oil & grease. Hence, there is no need for the provision

	dated 19 <sup>th</sup> May, 1993 and 31 <sup>st</sup> December, 1993 or as amended from time to time before discharge. Oil and grease trap shall be installed before discharge of workshop effluents.	of oil & grease trapping . The mine water / strata water gets accumulated in mine sump, which allows significant settling of suspended particles Then after, mine water is pumped out on surface. At surface, two nos. of Sedimentation Tanks have been constructed with adequate retention time, for treatment of mine water discharge and treated mine water is being used for the irrigation purpose by local farmers.
7)	Vehicular emissions shall be kept under control and regularly monitored. Vehicles used for transportation the mineral shall be covered with tarpaulins and optimally loaded.	Vehicular emissions are kept under control by taking pollution under controlled certificate (PUC) and are being monitored regularly. Vehicles used for transporting the coal mineral are covered with tarpaulins and optimally loaded.
8)	Appropriate measures shall be taken to avoid hazards of fire and explosions due to methane gas.	Appropriate measures are being taken in the project to avoid hazards of fire and explosions due to methane gas.
9)	Monitoring of environmental quality parameters shall be carried out through establishment of adequate number and type of pollution monitoring and analysis equipment in consultation with the State Pollution Control Board and data got analysis through a laboratory recognised under EP Rules, 1986	Central Mine Planning Design Institute has a well-equipped laboratory & they conduct monitoring & analysis of Air, Water and Noise for all mines of WCL including this mine and data is being submitted regularly to Regional Office, MOEF & CC.
10)	Personnel working in dusty areas shall wear protective respiratory devices and they shall also be provided with adequate training and information on safety and health aspects. Occupational health surveillance programme of the workers shall be undertaken periodically to observe any contractions due to exposure to dust and to take corrective measures, if needed.	This being an underground mine, generation of dust is mainly limited to underground face workings. The dust control measures are being taken as stipulated in Coal Mines Regulation. Proper training & re-training of workers are given as per Mines Vocational training Rules. Periodic medical examination of workers is also done after every five years.
11)	A separate environmental management cell with suitable qualified personnel shall be set up under the control of a Senior Executive, who will report directly to the Head of the company.	The Environmental Management cell at corporate level is headed by GM (Envt.) and assisted by qualified & trained engineers of Environment discipline under the control of Director (Tech). At Area level, the cell is headed by GM, Nagpur Area, assisted by Area Nodal Officer (Envt.), Nagpur Area. At project level, it is headed by Sub Area Manager; Saoner S.A. and is assisted by Nodal Officer (Envt.) of the Sub Area.
12)	The funds earmarked for environmental protection measures shall be kept in separate account and shall not be diverted	Funds earmarked for environmental protection works are being utilized and account maintained & no fund is being diverted for other purpose.

	for other purpose. Year wise expenditure should be reported to the Ministry and its Regional Office at Bhopal.	
13)	The project authorities should advertise at least in two local news papers widely circulated around the project, one of which shall be in the vernacular language of the locality concerned within seven days of the clearance letter informing that the project has been accorded environmental clearance and a copy of the clearance letter is available with the State Pollution Control Board and may also be seen at web site of the Ministry of Environment & Forests at <a href="http://envfor.nic.in">http://envfor.nic.in</a> .	Necessary advertisement were issued in the following newspapers :  1) The Hitwada 2) Lokmat, Nagpur
14)	A copy of the environmental clearance letter shall be marked to concerned Panchayat / Jilla Parishad / Municipal Corporation or Urban Local Body/local NGO, if any, from whom any suggestion /representation has been received while processing the proposal. A copy of the clearance letter shall also be displayed on the company's website.	Copies of the clearance letter have already been handed over to concerned village Panchayats. No suggestion / representation have been received.
15)	A copy of the clearance letter shall be displayed on the website of the concerned State Pollution Control Board. The EC letter shall also be displayed at the Regional Office, District Industry Center and Collector's Office/ Tehsildar's Office for 30 days.	A copy of the clearance letter has already been sent to Regional Officer, MPCB, and Nagpur for the purpose
16)	The project proponent shall submit six monthly reports on the status of compliance of the stipulated environmental clearance conditions (both in hard copy and in e-mail) to the respective Regional Office of the MOEF, the respective Zonal offices of CPCB and the SPCB. The compliance status of the stipulated EC conditions shall also be uploaded by the project authorities on their website and updated at least once every six months so as to bring the same in the public domain. The monitoring data of environmental quality parameters air, water, noise and soil) shall also be displayed at the entrance of the project premises and mines office and in corporate office and on the company's website.	The status of the Environmental Clearance compliance conditions are updated in every six monthly reports in both hard & soft copy in the mentioned formats.
17)	The Regional Office of this Ministry located	EIA and EMP already submitted. Monitoring



	at Bhopal shall monitor compliance of the stipulated conditions. The project authorities shall extend full cooperation to the officer(s) of the Regional Office by furnishing the requisite data / information / monitoring reports.	Data sheet and status of implementation of EC compliance conditions is being sent half-yearly to MOEF & CC.
18)	The environmental statement for each financial year ending 31 <sup>st</sup> March in form-V is mandated to be submitted by the project proponent to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rule, 1986, as amended subsequently, shall also be uploaded on the company's website along with the status of compliance of EC conditions and shall be sent to the respective Regional Officers of the MOEF by E-mail.	Environment Statement is being submitted regularly. A copy of the Environment Statement is enclosed herewith.
3.	The Ministry or any other competent authority may stipulate any further condition for environment protection.	Agreed for the same.
4.	Failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attract action under provisions of Environment (Protection) Act 1986.	Agreed for the same.
5.	The above conditions will be enforced inter-alia, under provisions of the Water (Prevention & Control of Pollution) Act, 1974, the Air (Prevention & Control of Pollution) Act, 1981, the Environment Protection Act, 1986 & the Public Liability Insurance Act, 1991 along with their amendments & Rules. The proponent shall ensure to undertake and provide for the costs incurred for taking up remedial measures in case of soil contamination, contamination of groundwater and surface water and occupational and other diseases due to the mining operations.	Agreed for the same. The remedial measures are being taken in the project by the WCL for control of pollution regarding to the air, water, noise & soil under Water (Prevention & Control of Pollution) Act, 1974, the Air (Prevention & Control of Pollution) Act, 1981, the Environment Protection Act, 1986 & the Public Liability Insurance Act, 1991 along with their amendments & Rules.

No.J-11015/341/2008-1A II(M)  
Government of India  
Ministry of Environment & Forests

Parvavaran Bhawan,  
C C C Complex,  
New Delhi -110010

Dated: 15<sup>th</sup> July 2009

To  
M/s Western Coalfields Ltd.,  
Coal Estate, Civil Lines,  
NAGPUR - 400001

Sub: Adasa Underground Coal Mine Expansion Project (expansion from 0.21 MTPA to 0.50 MTPA of M/s Western Coalfields Ltd. (WCL), located near village Katndi, Tehsil Saoner, District Nagpur, Maharashtra - environmental clearance - reg.

Sir,

This has reference to letter No. 43011/160/2007-C PAM dated 29.07.2008 of Ministry of Coal forwarding your application for TOR, which was granted vide MOEF letter dated 11.11.2008 and your application for environmental clearance dated 16.04.2009 and subsequent letters dated 21.05.2009, 13.06.2009 and 08.07.2009 on the above-mentioned subject. The Ministry of Environment & Forests has considered your application. It is noted that the application is for seeking environmental clearance under section 7 (ii) for expansion in production in the existing Adasa Underground Coal Mine Project from 0.21 million tonnes per annum (MTPA) to 0.50 MTPA with no change in lease area of 211 ha. It is further noted that EC was granted on 19.05.2000 for the project of 0.21 MTPA production capacity over the existing MI. area of 221 ha of which 206 ha is agricultural land and 15 ha is Government land. No forestland is involved. The project does not involve R&R. There are no National Parks, Wildlife Sanctuary, Biosphere Reserves found in the 15 km buffer zone. Of the total lease area of 221 ha, of which 15 ha includes rights for surface structures and mining rights for the entire 221 ha. The project does not involve modification of the natural drainage. Mining will be underground by Bord & Pillar method involving SIDI. The expansion project does not involve change in land requirement, mining technology, displacement, Mineral transportation of 1500 TPD of coal is by trolley from mine face to surface to CIIP located near the Incline mouth and by road to Saoner Railway siding a distance of 4 km. Ultimate working depth of the mine is 104m below ground level (bgl). Mining has intersected water table, which is in the range of 19.15-21.95m bgl during pre-monsoon and 12.15-18.1m during post-monsoon. Peak water requirement is 400m<sup>3</sup>/d, which is to be met from mine water discharge. Balance life of the mine at the proposed rated capacity is 4 years. Public Hearing was held on 13.05.1998 for 0.21 MTPA project. The project has been approved by M/s WCL on 12.05.2009. There is no additional capital investment for the expansion project. Original capital cost of the project is Rs. 35.8573 crores.

2. The Ministry of Environment & Forests hereby accords environmental clearance for the above-mentioned Adasa Underground Coalmine Expansion Project of M/s WCL for expansion in production of coal from 0.21 MTPA to 0.50 MTPA rated capacity involving a total lease area of 221ha under Section 7 (ii) of the Environmental Impact Assessment Notification, 2006 and subsequent amendments and Circulars thereto and subject to conditions specified below:

A. Specific Conditions

- (i) Regular monitoring of subsidence movement on the surface over and around the working area and impact on natural drainage pattern, water bodies, vegetation, structure, roads, and surroundings shall be continued till movement ceases completely. In case of observation of any high rate of subsidence movement, appropriate effective corrective measures shall be

*OS D (Env)*

*[Signature]*

*By COMS (Env) 2017/09*

taken to avoid loss of life and material. Cracks shall be effectively plugged with ballast and clayey soil/suitable material.

- (ii) High root density tree species shall be selected and planted over areas likely to be affected by subsidence.
- (iii) Coal extraction shall also be optimised in areas where agricultural production is continuing. Some pillars shall be left below the agricultural land. No coal depillaring shall be undertaken below areas of habitation.
- (iv) Subsidence shall be monitored closely and if subsidence is found exceeding the permitted limits, then the landowners shall be adequately compensated with mutual agreement of the landowners.
- (v) Garland drains (size, gradient and length) around the safety areas such as mine shaft and low lying areas and sump capacity shall be designed keeping 50% safety margin over an above the peak sudden rainfall and maximum discharge in the area adjoining the mine sites. Sump capacity shall also be provided adequate retention period to allow proper settling of silt material.
- (vi) Water sprinkling system shall be provided to check fugitive emissions from loading operations, conveyor system, haulage roads, transfer points, etc. Mobile sprinklers shall be provided in major haul roads and with high levels of SPM/RSPM.
- (vii) Major approach roads shall be black topped and properly maintained. A 3-tier plantation shall be developed along all major roads, near CIIP, coal bunker, infrastructure. A mist spray water sprinkling system shall be installed at the CIIP and at transfer points
- (viii) Drills shall be wet operated only to avoid fugitive dust emissions.
- (ix) A progressive afforestation plan shall be prepared and implemented over the mine lease area and shall include areas under green belt development, areas along roads, infrastructure, along MI. boundary and township outside the lease area, etc. by planting native species in consultation with the local DFO/Agriculture Department. The density of the trees shall be around 2500 plants per ha.
- (x) Regular monitoring of groundwater level and quality shall be carried out by establishing a network of existing wells and construction of new piezometers. The monitoring for quantity shall be done four times a year in pre-monsoon (May), monsoon (August), post-monsoon (November) and winter (January) seasons and for quality in May. Data thus collected shall be submitted to the Ministry of Environment & Forests and to the Central Pollution Control Board quarterly within one month of monitoring.
- (xi) The Company shall put up artificial groundwater recharge measures for augmentation of groundwater resource in case monitoring of water table indicates a declining trend. The project authorities shall meet water requirement of nearby village(s) in case the village wells go dry due to dewatering of mine.
- (xii) Mine discharge water particularly H<sub>2</sub>S shall be treated to conform to prescribed levels before discharge into the natural environment.
- (xiii) Besides carrying out regular periodic health check up of their workers, 10% of the workers identified from workforce engaged in active mining operations shall be subjected to health check up for occupational diseases and hearing impairment, if any, through an agency such as NIOH, Ahmedabad within a period of one year and the results reported to this Ministry and to DGMS.
- (xiv) For monitoring land use pattern and for post mining land use, a time series of landuse maps, based on satellite imagery (on a scale of 1: 5000) of the core zone and buffer zone, from the

start of the project until end of mine life shall be prepared once in 3 years (for any one particular season which is consistent in the time series), and the report submitted to MOEF and its Regional office at Bhopal.

- (xv) A final Mine Closure Plan along with details of Corpus Fund shall be submitted to the Ministry of Environment & Forests within 6 months of grant of environmental clearance.
- (xvi) The project proponent shall undertake a socio-economic survey for identifying and taking up need based specific socio-economic activities/ programmes/ schemes, which are required in the area. Monitoring of the impacts of activities under CSR shall be carried out periodically. Educational centres shall be established in the area to create awareness and for organising workshops, etc.

#### B. General Conditions

- (i) No change in mining technology and scope of working shall be made without prior approval of the Ministry of Environment and Forests.
- (ii) No change in the calendar plan including quantum of mineral coal and waste shall be made.
- (iii) Four ambient air quality monitoring stations shall be established in the core zone as well as in the buffer zone for monitoring SPM, RSPM, SO<sub>2</sub> and NO<sub>x</sub>. Location of the stations shall be decided based on the meteorological data, topographical features and environmentally and ecologically sensitive targets in consultation with the State Pollution Control Board. Monitoring of heavy metals such as Hg, As, Ni, Cd, Cr, in SPM and RSPM etc. shall be carried out at least one in six months.
- (iv) Data on ambient air quality (SPM, RSPM, SO<sub>2</sub> and NO<sub>x</sub> and heavy metals such as Hg, As, Ni, Cr, etc) shall be regularly submitted to the Ministry including its Regional Office at Bhopal and to the State Pollution Control Board and the Central Pollution Control Board once in six months. Random verification of samples through analysis from independent laboratories recognised under the EP Rules, 1986 shall be furnished as part of the compliance report.
- (v) Adequate measures shall be taken for control of noise levels below 85 dBA in the work environment. Workers engaged in blasting and drilling operations, operation of HEMM, etc shall be provided with ear plugs/muffs.
- (vi) Industrial wastewater (workshop and wastewater from the mine) shall be properly collected, treated so as to conform to the standards prescribed under CSR 422 (F) dated 19<sup>th</sup> May 1993 and 31<sup>st</sup> December 1993 or as amended from time to time before discharge. Oil and grease trap shall be installed before discharge of workshop effluents.
- (vii) Vehicular emissions shall be kept under control and regularly monitored. Vehicles used for transportation of the mineral shall be covered with tarpaulins and optimally loaded.
- (viii) Appropriate measures shall be taken to avoid hazards of fire and explosions due to methane gas.
- (ix) Monitoring of environmental quality parameters shall be carried out through establishment of adequate number and type of pollution monitoring and analysis equipment in consultation with the State Pollution Control Board and data got analysed through a laboratory recognised under EP Rules, 1986.
- (x) Personnel working in dusty areas shall wear protective respiratory devices and they shall also be provided with adequate training and information on safety and health aspects.

Occupational health surveillance programme of the workers shall be undertaken periodically to observe any contractions due to exposure to dust and to take corrective measures, if needed.

- (xi) A separate environmental management cell with suitable qualified personnel shall be set up under the control of a Senior Executive, who will report directly to the Head of the company.
- (xii) The funds earmarked for environmental protection measures shall be kept in separate account and shall not be diverted for other purpose. Year-wise expenditure shall be reported to this Ministry and its Regional Office at Bhopal.
- (xiii) The Project authorities shall advertise at least in two local newspapers widely circulated around the project, one of which shall be in the vernacular language of the locality concerned within seven days of the clearance letter informing that the project has been accorded environmental clearance and a copy of the clearance letter is available with the State Pollution Control Board and may also be seen at the website of the ministry of Environment & Forests at <http://envfor.nic.in>.
- (xiv) A copy of the environmental clearance letter shall be marked to concerned Panchayat/ Zila Parishad/Municipal Corporation or Urban Local Body/ local NGO, if any, from whom any suggestion/representation has been received while processing the proposal. A copy of the clearance letter shall also be displayed on the company's website.
- (xv) A copy of the clearance letter shall be displayed on the website of the concerned State Pollution Control Board. The EC letter shall also be displayed at the Regional Office, District Industry Centre and Collector's Office/Tehsildar's Office for 30 days.
- (xvi) *Jmp* The project proponent shall submit six monthly reports on the status of compliance of the stipulated environmental clearance conditions (both in hard copy and in e-mail) to the respective Regional Office of the MOEF, the respective Zonal offices of CPCB and the SPCH. The compliance status of the stipulated EC conditions shall also be uploaded by the project authorities on their website and updated at least once every six months so as to bring the same in the public domain. The monitoring data of environmental quality parameters (air, water, noise and soil) shall also be displayed at the entrance of the project premises and mines office and in corporate office and on the company's website.
- (xvii) The Regional Office of this Ministry located at Bhopal shall monitor compliance of the stipulated conditions. The Project authorities shall extend full cooperation to the office(s) of the Regional Office by furnishing the requisite data/ information/monitoring reports.
- (xviii) *Jmp* The environmental statement for each financial year ending 31<sup>st</sup> March in Form-V is mandated to be submitted by the project proponent to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently, shall also be uploaded on the company's website along with the status of compliance of EC conditions and shall be sent to the respective Regional Offices of the MOEF by e-mail.

3. The Ministry or any other competent authority may stipulate any further condition for environmental protection.

4. Failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attract the provisions of the Environment (Protection) Act, 1986.

5. The above conditions will be enforced *inter alia*, under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, the Air (Prevention & Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986 and the Public Liability Insurance Act, 1991 along with their amendments and Rules. The proponent shall ensure to undertake and provide for the costs incurred

for taking up remedial measures in case of soil contamination, contamination of groundwater and surface water, and occupational and other diseases due to the mining operations

(S)  
Dr. I. Chandini

Director

Copy to:

1. Secretary Ministry of Coal, New Delhi
2. Secretary, Department of Environment, Government of Maharashtra, 15<sup>th</sup> Floor, New Admn. Bldg., Madam Cama Road, MUMBAI - 400032.
3. Chief Conservator of Forests, Regional office (LZ) Ministry of Environment & Forests, 1-2/240 Arear Colony Bhopal - 462016
4. Chairman, Maharashtra State Pollution Control Board, Kalpataru Point, 3<sup>rd</sup> & 4<sup>th</sup> Floors, Sion, Matunga Scheme Road No. 8, Opp Cine Planet Cinema, Near Sion Circle Sion (E) Mumbai - 400002.
5. Chairman, Central Pollution Control Board (CBD-cum-Office Complex, East Arjun Nagar, New Delhi - 110032
6. Member-Secretary, Central Ground Water Authority, Ministry of Water Resources, Curzon Road Barracks, A-2, W-3 Kasturba Gandhi Marg, New Delhi.
7. Shri M.K. Shukla, CGM, Coal India Limited, SCOPF Minar, Cons-I, 4<sup>th</sup> Floor, Vikas Marg, Jasminagar, New Delhi
8. District Collector, Nagpur, Government of Maharashtra.
9. Monitoring File 10. Guard File 11. Record File

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FOR COMPANY USE ONLY**

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**ENVIRONMENTAL MONITORING REPORT  
ADASA UG EXPN.**

(NAGPUR AREA)

**WESTERN COALFIELDS LTD.**

*Environmental Clearance issued by MOEF, New Delhi  
Vide Letter No. J-11015/341/2008-IA.II(M) dated 15-07-2009*

(JOB No. 8000002)



**QUARTER ENDING – MARCH 2016**

**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**

## **INDEX**

<b>SL.NO</b>	<b>PARTICULARS</b>	<b>PAGE NO.</b>
<b>1.</b>	<b>INTRODUCTION</b>	<b>i-iii</b>
<b>2.</b>	<b>AIR QUALITY MONITORING DATA</b>	<b>1-2</b>
<b>3.</b>	<b>EFFLUENT WATER QUALITY MONITORING DATA</b>	<b>3</b>
<b>4.</b>	<b>NOISE LEVEL DATA</b>	<b>4-5</b>



## 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 (SO<sub>2</sub>) and Oxides of nitrogen (NO<sub>x</sub>) 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 m<sup>3</sup>/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/m<sup>3</sup>) 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/m<sup>3</sup>) of PM-2.5 in the ambient air are computed by measuring the mass of collected particulates and the volume of air sampled.
- NO<sub>x</sub>** : 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.
- SO<sub>2</sub>** : Determination of SO<sub>2</sub> 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 are high at location no NAUA – 2 ( Feb IInd & PM – 10 is high in Jan IInd ) NAUA – 3 ( Jan Ist , Feb IInd & PM – 10 is high in Jan IInd ,Mar IInd ) NAUA – 4 ( Jan IInd , Feb Ist & PM – 10 is high in Jan Ist , Feb IInd ) also PM-2.5 is high at certain locations.

**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 SPM 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.

<b>Environment Laboratory CMPDI, RI IV, Nagpur</b>	<b>Test Report</b>	 T - 2969
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Test Report No. : RIN/TR/QE-M16/A-8                      Date of Issue : 05.04.16  
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), NOx (06:2006), SO<sub>2</sub>(02:2001)] & TPM\*.

### AIR QUALITY MONITORING DATA

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

#### 1. Project Manager Office : NAUA-1

( 24 hourly values in µg/m<sup>3</sup>)

Month	Date of Sampling		Parameters				
	From	To	TPM	PM-10	NOx	SO <sub>2</sub>	PM-2.5
JAN.2016	19.01.16	20.01.16	214	115	3	22	20
MAR.2016	01.03.16	02.03.16	113	88	5	24	64
MAR.2016	22.03.16	23.03.16	256	120	8	26	24
<b>TLV as per Env.(Protection) Amendment Rule 2000</b>			<b>600</b>	<b>300</b>	<b>120</b>	<b>120</b>	<b>60</b>

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

( 24 hourly values in µg/m<sup>3</sup>)

Month	Date of Sampling		Parameters				
	From	To	TPM	PM-10	NOx	SO <sub>2</sub>	PM-2.5
JAN.2016	04.01.16	05.01.16	75	57	3	21	45
JAN.2016	19.01.16	20.01.16	149	107	2	16	57
FEB.2016	16.02.16	17.02.16	304	256	7	19	75
MAR.2016	02.03.16	03.03.16	175	98	3	11	52
MAR.2016	22.03.16	23.03.16	186	76	6	22	10
<b>TLV as per Env.(Protection) Amendment Rule 2000</b>			<b>200</b>	<b>100</b>	<b>80</b>	<b>80</b>	<b>60</b>

Test Report No. : RIN/TR/QE-M16/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
JAN.2016	04.01.16	05.01.16	266	192	3	13	-
JAN.2016	18.01.16	19.01.16	198	171	3	12	53
FEB.2016	16.02.16	16.02.16	287	166	5	25	74
MAR.2016	01.03.16	02.03.16	94	62	3	19	52
MAR.2016	22.03.16	23.03.16	164	111	6	11	23
TLV as per Env.(Protection) Amendment Rule 2000			<b>200</b>	<b>100</b>	<b>80</b>	<b>80</b>	<b>60</b>

**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
JAN.2016	04.01.16	05.01.16	177	115	4	26	47
JAN.2016	18.01.16	19.01.16	269	116	2	16	53
FEB.2016	02.02.16	03.02.16	215	135	4	16	91
FEB.2016	16.02.16	16.02.16	185	108	5	21	-
MAR.2016	01.03.16	02.03.16	141	94	5	14	73
MAR.2016	22.03.16	23.03.16	106	72	5	14	59
TLV as per Env.(Protection) Amendment Rule 2000			<b>200</b>	<b>100</b>	<b>80</b>	<b>80</b>	<b>60</b>

**(Scientific Assistant)**

**( Technical Manager)**

- Note: 1) This Report refers to the values related to the items tested as received.  
 2) This Report cannot be reproduced in part or full without written permission of the management.  
 3) \* - Test parameter not under NABL scop

<b>Environment Laboratory CMPDI, RI IV, Nagpur</b>	<b>Test Report</b>	 <b>T - 2969</b>
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Test Report No. : RIN/TR/QE-M16/W-8      Date of Issue : 05.04.16  
 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 : 2016  
 NAME OF THE AREA : NAGPUR      Q.E. : MAR.  
 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
JAN.2016	04.01.16	7.61	48	24	<2
JAN.2016	19.01.16	8.04	48	30	<2
FEB.2016	02.02.16	8.15	44	28	<2
FEB.2016	17.02.16	7.84	48	64	<2
MAR.2016	02.03.16	9.14	60	58	<2
MAR.2016	22.03.16	7.81	36	36	<2
<b>TLV as per Env.(Protection) Amendment rule 2000</b>		<b>5.5 - 9.0</b>	<b>250</b>	<b>100</b>	<b>10</b>

**(Scientific Assistant)**

**(Technical Manager)**

Note: 1) This Report refers to the values related to the items tested as received.  
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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: MAR.

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

Month	Date of Data collection	Noise Level in dB(A)	
		Day Time	Night Time
JAN.2016	05.01.16	67.9	67.3
JAN.2016	19.01.16	68.7	69.5
FEB.2016	03.02.16	69.6	70.2
FEB.2016	18.02.16	70.1	65.6
MAR.2016	04.03.16	70.8	69.9
MAR.2016	22.03.16	70.7	70.6
<b>Noise Level Standard as per Env. (Protection) Amendment rule 2000</b>		<b>75</b>	<b>70</b>

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

Month	Date of Data collection	Noise Level in dB(A)	
		Day Time	Night Time
JAN.2016	05.01.16	53.6	53.2
JAN.2016	19.01.16	54.5	53.6
FEB.2016	03.02.16	55.4	54.6
FEB.2016	18.02.16	55.3	47.8
MAR.2016	04.03.16	56.7	55.8
MAR.2016	22.03.16	52.6	52.5
<b>Noise Level Standard as per Env. (Protection) Amendment rule 2000</b>		<b>75</b>	<b>70</b>

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

Month	Date of Data collection	Noise Level in dB(A)	
		Day Time	Night Time
JAN.2016	05.01.16	46.5	46.3
JAN.2016	19.01.16	42.6	41.4
FEB.2016	03.02.16	41.7	40.6
FEB.2016	18.02.16	51.7	42.2
MAR.2016	04.03.16	45.9	44.7
MAR.2016	22.03.16	42.5	42.4
<b>Permissible Limit</b>		<b>55</b>	<b>45</b>



No.J-11015/341/2008-1A II(M)  
Government of India  
Ministry of Environment & Forests

Parvathan Bhawan,  
C G O Complex,  
New Delhi -110010

Dated: 15<sup>th</sup> July 2009

To  
M/s Western Coalfields Ltd.,  
Coal Estate, Civil Lines,  
NAGPUR - 400001

Sub: Adasa Underground Coal Mine Expansion Project (expansion from 0.21 MTPA to 0.50 MTPA of M/s Western Coalfields Ltd. (WCL), located near village Katadi, Tehsil Saoner, District Nagpur, Maharashtra - environmental clearance - reg.

Sir,

This has reference to letter No. 43011/160/2007-C PAM dated 29.07.2008 of Ministry of Coal forwarding your application for TOR, which was granted vide MOEF letter dated 11.11.2008 and your application for environmental clearance dated 16.04.2009 and subsequent letters dated 21.05.2009, 13.06.2009 and 08.07.2009 on the above-mentioned subject. The Ministry of Environment & Forests has considered your application. It is noted that the application is for seeking environmental clearance under section 7 (ii) for expansion in production in the existing Adasa Underground Coal Mine Project from 0.21 million tonnes per annum (MTPA) to 0.50 MTPA with no change in lease area of 211 ha. It is further noted that EC was granted on 19.05.2000 for the project of 0.21 MTPA production capacity over the existing MI. area of 221 ha of which 206 ha is agricultural land and 15 ha is Government land. No forestland is involved. The project does not involve R&R. There are no National Parks, Wildlife Sanctuary, Biosphere Reserves found in the 15 km buffer zone. Of the total lease area of 221 ha, of which 15 ha includes rights for surface structures and mining rights for the entire 221 ha. The project does not involve modification of the natural drainage. Mining will be underground by Bord & Pillar method involving SIDI. The expansion project does not involve change in land requirement, mining technology, displacement, Mineral transportation of 1500 TPD of coal is by trolley from mine face to surface to CIIP located near the Incline mouth and by road to Saoner Railway siding a distance of 4 km. Ultimate working depth of the mine is 104m below ground level (bgl). Mining has intersected water table, which is in the range of 19.15-21.95m bgl during pre-monsoon and 12.15-18.1m during post-monsoon. Peak water requirement is 400m<sup>3</sup>/d, which is to be met from mine water discharge. Balance life of the mine at the proposed rated capacity is 4 years. Public Hearing was held on 13.05.1998 for 0.21 MTPA project. The project has been approved by M/s WCL on 12.05.2009. There is no additional capital investment for the expansion project. Original capital cost of the project is Rs. 35.8573 crores.

2. The Ministry of Environment & Forests hereby accords environmental clearance for the above-mentioned Adasa Underground Coalmine Expansion Project of M/s WCL for expansion in production of coal from 0.21 MTPA to 0.50 MTPA rated capacity involving a total lease area of 221ha under Section 7 (ii) of the Environmental Impact Assessment Notification, 2006 and subsequent amendments and Circulars thereto and subject to conditions specified below:

A. Specific Conditions

- (i) Regular monitoring of subsidence movement on the surface over and around the working area and impact on natural drainage pattern, water bodies, vegetation, structure, roads, and surroundings shall be continued till movement ceases completely. In case of observation of any high rate of subsidence movement, appropriate effective corrective measures shall be

*(Signature)*

*(Signature)*

*(Signature)*  
2017/109

taken to avoid loss of life and material. Cracks shall be effectively plugged with ballast and clayey soil/suitable material.

- (ii) High root density tree species shall be selected and planted over areas likely to be affected by subsidence.
- (iii) Coal extraction shall also be optimised in areas where agricultural production is continuing. Some pillars shall be left below the agricultural land. No coal depillaring shall be undertaken below areas of habitation.
- (iv) Subsidence shall be monitored closely and if subsidence is found exceeding the permitted limits, then the landowners shall be adequately compensated with mutual agreement of the landowners.
- (v) Garland drains (size, gradient and length) around the safety areas such as mine shaft and low lying areas and sump capacity shall be designed keeping 50% safety margin over an above the peak sudden rainfall and maximum discharge in the area adjoining the mine sites. Sump capacity shall also be provided adequate retention period to allow proper settling of silt material.
- (vi) Water sprinkling system shall be provided to check fugitive emissions from loading operations, conveyor system, haulage roads, transfer points, etc. Mobile sprinklers shall be provided in major haul roads and with high levels of SPM/RSPM.
- (vii) Major approach roads shall be black topped and properly maintained. A 3-tier plantation shall be developed along all major roads, near CIIP, coal bunker, infrastructure. A mist spray water sprinkling system shall be installed at the CIIP and at transfer points
- (viii) Drills shall be wet operated only to avoid fugitive dust emissions.
- (ix) A progressive afforestation plan shall be prepared and implemented over the mine lease area and shall include areas under green belt development, areas along roads, infrastructure, along MI. boundary and township outside the lease area, etc. by planting native species in consultation with the local DFO/Agriculture Department. The density of the trees shall be around 2500 plants per ha.
- (x) Regular monitoring of groundwater level and quality shall be carried out by establishing a network of existing wells and construction of new piezometers. The monitoring for quantity shall be done four times a year in pre-monsoon (May), monsoon (August), post-monsoon (November) and winter (January) seasons and for quality in May. Data thus collected shall be submitted to the Ministry of Environment & Forests and to the Central Pollution Control Board quarterly within one month of monitoring.
- (xi) The Company shall put up artificial groundwater recharge measures for augmentation of groundwater resource in case monitoring of water table indicates a declining trend. The project authorities shall meet water requirement of nearby village(s) in case the village wells go dry due to dewatering of mine.
- (xii) Mine discharge water particularly H<sub>2</sub>S shall be treated to conform to prescribed levels before discharge into the natural environment.
- (xiii) Besides carrying out regular periodic health check up of their workers, 10% of the workers identified from workforce engaged in active mining operations shall be subjected to health check up for occupational diseases and hearing impairment, if any, through an agency such as NIOH, Ahmedabad within a period of one year and the results reported to this Ministry and to DGMS.
- (xiv) For monitoring land use pattern and for post mining land use, a time series of landuse maps, based on satellite imagery (on a scale of 1: 5000) of the core zone and buffer zone, from the

start of the project until end of mine life shall be prepared once in 3 years (for any one particular season which is consistent in the time series), and the report submitted to MOEF and its Regional office at Bhopal.

- (xv) A Final Mine Closure Plan along with details of Corpus Fund shall be submitted to the Ministry of Environment & Forests within 6 months of grant of environmental clearance.
- (xvi) The project proponent shall undertake a socio-economic survey for identifying and taking up need based specific socio-economic activities/ programmes/ schemes, which are required in the area. Monitoring of the impacts of activities under CSR shall be carried out periodically. Educational centres shall be established in the area to create awareness and for organising workshops, etc.

#### B. General Conditions

- (i) No change in mining technology and scope of working shall be made without prior approval of the Ministry of Environment and Forests.
- (ii) No change in the calendar plan including quantum of mineral coal and waste shall be made.
- (iii) Four ambient air quality monitoring stations shall be established in the core zone as well as in the buffer zone for monitoring SPM, RSPM, SO<sub>2</sub> and NO<sub>x</sub>. Location of the stations shall be decided based on the meteorological data, topographical features and environmentally and ecologically sensitive targets in consultation with the State Pollution Control Board. Monitoring of heavy metals such as Hg, As, Ni, Cd, Cr, in SPM and RSPM etc. shall be carried out at least one in six months.
- (iv) Data on ambient air quality (SPM, RSPM, SO<sub>2</sub> and NO<sub>x</sub> and heavy metals such as Hg, As, Ni, Cr, etc) shall be regularly submitted to the Ministry including its Regional Office at Bhopal and to the State Pollution Control Board and the Central Pollution Control Board once in six months. Random verification of samples through analysis from independent laboratories recognised under the EP Rules, 1986 shall be furnished as part of the compliance report.
- (v) Adequate measures shall be taken for control of noise levels below 85 dBA in the work environment. Workers engaged in blasting and drilling operations, operation of HEMM, etc shall be provided with ear plugs/muffs.
- (vi) Industrial wastewater (workshop and wastewater from the mine) shall be properly collected, treated so as to conform to the standards prescribed under CSR 422 (F) dated 19<sup>th</sup> May 1993 and 31<sup>st</sup> December 1993 or as amended from time to time before discharge. Oil and grease trap shall be installed before discharge of workshop effluents.
- (vii) Vehicular emissions shall be kept under control and regularly monitored. Vehicles used for transportation of the mineral shall be covered with tarpaulins and optimally loaded.
- (viii) Appropriate measures shall be taken to avoid hazards of fire and explosions due to methane gas.
- (ix) Monitoring of environmental quality parameters shall be carried out through establishment of adequate number and type of pollution monitoring and analysis equipment in consultation with the State Pollution Control Board and data got analysed through a laboratory recognised under EP Rules, 1986.
- (x) Personnel working in dusty areas shall wear protective respiratory devices and they shall also be provided with adequate training and information on safety and health aspects.

Occupational health surveillance programme of the workers shall be undertaken periodically to observe any contractions due to exposure to dust and to take corrective measures, if needed.

- (xi) A separate environmental management cell with suitable qualified personnel shall be set up under the control of a Senior Executive, who will report directly to the Head of the company.
- (xii) The funds earmarked for environmental protection measures shall be kept in separate account and shall not be diverted for other purpose. Year-wise expenditure shall be reported to this Ministry and its Regional Office at Bhopal.
- (xiii) The Project authorities shall advertise at least in two local newspapers widely circulated around the project, one of which shall be in the vernacular language of the locality concerned within seven days of the clearance letter informing that the project has been accorded environmental clearance and a copy of the clearance letter is available with the State Pollution Control Board and may also be seen at the website of the ministry of Environment & Forests at <http://envfor.nic.in>.
- (xiv) A copy of the environmental clearance letter shall be marked to concerned Panchayat/ Zila Parishad/Municipal Corporation or Urban Local Body/ local NGO, if any, from whom any suggestion/representation has been received while processing the proposal. A copy of the clearance letter shall also be displayed on the company's website.
- (xv) A copy of the clearance letter shall be displayed on the website of the concerned State Pollution Control Board. The EC letter shall also be displayed at the Regional Office, District Industry Centre and Collector's Office/Tehsildar's Office for 30 days.
- (xvi) *Jmp* The project proponent shall submit six monthly reports on the status of compliance of the stipulated environmental clearance conditions (both in hard copy and in e-mail) to the respective Regional Office of the MOEF, the respective Zonal offices of CPCB and the SI/CH. The compliance status of the stipulated EC conditions shall also be uploaded by the project authorities on their website and updated at least once every six months so as to bring the same in the public domain. The monitoring data of environmental quality parameters (air, water, noise and soil) shall also be displayed at the entrance of the project premises and mines office and in corporate office and on the company's website.
- (xvii) The Regional Office of this Ministry located at Bhopal shall monitor compliance of the stipulated conditions. The Project authorities shall extend full cooperation to the office(s) of the Regional Office by furnishing the requisite data/ information/monitoring reports.
- (xviii) *Jmp* The environmental statement for each financial year ending 31<sup>st</sup> March in Form-V is mandated to be submitted by the project proponent to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently, shall also be uploaded on the company's website along with the status of compliance of EC conditions and shall be sent to the respective Regional Offices of the MOEF by e-mail.

3. The Ministry or any other competent authority may stipulate any further condition for environmental protection.

4. Failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attract the provisions of the Environment (Protection) Act, 1986.

5. The above conditions will be enforced *inter alia*, under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, the Air (Prevention & Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986 and the Public Liability Insurance Act, 1991 along with their amendments and Rules. The proponent shall ensure to undertake and provide for the costs incurred

for taking up remedial measures in case of soil contamination, contamination of groundwater and surface water, and occupational and other diseases due to the mining operations

(S)  
Dr. I. Chandini

Director

Copy to:

1. Secretary Ministry of Coal, New Delhi
2. Secretary, Department of Environment, Government of Maharashtra, 15<sup>th</sup> Floor, New Admn. Bldg., Madam Cama Road, MUMBAI - 400032.
3. Chief Conservator of Forests, Regional office (LZ) Ministry of Environment & Forests, 1-2/240 Arear Colony Bhopal - 462016
4. Chairman, Maharashtra State Pollution Control Board, Kalpataru Point, 3<sup>rd</sup> & 4<sup>th</sup> Floors, Sion, Matunga Scheme Road No. 8, Opp Cine Planet Cinema, Near Sion Circle Sion (E) Mumbai - 400002.
5. Chairman, Central Pollution Control Board (CBD-cum-Office Complex, East Arjun Nagar, New Delhi - 110032
6. Member-Secretary, Central Ground Water Authority, Ministry of Water Resources, Curzon Road Barracks, A-2, W-3 Kasturba Gandhi Marg, New Delhi.
7. Shri M.K. Shukla, CGM, Coal India Limited, SCOPF Minar, Cons-I, 4<sup>th</sup> Floor, Vikas Marg, Jasminagar, New Delhi
8. District Collector, Nagpur, Government of Maharashtra.
9. Monitoring File 10. Guard File 11. Record File

# eco bhara



**Maharashtra Pollution  
Control Board**  
महाराष्ट्र प्रदूषण नियंत्रण मंडळ

Form V is to be filled before 30th September annually; for the period from 1st April to 31st March

## PART A

### Company Information

<b>Company Name :</b>	Adasa Underground Mine
<b>Facility Name :</b>	WCL, Nagpur Area
<b>Person Name * :</b>	R S SINGH
<b>Designation * :</b>	DY. General Manager
<b>Premise Name :</b>	WCL, Nagpur Area
<b>Road Name :</b>	Kastruba Nagar,
<b>Area / Locality :</b>	Jaripatka
<b>City :</b>	NAGPUR
<b>Pin code :</b>	440001
<b>Region :</b>	Nagpur
<b>Telephone No * :</b>	07113217431
<b>FAX No :</b>	07113217431
<b>Email Id * :</b>	wclenv@yahoo.in
<b>Industry Category * :</b>	Red
<b>Industry Sub-Category * :</b>	All Others(Red)
<b>Date of Last Environmental statement submitted online:</b>	NA
<b>Consent No:</b>	BO/JD(APC)/EIC NO.NG 8045-12
<b>Consent Issue Date:</b>	7/11/2013
<b>Consent Valid Upto Date:</b>	3/31/2015
<b>Submission Of Financial Year:</b>	1st April 2014 to 31st March 2015
<b>Year Of Establishment :</b>	2005
<b>Industry Type * :</b>	LSI (Large Scale Industry)
<b>Industry Sub-Type * :</b>	Manufacturer

**Production**

Product/By-Product Name	Consent Quantity	Actual Quantity	Unit
COAL	2000000.000	730000.000	MetricTon

**PART B**

**1) Water Consumption m3/day**

Sr.No	Water Consumption for	Consent Quantity	Actual Quantity
1	Process	5600.000	3377.000
2	Cooling		
3	Domestic	2500.000	2400.000
4	All Others		
5	Total	8100.000	5777.000
6	Total water consumption as per cess bill for the year (m3/annum)		

Sr.No	Particulars	Consent Quantity	Actual Quantity
1	Daily quantity of trade effluent from the factory	10500.000	9893.000
2	Daily quantity of sewage effluent from the factory	500.000	0.000
3	Daily quantity of treated effluent	0.000	9893.000

**2) Product Wise Process Water Consumption (cubic meter of process water per unit of product)**

Sr.No	Name of Products (Production)	During the Previous Financial year	During the Current Financial year
1	COAL	0.000	1.689

**3) Raw material Consumption (Consumption of raw material per unit of product)**

Sr.No	Name of Raw Materials	During the Previous Financial year	During the Current Financial year	Unit Name
1	EXPLOSIVE	0.000	0.569 per unit of product	Others

**4) Fuel Consumption**

Sr.No	Fuel Name	Consent Quantity	Actual Quantity	Unit
1	HSD (High Speed Diesel)	1.920	23.000 per annum	Kilo Liter

**PART C**

**Parameter Details for WATER - mass/day (Kg/day)**

Sr.No	Parameters	Quantity Of Pollutant Discharged(mass/day)	Actual	Unit
1	pH		8.160	
2	Suspended Solids	408.581	41.300	mg/l
3	BOD 3 Days			mg/l
4	COD	517.997	52.360	mg/l
5	Oil and Grease	0.000	0.000	mg/l
6	TDS			mg/l
7	Chlorides			mg/l
8	Sulphates			mg/l
9	DO			mg/l

Sr.No	Parameters	Quantity Of Pollutant Discharged(mass/day)	Range	Standard	Actual
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**Parameter Details for STACK**

**PART D - Hazardous Waste**  
[as specified under Hazardous Waste (Management, Handling and Transboundary Movement) Rules, 2008]

**1) From Process**

Sr.No	Category no: Type of waste	Consent Quantity	Unit	During Previous Financial year	During Current Financial year
1	5.1 Used / spent oil	0.000	Others	0.000	0.000

**2) From Pollution Control Facility**

Sr.No	Category no: Type of waste	Consent Quantity	Unit	During Previous Financial year	During Current Financial year
1	34.3 Chemical sludge from waste water treatment	0.000	MetricTon	0.000	0.000

**PART E - Solid Waste**  
[as specified under Hazardous Waste (Management, Handling and Transboundary Movement) Rules, 2008]

**1) From Process**

Sr.No	Type of Waste	Consent Quantity	During Previous Year	During Financial Year	Unit
1	OVERBURDEN	0.000	0.000	0.000	MetricTon
2					

**2) From Pollution Control Facility**

Sr.No	Type of Waste	Consent Quantity	During Previous Year	During Financial Year	Unit
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**PART F**

<b>Hazardous Waste</b>				
<b>Sr.No</b>	<b>Type of Hazardous Waste Generated</b>	<b>Qty of Hazardous Waste</b>	<b>Consistency of Hazardous Waste</b>	<b>Disposal</b>
1	5.1 Used / spent oil	0.000	Liquid	Other
2	34.3 Chemical sludge from waste water treatment	0.000	Sludge	Other

<b>Solid Waste</b>				
<b>Sr.No</b>	<b>Type of Solid Waste Generated</b>	<b>Qty of Solid Waste</b>	<b>Consistency of Solid Waste</b>	<b>Disposal</b>
1	OVERBURDEN	0.000	Solid	Onsite Captive Land Fill

**PART G**

<b>Impact of the pollution abatement measures taken on conservation of natural resources and on the cost of production.</b>							
<b>Sr.No</b>	<b>Description</b>	<b>Reduction in Water Consumption (M3/day)</b>	<b>Reduction in Fuel and Solvent Consumption (Kg/day)</b>	<b>Reduction in Raw Material (Kg)</b>	<b>Reduction in Power Consumption (KWH)</b>	<b>Capital Investment (Rs)</b>	<b>Reduction in Maintenance (Rs)</b>
1	IN COMPARISON TO PREVIOUS YEAR	0.000	0.000	-62833.520	51.000	2156239.600	0.000

**PART H**

<b>Additional measures/ investment proposal for environmental protection abatement of pollution, prevention of pollution.</b>			
<b>Sr.No</b>	<b>Description</b>	<b>Environmental Protection Measures</b>	<b>Capital Investment (Rs)</b>
1	FOR VARIOUS AIR, WATER AND NOISE CONTROL MEASURES INCLUDING CESS.	Environmental Protection Measures	2156239.600

**PART I**

Any other particulars for improving the quality of the environment.

REGULAR ENVIRONMENTAL MONITORING IS TAKING PLACE AND REQUIRED CONTROL MEASURES ARE DEPLOYED WHERE EVER REQUIRED.

**\* Maximum 200 characters**

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