

Executive Summary

of

Proposed 0.8 MTPA Coal Washery

At

**Khasra no.28, Village Pandharkawda, Tehsil Jhari
Jamni, District Yavatmal, State Maharashtra**

Project Proponent:

M/s. Topworth Urja and Metals Ltd

**Village: Heti, Mouza: Ukkerwahi, P O: Udasa, Tehsil: Umred,
District: Nagpur PIN – 441 204.**

Prepared By

**Pollution & Ecology Control Services
Dhantoli, Nagpur.**

Executive Summary

INTRODUCTION

Topworth Urja and Metals Ltd. has proposed to set up a 0.8 MTPA coal washery unit at Khasra no.28, Village Pandharkawda, Tehsil Jhari Jamni, District Yavatmal of State Maharashtra. The company has identified an area of 4 acres (1.61 Ha) for the project. The proposed coal washery project falls under Category '2 (a) B' as per the EIA Notification 2006. The project was presented in 140th meeting of SEAC –I held on 20th July 2017.

Identification of Project

Topworth Urja & Metals Limited has Steel and Sponge iron unit at Village: Heti, Mouza: Ukkerwahi, P O: Udasa, Tehsil: Umred, District: Nagpur PIN – 441 204. The coal required for the proposed plant will be sourced by the Marki Mangli – I Coal Mine for which vesting order has been issued by Government of India, Coal Ministry dated 30th September 2015 and According to the order dated 28th March 2016 by Industry, Energy and Labour department of Government of Maharashtra Mining lease has been granted. The area of the mine is 682.78 Ha. R and the mine of located at Village: Pandharkawda Tahsil: Zari Jamani, District: Yavatmal (Maharashtra).

Looking forward in prospects of utilization of washed coal, Topworth Urja & Metals Limited proposed to install a new coal washery of 0.8 MTPA capacity at the pithead of its Coal Mine, Marki Mangli–I Coal Mine

Location of the Project

The proposed coal washery area is located at Khasra no.28, Village Pandharkawda, Tehsil Jhari Jamni, District Yavatmal of State Maharashtra. The project area and 10 km radius study area falls in Toposheet no. 56-I/13, 56-I/9.

EIA/EMP REPORT

Proposed coal washery project of M/s TUML is classified as “Category B” as per the EIA notification dated on 14th September, 2006. The observations of the studies are incorporated in the EIA/EMP report. Impacts of the proposed project activities during

construction and operation stages were identified and duly addressed in the EIA/EMP report along with the proposed management plan to control / mitigate the impacts. Environmental Management Plan is suggested to implement the pollution control measures in the project.

TABLE 10.1

SALIENT FEATURES OF THE PROJECT SITE

| Sr. No. | Particulars | Details |
|----------------|-----------------------------------|--|
| 1. | Location | Village Pandharkawda, Tehsil Jhari Jamni, District Yavatmal, State Maharashtra |
| 2. | Khasra No. | Khasra No. 28 (Village: Pandharkawda) |
| 3. | Total area & present landuse | Total Area : 4 Acre (1.61 Ha) Present land use : Industrial |
| 4. | Site elevation | 234 m MSL |
| 5. | SoI Toposheet No. | 56 I/13, 56 I/9 |
| 6. | Nearest highway | SH- 234 (Sirpur-Bori) : 3.5 km: S SH- 233 (Wani-Pandharkawada) 13.0 km : North |
| 7. | Nearest railway station | Kayar Railway Station (Siding) : 13.0 Km NE |
| 8. | Nearest airport | Nagpur Airport - 140 Km |
| 9. | Nearest rivers Nallah | Penganga River : 7.0 Km (S) Upash Nalla:0.5Km(SE) Seasonal Nalla Bhandup Nalla:1.5Km (SW) Dodhani Nallah:6.5(SE) Tiswadi Nalla:8.5Km(SE) Lallya Nalla: 9.0Km (NE) |
| 10. | Reserved/protected forests | Pavnar Reserved Forest patches: 5 km : N Shekapur Reserved Forest patches: 3.0 km :SW Ardhwan Reserved Forest : 4 km : SW Ruikot Reserved Forest : 1.5 km : East |
| 11. | Nearest port | None within 10 km radius |
| 12. | District headquarters | Yawatmal, 90 km NW |
| 13. | Nearest state/national boundaries | None within 10 km radius |

| | | |
|-----|--|---|
| 14. | Nearest village | Marki (BZ): 3 km (W) Pandhakawda : 1 Km (E) |
| 15. | Nearest tourist place | None within 10 km radius |
| 16. | Archaeological sites | None |
| 17. | Protected areas as per wildlife protection act 1972 (tiger | None within 10 km radius area. Tipeshwar Wildlife Sanctuary is 27 Km |
| 18. | Seismicity | Seismic Zone II (Low damage risk) |
| 19. | Defense Installations | None within 10 km radius area |
| 20. | Other industries in 10 km radius | ---- |

PROJECT DESCRIPTION

Process Description

- Raw coal will be received by Road.
- From the ground hopper, the raw coal shall be fed to a Rotary Breaker or Screen and Double Roll Crusher House for Sizing the raw coal to minus 50 mm. The sized coal shall be taken to a series of storage bunker.
- Sized raw coal, (-) 50 mm. from bunker shall be transported to the washing plant building through belt conveyors.
- Coal water slurry then shall flow through launder to a set of De-sliming Sieve Bend and Screen to remove (-) 1 mm coal fines from the coal.
- De-slimed coal shall go from screen discharge chute to the launder. Magnetite media of required specific gravity shall be added at the back of the launder to get mixed with the coal.
- Coal & magnetite mixture shall be pumped to feed to Heavy MediaBath. Clean coal along with magnetite media shall be received as over flow from the Bath.
- Magnetite media shall be drained through Sieve Bend and first part of the Screen and be collected in the screen's dense catch pan and re-circulated back to the washing system. The adhering media with coal shall be rinsed on the second part of the screen and the rinsed water shall be collected as Dilute Media in the Dilute Media Tank.
- Underflow of Bath along with magnetite shall also be fed to a Reject screen.

- Clean coal collected from discharge end of clean coal screen shall be dried in centrifuge and transported to clean coal storage shed or directly to clean coal storage bunker.
- Reject after rinsing on the Reject Screen shall be transported to a reject bunker and from there to reject disposal area.
- Fine coal slurry collected in the fine coal tank shall be pumped into a set of classifying cyclone. The underflow of classifying cyclone shall be dewatered in Hi Frequency screen while the overflow from cyclone shall be fed to a Hi-rate Thickener. Thickened slurry from thickener shall be dewatered in a Multi Roll Belt Press filter.
- The discharge from Hi Frequency screen shall be mixed with washed coal. The discharge of belt press shall be mixed with washed coal after weather drying.
- Effluent from the magnetic separator goes to fine coal tank through wetting launder.
- Plant control shall be achieved by a centralized PLC based control system designed to enable one operator to start-up, monitor, and control and shut down all main equipment, and process functions.

Raw Coal Requirement & Mode of Transport

The capacity of proposed coal washery is 0.8 MTPA. Thus annual requirement of raw coal will be 0.8 Million Tonnes.

The proposed coal washery will be located at Pit head of captive Marki Mangli-I Coal Mine. This will help to transport raw coal from mine to coal washery at a very short distance. Raw coal will be received by Road. Desired quantum of Raw Coal shall be transported by truck from Marki Mangli-I Coal Mine.

Water Requirement & Source

Total water requirement for the proposed coal washery is estimated to be 100 m³/d. Out of this, 85 m³/d water will be recycled and reused in the process. Make up water will be sourced from mine discharge water of Captive Mine. Provision of water treatment facility will be provided for treating water before use for drinking.

Manpower Requirement

The proposed coal washery will uplift the socio-economic standard of local people surrounding the plant site. The proposed coal washery establishment will generate employment in the form of skilled, semiskilled and unskilled labors during construction phase. Technical persons will be recruited during the operation phase. It is estimated to employ direct / indirect employment of 60 people of various skills.

EXISTING ENVIRONMENTAL SCENARIO

Baseline Environmental Studies

Baseline environmental studies were conducted in the proposed coal washery area and in the area within 10 km radius from the proposed coal washery area to assess the existing environmental scenario in the area. The baseline environmental quality data for various components of environment, viz. Air, Noise, Water, Land were monitored during winter season i.e. October to December 2017 in the study area covering 10 km around the proposed coal washery area.

Meteorology & Ambient Air Quality

The climate of this district is characterized by a hot summer, well distributed rainfall and dry except in the rainy season. The cold season is from December to February and is followed by the hot season from March to May. The southwest monsoon season is from June to September while the period October-November constitutes the post-monsoon season.

The predominant wind directions were from SE (8.0%), E (7.0%) and from NE (6.0%). Calm condition is 56.7%.

Ambient Air Quality Status

Ambient air quality (AAQ) samples were collected on basis of 24-hour sampling and twice a week at each site. The ambient air quality samples were collected for continuous 4-weeks beginning from 1st October-2017 to 31th December-2017.

The samples were preserved and analyzed as per the standard methods recommended by Standard Operating Procedure (SOPs) of Central Pollution Control Board (CPCB 2011).

The minimum and maximum values of monitoring results are summarized in following table.

SUMMARY OF AMBIENT AIR QUALITY MONITORING RESULTS

| Station code | Location | Description | PM ₁₀ , ($\mu\text{g}/\text{m}^3$) | PM _{2.5} , ($\mu\text{g}/\text{m}^3$) | SO ₂ ($\mu\text{g}/\text{m}^3$) | NO _x ($\mu\text{g}/\text{m}^3$) |
|----------------------|------------------|-------------|--|---|---|---|
| A1 | Project Site | Minimum | 71.5 | 41.7 | 26.7 | 23.7 |
| | | Maximum | 81.2 | 52.1 | 30.1 | 27.9 |
| A2 | Paunar Village | Minimum | 75.5 | 44.2 | 23.4 | 23.2 |
| | | Maximum | 83.9 | 54.1 | 31.5 | 30.2 |
| A 3 | Zari Village | Minimum | 65.3 | 42.3 | 21.1 | 25.6 |
| | | Maximum | 78.6 | 50.3 | 28.2 | 32.1 |
| A 4 | Yeoti | Minimum | 69.1 | 41.6 | 24.2 | 26.7 |
| | | Maximum | 78.9 | 51.8 | 30.1 | 30.5 |
| A 5 | Muchhi Village | Minimum | 73.2 | 45.2 | 20.6 | 19.9 |
| | | Maximum | 82.5 | 53.4 | 38.5 | 39.7 |
| A 6 | Khadki Village | Minimum | 71.9 | 44.1 | 25.9 | 27.2 |
| | | Maximum | 81.6 | 51.2 | 31.1 | 31.2 |
| A 7 | Kosara Village | Minimum | 70.8 | 44.2 | 24.6 | 24.3 |
| | | Maximum | 80.0 | 50.1 | 28.8 | 28.8 |
| A 8 | Mangurla Village | Minimum | 71.0 | 44.8 | 26.2 | 26.3 |
| | | Maximum | 79.9 | 48.2 | 30.7 | 30.1 |
| CPCB Standard | | | 100 (24 hrs) | 60 (24 hrs) | 80 (24 hrs) | 80 (24 hrs) |

From the above results, it is observed that the ambient air quality with respect to PM₁₀, PM_{2.5}, SO₂, NO_x at all the monitoring locations was within the permissible limits specified by CPCB.

Ambient Noise Levels

Ambient Air Quality data is found to be a per Noise standards notified by the Ministry of Environment & Forests vide Gazette Notification Dated 26th December 1989. It was observed that the noise levels of the study area are in the range of 38.9 to 56.9 dBA which are within the National Ambient Noise Level Standards at day and night time.

Water Quality

It was observed that the ground and surface water quality are within the permissible limit of IS 10500:2012. However the presence of coliform in surface water samples may be due to the human activities.

Soil Quality

The observations on soil characteristics are discussed parameter wise below;

- (a) Texture of soil samples from agriculture lands are loam and silty loam and sample from waste lands are silt clay-loam in Texture Classification.
- (b) Colour of soil samples from agriculture land are Black and medium Black and sample from waste land are gray and Black in colour.
- (c) The bulk density of soil samples from agriculture land are in the range of 1.40 to 1.52 g/cc and sample from waste land are in the range of 1.48 to 1.53 g/cc.
- (d) pH values of soil samples from agriculture land have ranged between 7.2 to 8.1 and sample from waste land have 8.23 to 8.54 ranges of pH values. The pH values are indicating nature of soil samples is neutral to alkaline.
- (f) Soil samples from agriculture land have conductivities between 0.086 to 0.614 mmhos/cm however and conductivity of soil sample from waste land ranges between 0.120 to 0.370 mmhos/cm.
- (g) Soil samples from agriculture land have Organic Matter between 0.47 to 1.57 % and sample from waste land have between 0.47 to 0.71 % Organic Matter. These values represent good fertility of soils.
- (h) Soil samples from agriculture land have concentration of available Nitrogen values ranged between 192.52 to 481.65 kg/ha and samples from waste land range between 193.2 to 289.1kg/ha available Nitrogen value.

- (i) Soil sample from agriculture land have concentration of Available Phosphorous values ranged between 54.63 to 211.60 kg/ha and soil samples from waste land have concentration values ranges from 13.85 to 38.47 kg/ha.
- (j) Soil samples from agriculture land have concentration of available Potassium values range between 509.2 to 1133.9 kg/ha and samples from waste land concentration of range between 360.4 to 419.1 kg/ha.
- (k) All three soils are moderately suitable for cultivation of climatic crops and have good fertility.

ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Impacts Identified during Operation phase and proposed mitigation measures

Ambient Air Quality

The proposed coal washery project involves only transportation of raw coal from mines to washery site, physical washing of coal using water and transportation of washed coal and coal rejects to the user industries. There is no combustion process involved in the project. There will not be any major construction activities involved in the project that can change the wind pattern. Thus, the proposed project will not cause any changes in the climate and meteorological conditions of the area.

Air Pollution Control Measures

M/s TUML has adopted a wet process of coal beneficiation. Hence, no dust emissions are generated from coal washing process. However to control fugitive dust emissions from coal handling, storage, crushing and transport activities, following control measures will be adopted:

- Plantation of tall trees along haul road and periphery of the project location in order to reduce the impact of dust in the nearby villages;

- Planning transportation routes so as to reach the nearest paved roads by shortest route (minimize transportation over unpaved road). Concreting of unpaved roads will be adopted to avoid generation of dust due to transportation.
- Regular water will be sprinkled at loading /unloading area and coal storage area.
- The speed of dumpers plying on the unpaved roads will be limited to avoid generation of dust;
- Provision of bag filters of adequate capacity for coal crushers.
- Provision of dust extraction / water sprinkling arrangement at all transfer points.
- At locations, where water sprinkling is not possible, dust mask shall be provided to the workers. Regular trainings shall be imparted to workers to improve awareness about usage of dust masks.
- Transportation of graded coal / rejects shall be carried out during day time only;
- The material shall be covered with tarpaulin sheet during transportation by road. Overloading shall be avoided.
- Regular maintenance of trucks shall be carried out and Pollution Under Control Certificate (PUC) shall be obtained as per Govt. norms for HCV vehicles.
- Ground stocks of coal, rejects will be covered with tarpaulin during heavy winds.
- Periodic maintenance of equipment & machinery involved at project site.
- Ensuring valid PUC certificate for coal transport vehicles.
- Periodic monitoring of ambient air quality in plant premises and in nearby villages to assess efficacy of adopted air pollution control measures and adoption of additional air pollution control measures, if required.

Ambient Noise Levels

During operation phase, the movement of coal transporting trucks for loading and unloading. Plant equipment and machineries like coal crusher & screens, rotary breaker,

hoppers, cyclones, etc. will be the major source. However, the noise will be temporary and will be restricted mostly to day time

Proposed Noise Control Measures

- Isolation/enclosure of noisy machines/equipment, wherever possible.
- Reducing idling time of machines/equipments.
- Provision of enclosures, noise barriers, silencers, etc to the possible extent to control noise propagation.
- Use of adequate silencers and practicing speed limit for material transport vehicles
- Provision of ear plugs and ear muffs to the construction workers

Vibration Control

Vibration control measures

- Provision of vibration insulators/ shock absorbers to stationary machines wherever possible
- Provision of shock absorbing gloves to operators of vibrating machines
- Reducing exposure time for operators of vibrating machines
- Periodic medical tests for vibration related occupational hazards for workers exposed to vibrating machines.

Water Resources & Quality Impact

There is no surface water stream flowing within the applied project site or adjacent to the project site. At present, the surface run-off from the applied project area flows along the natural slope of the area and joins seasonal streams flowing outside the project site. After implementation of the proposed project, the surface run-off from the project area will be collected in a settling tank through a network of storm water drains. The water will be used for plantation, dust suppression and coal washing, thereby reducing the fresh water demand.

About 100 m³/day make up water is required for industrial purposes during the operation phase of the proposed coal washery project. The source of water will be from mine water.

There will not be any discharge of waste water. Entire waste water after treatment will be recirculated in process by close circuit system. Zero discharge.

Conservation Measures for Water source

M/s TUML will implement water recovery system involving high speed thickener coupled with belt press for maximum recovery of water and recirculation of the recovered water in process, thereby making the plant a zero discharge unit. This will drastically reduce the fresh water requirement in the plant and will also protect the water quality of surface water.

Solid Waste Generation & Management

It is proposed to wash 0.8 Million tonnes of raw coal in the proposed coal washery project. During the plant operation phase, solid wastes will be generated from various plant operations.

Solid Waste Generation and Utilization

| Sr. No. | Type of solid waste | Estimated annual quantity | End Use |
|----------------|----------------------------|----------------------------------|---------------------------------|
| 1 | Reject coal | 0.20 MTPA | Used as fuel for 30MW CPP . |
| 2 | Sludge from thickener | 0.02 MTPA | Used in AFBC Boiler of 30MW CPP |
| 3 | Coal fines | 0.28MTPA | Used in AFBC Boiler of 30MW CPP |

Socio-economic Environment

The project is expected to contribute towards enrichment of local people and improvement in quality of life. In order to mitigate the adverse impact likely to arise in

social, cultural and economical aspects in the surrounding region, the following measures are required to be adopted:

- Adoption of proper pollution control devices for the different component of environment such as water, air, soil etc. which directly or indirectly are the source of degradation of human living condition
- Ensure that roads are properly maintained, demarcated with proper lables/ posters/ signboards, vehicles are well maintained and drivers are well trained and safety conscious
- Provide job opportunities to local population
- Ensure regular medical camps for local population health check up
- Regular meetings with village leaders/villagers to understand their concerns

Corporate Social Responsibility

Under the Corporate Social Responsibility of the company, M/s TUML. will take up various socio-economic development programmes in the nearby villages.

ENVIRONMENTAL MONITORING PROGRAM

An Environmental Management Cell (EMC) will be established for the proposed coal washery project under the control of G.M. (Coal washery). The EMC will be headed by an Environmental Manager having adequate qualification and experience in the field of environmental management. Environmental monitoring of ambient air quality, surface and ground water quality, ambient noise levels, etc. will be carried out through MOEF accredited agencies regularly and reports will be submitted to MPCB/MoEF.

RISK ASSESSMENT & DISASTER MANAGEMENT PLAN

The assessment of risk in the proposed coal washery project has been estimated for fire and explosion. The mitigation measures are suggested in the EIA/EMP report.

A detailed Disaster Management Plan for facing disasters due to natural effects and human reasons, is prepared and incorporated in the EIA/EMP report for ensuring safety of life, protection of environment, protection of installation, restoration of production and salvage operations in this same order of priorities. For effective

implementation of Disaster Management Plan, it will be widely circulated and personnel training through rehearsals. Site facilities, procedures, Duties and responsibilities, Communications, etc. are considered in detail in the Disaster Management Plan.

PROJECT BENEFITS

The proposed project of coal washery would provide development of area and consequent indirect and direct job opportunities which would finally result in improvement in the quality of life of people in the central region and especially in the area around the coal washery site. In line with this CSR policy, M/s TUML will carry community welfare activities in the following areas:

- Community development
- Education
- Health& medical care
- Drainage and sanitation
- Roads

As per the Notification dated 1.05.2018 issued by MOEF&CC, it is mandatory to prepare Corporate Environment Responsibility Plan (CER) to spend 2 % (project cost \leq 100 crores) of total capital cost of the project on social, economical and peripheral development activities. As per the above mentioned new office memorandum CER dated 1.05.2018 Rs. 42.5 lacs has been allocated for CER.

ENVIRONMENTAL MANAGEMENT PLAN

An Environmental Management Plan comprise of following set of mitigation, management, monitoring and institutional measures to be taken during implementation and operation of the project, to eliminate adverse environmental impacts or reduce them to acceptable levels.

1. Implementation of pollution control measures as suggested in Environmental Management Plan and recommended in EC

2. Conducting environmental monitoring as per EMP and EC stipulation through external laboratories approved by MoEF/CPCB and NABL
3. Ensuring compliance with other conditions stipulated in Environmental Clearance for the project.
4. Ensuring compliance with the conditions stipulated in 'Consent to Operate' for the project.
5. Timely submission of compliance status to MoEF/CPCB
6. Seeking experts guidance, as and when required.
7. Conducting CSR activities in nearby villages.

CONCLUSION

The proposed 0.8 MTPA coal washery project of M/s Topworth Urja & Metal Limited will be beneficial for the overall development of the nearby villages. Some environmental aspects like dust emission, noise, wastewater generation, traffic density, etc. will have to be controlled within the permissible norms to avoid impacts on the surrounding environment. Necessary pollution control equipment like bag house, water sprinklers, enclosures, thickener, etc., will form integral part of the plant infrastructure. Additional pollution control measures and environmental conservation measures will be adopted to control/minimize impacts on the environment and socio-economic environment of the area. Measures like development of thick green belt and plantation within plant premises and along transport road, adoption of rainwater harvesting scheme in the plant and in nearby villages, etc. will be implemented. The CSR measures proposed to be adopted by the company will improve the social, economic and infrastructure availability status of the nearby villages.

The overall impacts of the proposed coal washery will be positive and will result in overall socioeconomic growth of nearby villages.