



**कोल इंडिया लिमिटेड**

(भारत सरकार का एक महा म )

CIN : L23109WB1973GOI028844

**परियोजना प्रबोधन विभाग**

**Uniform Policy for  
Disposal and Utilisation of Rejects  
generated from CIL Washeries  
(Existing & Future)**

**(FOR LIMITED CIRCULATION)**

By WASHERY CELL, PMD, CIL

July 2018



The mode of sale should be kept open, through Memorandum of Understanding, E-Auction, or other available modes of sale, to give flexibility to the subsidiaries.

As the quality of rejects may vary widely, depending on the washability characteristics of the coal being treated and the calorific value of the Rejects produced, the subsidiaries, at the time of sale, may decide on a basic price/s as per extant practice. However, while preparing Project Reports, the rejects should be considered as a by-product with zero book value due to the uncertainty and/or irregularity of its demand.

ii. **Utilisation in FBC based Power Plants as the Second Option:**

Rejects may be linked with FBC based power plants that are owned either by CIL or other company (with appropriate financial implication), subject to the availability of requisite grade of rejects and the quantity at one place or within close surrounding areas.

If either of the two options are not feasible or partially feasible due to techno-economic reasons, the rejects/balance rejects may be stored/disposed off through environmentally friendly methods with proper and prior study of implications involved and with proper 'engineering solutions', if required.

Subsidiaries shall mention the mode/s of gainful utilization/ disposal of rejects clearly in EC applications and Project Reports.

In future, however, if some new technology is developed (e.g., using hydrophobic properties of coal) to substantially upgrade high ash or low GCV coal or to utilize rejects of inferior grades in newer environmentally acceptable ways, it may be explored by the subsidiaries after due diligence.



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**Formulation of a Uniform Policy for  
Disposal and Utilisation of Rejects  
generated from CIL Washeries  
(Existing & Future)**

**COMMITTEE REPORT AND FINAL POLICY AS PER  
RECOMMENDATION OF 122<sup>ND</sup> CMD MEET  
(FOR LIMITED CIRCULATION)**

By WASHERY CELL, PMD, CIL

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Report of Committee constituted for formulating a Uniform policy for  
Disposal and Utilisation of Rejects generated from CIL Washeries  
(Existing & Future)

**1. Preface**

Coal washery ‘Rejects’ is either a secondary or tertiary by-product of coal washing plants **with GCV less than that of lowest GCV grade of coal determined from time to time (currently it is 2200 Kcal/kg)**

A major environmental hazard of the process of Coal Washing is how Washery rejects are used as they have very less combustible constituents. Hence, a part of the focus of Environment Regulatory agencies are on the disposal and utilization of the rejects produced from Coal washeries in an environmentally friendly manner.

While processing the papers for Environment Clearances of New Washeries, difficulties were being faced in answering queries related to the disposal and utilization of rejects proposed to be generated from these washeries when they would start operation in future.

Various queries are raised by the Expert Appraisal Committee (EAC) from time to time about the storage/disposal and utilization plan for these washery rejects when proposals for grant of EC for New Washery projects are scrutinised. At different meetings and other interactions with the Ministry of Environment & Forests and Climate Change (MoEF&CC), Government of India, the responses related to such disposal are varied in nature. This appears to be creating a sense of non-uniformity of norms.

## **2. Uniform Reject Disposal Policy**

It was suggested by the Principal Advisor (CIL), that a Uniform Policy for Disposal of Rejects in CIL washeries, both existing and future, with certain flexibility to address local conditions, may be formulated. (Annexure - I).

### ***2.1 Constitution of a Committee***

The matter was put up in the 112<sup>th</sup> CMDs' Meet held on 17.4.2017 wherein it was decided to constitute a committee for framing a uniform policy for Reject disposal/utilization for all subsidiaries. (Minutes –Annexure - II)

This was in reference to Point no 13, which is quoted below:

*“Rejects generated from existing coal washeries have been dumped in areas adjacent to washeries over the years as per usual practice. Somewhere if found usable, rejects have been sold through various modes to consumers interested in its utilization. Rest have remained unused / unsold and left to accumulate in reject dumps creating huge space and environmental issues.*

*Dump rejects are causing growing environmental concern due to its storage as they degrade the soil and groundwater wherever dumped or stored. This necessitates giving importance to Reject Disposal modalities of the proposed washeries for which application for EC is being submitted. In almost all EAC meetings they always insist for bringing out a policy for disposal of rejects. It was given to understand that MOC is likely to promulgate a policy for Reject Disposal for private washeries. However, after discussion at length, the CMDs suggested that a committee be constituted for framing a uniform policy for reject disposal / utilization by all subsidiaries.”*

In view of above, a committee was constituted vide Office Order No: CIL/DT/TS/035/17/453 dated 27.5.17 to deliberate and formulate a draft for

a Uniform Policy for Disposal of Rejects in CIL washeries, both existing and future.

The committee constituted comprised of the following members:

- |      |   |          |
|------|---|----------|
| i.   | Shri S Chandra, Director Tech, Ops, CCL | Chairman |
| ii.  | Shri M K Singh, GM (PMD), CIL           | Member   |
| iii. | Shri Rajesh Bhushan. GM (S&M), CIL      | Member   |
| iv.  | Shri J Bagchi, CM (F), CIL              | Member   |

Later, Sri B K Dey, GM (CMP), CMP Division, CMPDI, Ranchi was added as a member (Committee constitution office order and addition of GM(CMP), CMPDI as Annexure - III). Further, Dr. Vinita Arora, Senior Manager (Env), CMPDI, posted at Principal Advisor (CIL)'s Office, Delhi, was invited as representative of Principal Advisor (CIL).

## ***2.2 Proceedings of meetings of the Committee***

### ***2.2.1 1<sup>st</sup> meeting***

During the first meeting of the committee held on 18.7.2017 at CIL Headquarters, Kolkata (Record notes – Annexure - IV) DT, Operations, CCL chaired the meeting through video conferencing from CCL headquarters, Ranchi.

Being the first meeting, the Terms of Reference were finalized which are as follows:

1. To adopt the definition of Rejects.
2. To study the modalities of reject disposal currently in practice in the existing washeries.
3. To study the “Draft Policy of Disposal of Washery Rejects...” for Private Non-CIL washeries as received from MoC in December 2016 (Annexure V) & its applicability with CIL washeries.
4. To study EC conditions in respect to Reject Disposal of any existing Build-Own-Operate (BOO) concept washery, if available.

Main Actionable Points were delineated as under:

- It was informed that in some developed countries, dumping of washery rejects to fill mine voids is a regular practice, which can be explored in CIL.
- Regarding the impact of dumping on ground water through leaching and other trace element contamination of the soil that may be

highlighted by MoEF, Sr Manager (Env), CMPDI was requested to carry out a detailed study on that aspect and furnish a report on the chance or amount of presence of trace elements in such a dump.

- It was advised that the Memoranda of Understanding (MOUs), placed in EAC by BCCL while applying for Terms of Reference (TOR) for EC in the Washeries being set up may be studied for practicality (Annexure VI).
  
- The possibility of getting the EC letter, if possible, of any washery that is running on Build-Own-Operate (BOO) concept, may be explored to study the conditions of reject disposal.

### 2.2.2 2<sup>nd</sup> meeting

The second meeting of the Committee for formulation of a Uniform Reject Policy was held on the 22<sup>nd</sup> of August, 2017. Record notes are attached at Annexure – VII.

After deliberations on the lines of the decisions taken in the first meeting, the gist of the decisions is as follows:

1. It was agreed that the definition of rejects would be as per the “Draft Policy of Disposal of Washery Rejects...” for Private Non-CIL washeries as received from Ministry of Coal, Government of India in December 2016, which is:

*“Washery reject is the by-product of washing the run-of-mine (ROM) coal. It would be called Washery reject only when its Gross Calorific value (GCV) is less than the GCV value of lowest grade of coal determined from time-to-time [currently it is 2200 kcal/kg].”*

2. Wherever there is a possibility of selling the rejects legally as per the extant guidelines, it shall be explored.

3. It was informed that in several countries, even in developed ones, Washery Rejects were disposed of by filling in mine voids. It was agreed that this is a prudent method of disposal. Sr Manager (Env), Principal Advisor (CIL)’s Office, Delhi, informed that a study has been initiated in CMPDI’s Environment Department laboratories, in line with the decision of the 1st meeting (Study proposal at Annexure – VIII). The results of the same were awaited. It could be decided whether this Disposal method is suitable for applying to CIL washery rejects too, only after the receipt of the report of

the study, ascertaining the trace elements present in the samples of Rejects collected.

4. The key factors required to be taken in to consideration, are

- a. land prices and availability
- b. quality and assured quantity of rejects produced
- c. price of power to be produced.

In case a Fluidised Bed Combustion (FBC) power plant based on rejects was desired to be set up by any interested Power Producer in the vicinity of the washeries, CIL or its subsidiaries (in which the washery will be located) will facilitate setting up of the same considering the above.

5. Further, in order to add input on FBC process, it was suggested that Mrs. Suchandra Sinha, then Senior Manager (E&M), CMPDI, may be invited in the subsequent meeting.

As advised in the first meeting - "To study EC conditions in respect to Reject Disposal of any existing BOO washery, if available" - a tour to Singareni Collieries Company Limited (SCCL) was undertaken and 3 washeries running under BOO concept were visited to get a firsthand knowledge of Reject Disposal methods.

It was noted that SCCL was finding it difficult to adjust the liabilities arising out of huge stocks of unsold Rejects accumulated in its washeries, all running on BOO concept, due to assignment of notified price to the rejects.

### 2.2.3 3<sup>rd</sup> meeting

The third and final meeting of the committee was held after the report of the study, ascertaining the trace elements present in the samples of Rejects collected, by CMPDI Environment Department was received (Report at Annexure – IX).

The meeting was held at Darbhanga House, Central Coalfields limited, Ranchi on 17.11.2017, in the chamber of Director (Tech/Ops), CCL. The two invitees, namely, Mrs. Suchandra Sinha and Dr. Vinita Arora, were present along with others from related fields (list of attendees given in Annexure – X).

The deliberations during the third meeting of the Committee for formulation of a Uniform Reject Policy are, in a nutshell, the culmination of the discussions in earlier meetings.

The practicality of pegging the rejects at less than 2200 Kcal/Kg was discussed again and after deliberation it was re-iterated that for the time being the definition of rejects would be:

*“Washery reject is the by-product of washing the run-of-mine (ROM) coal. It would be called Washery reject only when its Gross Calorific value (GCV) is less than the GCV value of lowest grade of coal determined from time-to-time [currently it is 2200 kcal/kg].”*

It was agreed that with time and changes in guidelines, the calorific equivalence of rejects may be changed in tune with Ministry norms.

The issue of naming rejects as secondary by-product was negated, as this nomenclature would invite notifying a price that may create issues of liability if the rejects remain unsold. The plight of Singareni Collieries Company Limited (SCCL) was pointed out in this regard as an example.

Rejects are being used worldwide for void filling in mines. However, it should be ensured that there is proper compaction and adequate covering by a thick layer of compacted OB to avoid heating causing fire as well as pilferage.

The report of the study on impact of dumping rejects on water regime through leaching and other trace element contamination by CMPDI Environment Division was considered, wherein Reject samples from 4 washeries, 2 in BCCL and 2 in CCL were tested.

After analysis it was reported that the results indicated possibility of water pollution owing to higher concentration of iron and manganese in the leachate of washery rejects. The concentration of the rest of the trace elements (Arsenic, Selenium, Mercury, Copper, Zinc, Nickel, Cadmium, Lead, Chromium and Boron) were below the corresponding TCLP limits in leachate samples of all washery rejects.

In the light of this study, it was suggested that the physico-chemical analysis of washery rejects along with the leachate tests (TCLP) should be carried out before deciding about their mode of disposal with adequate control measures as coal is a heterogeneous material and reject generated from each washery might exhibit different characteristics. For each washery, the actual condition of the ground water and surface water bodies around the reject dump should be assessed by regular monitoring and comparison with baseline ground water quality data needed.

It was informed by the FBC expert, Sr Manager (E&M), CMPDI that the minimum calorific value of rejects required for feasibility of FBC based Power Plant is 2000 Kcal/Kg and that there are several power plants based on FBC, presently operative in India (List attached at Annexure - XI).

It was agreed that efforts should be made to convince MoEF&CC to not insist on setting up of FBC based power plants as most rejects from CIL washeries are of less than 1800 Kcal/Kg, not available at one place or in proximity and that it should only be concerned about environmentally friendly methods of disposal.

After threadbare deliberations, the committee, considering all documents, reports, past experiences and expert opinions of members and invitees came to a conclusion and prepared a draft uniform policy for disposal and utilization of Rejects generated from CIL Washeries (existing & future).

## **2.3 Views of the Committee and conclusions**

Taking into account

- a. the present scenario in vogue in the existing washeries of CIL,
- b. the relevant proposals for the new washeries being set up,
- c. earlier experiences with FBC plants facilitated or set up by CIL, practical difficulties in setting up FBC power Plants on CIL land and the costs involved,
- d. comments of subsidiaries that were received (Annexure - XII) and
- e. the financial, legal and environmental ramifications of each option of disposal suggested, and discussed,

the following three options may constitute the policy for disposal of Rejects from CIL Washeries (existing and future).

### **I. Selling as First Option:**

If some revenue can be generated by exploring the selling of the rejects based on GCV or otherwise, the subsidiaries should look out for customers who will be ready to buy the rejects for gainful utilization.

CIL would not be liable to ensure how the rejects sold would be utilized.

The mode of sale should be kept open, through Memorandum of Understanding, E-Auction, or other available modes of sale, to give flexibility to the subsidiaries.

As the quality of rejects varies widely, depending on the washability characteristics of the coal being treated and the calorific value of the Rejects produced, the subsidiaries may later decide on Washery-wise basic price/s for sale but in Project Reports, the rejects should be considered as a by-product with zero book value due to the uncertainty and/or irregularity of its demand.

## **II. Utilisation in FBC based Power Plants as Second Option:**

Rejects may be linked with FBC based power plants that are owned either by CIL or other company, subject to the availability of requisite grade of rejects and the quantity at one or within close surrounding areas.

Considering the scarcity and cost of land, and the cost and difficulty of R & R involved, cost of setting up and recent experiences of running FBC based power plants by CIL, such plants with CIL investment may be difficult and so, efforts may be made to link with power plants set up by other parties interested to lift the rejects partially or in its entirety.

The availability of the required quantity of rejects at one place or in proximity is another issue that might dampen the FBC initiative. However, some big washeries coming up in MCL and SECL may generate substantial amount of rejects for a FBC Power plant in its vicinity to sustain.

## **III. Dumping in Mine Voids as the 3<sup>rd</sup> option**

If the first two options are not feasible due to techno-economic reasons, they should be dumped in mine voids with proper and prior study of environmental implications involved and with proper 'engineering solutions', if required.

Leachate studies have shown that there are problems with contamination with a few elements. Therefore, studies should be carried out on case-to-case basis before dumping of rejects in mine voids. Subsidiary companies must get the tests done before taking decision regarding dumping. These will depend on specific washery conditions, raw coal characteristics and washability characteristics.

While choosing dumping of rejects in mine voids, dumping with OB, with a further OB cover may be explored, based on stratification and compaction studies to avoid fires and other hazards and following all MoEF norms and guidelines. The washery rejects should be encapsulated in the mine voids with post closure measures and monitoring to avoid impact arising out of disposal of rejects. The dumping, under no condition, should be done on external OB dumps.

Subsidiaries may mention the modes of gainful utilization/ disposal of rejects clearly in EC applications and Project Reports, with a particular project specific option suiting the subsidiary company as mentioned above for all CIL washeries (existing & future).

In future, however, if some new technology is developed (e.g., using hydrophobic properties of coal) to substantially upgrade high ash or low GCV coal or to utilize rejects of inferior grades in newer environmentally acceptable ways, it may be explored by the subsidiaries after due diligence.

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### 3. Draft Policy for Disposal and Utilisation of Rejects produced from CIL washeries (existing and future)

Washery reject is the by-product of washing the run-of-mine (ROM) coal. It would be called Washery reject only when its Gross Calorific value (GCV) is less than the GCV value of lowest grade of coal determined from time-to-time [currently it is 2200 kcal/kg].

The policy will apply to only those rejects from washeries set up by CIL either with its own investment or for its own interest by any mode of construction (turnkey, BOM or BOO).

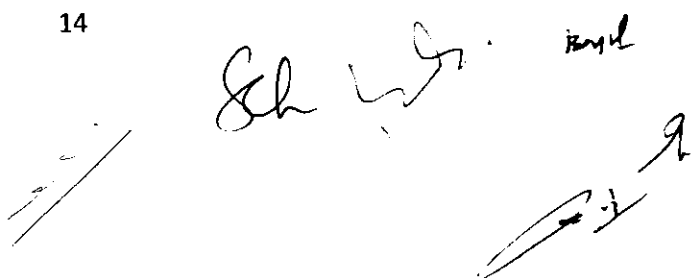
The basic purpose of this uniform policy to be applicable across all subsidiaries will be the aim to dispose of/utilize gainfully, the rejects generated by all CIL washeries existing and those being set up or will be set up in future, following environmentally friendly norms and all Environmental policies of the country and its international Environment commitments, facilitating Environmental clearances.

The policy will comprise of three options, in the sequential order of elimination or a combination of all three in one or several units in a single subsidiary.

The options are as follows:

i. **Selling as the First Option:**

If some revenue can be generated by exploring the selling of the rejects based on GCV or otherwise, the subsidiaries should look out for customers who will be ready to buy the rejects for gainful utilization.

Handwritten signatures and initials are present at the bottom of the page. On the left, there is a signature that appears to be 'S. Ch...' with a date '12/12/12' written below it. In the center, there are initials 'S. Ch...' and 'S. Ch...'. On the right, there is a signature that appears to be 'S. Ch...' with a date '12/12/12' written below it.

CIL would not be liable to ensure how the rejects sold would be utilized.

The mode of sale should be kept open, through Memorandum of Understanding, E-Auction, or other available modes of sale, to give flexibility to the subsidiaries.

As the quality of rejects varies widely, depending on the washability characteristics of the coal being treated and the calorific value of the Rejects produced, the subsidiaries may later decide on a basic price/s for sale but in Project Reports, the rejects should be considered as a byproduct with zero book value due to the uncertainty and/or irregularity of its demand.

**ii. Utilisation in FBC based Power Plants as the Second Option:**

Rejects may be linked with FBC based power plants that are owned either by CIL or other company (with appropriate financial implication), subject to the availability of requisite grade of rejects and the quantity at one place or within close surrounding areas.

**iii. Dumping in Mine Voids as the Third Option**

If the first two options are not feasible due to techno-economic reasons, they should be dumped in mine voids with proper and prior study of environmental implications involved and with proper

'engineering solutions', if required.

Leachate and contamination studies should be carried out on case-to-case basis before dumping of rejects in mine voids.

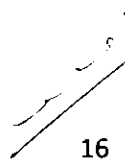
Subsidiary companies must get the tests done before taking decision regarding dumping.

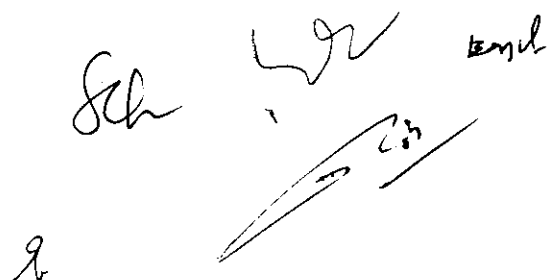
While choosing dumping of rejects in mine voids, dumping with OB, with a further OB cover may be explored, based on stratification and compaction studies to avoid fires and other hazards and following all MoEF norms and guidelines. The washery rejects should be encapsulated in the mine voids with post closure measures and monitoring to avoid impact arising out of disposal of rejects. The dumping, under no condition, should be done on external OB dumps.

Subsidiaries shall mention the mode/s of gainful utilization/ disposal of rejects clearly in EC applications and Project Reports.






In future, however, if some new technology is developed (e.g., using hydrophobic properties of coal) to substantially upgrade high ash or low GCV coal or to utilize rejects of inferior grades in newer environmentally acceptable ways, it may be explored by the subsidiaries after due diligence.

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Signatures of Committee members:

- |  |          |   |
|--|----------|---|
| 1. Sri S Chandra, Director(Tech/Op), CCL | Chairman |    |
| 2. Sri M K Singh, GM (PMD), CIL          | Member   |    |
| 3. Sri B K Dey, GM (CMP), CMPDI          | Member   |    |
| 4. Sri Rajesh Bhushan, GM (M&S), CIL     | Member   |   |
| 5. Sri J Bagchi, CM (F), CIL             | Member   |  |

#### **4. Policy for Disposal and Utilisation of Rejects produced from CIL washeries (existing and future) – Recommended by CMDs of Subsidiaries**

Washery reject is the by-product of washing the run-of-mine (ROM) coal. It would be called Washery reject only when its Gross Calorific value (GCV) is less than the GCV value of lowest grade of coal determined from time-to-time [currently it is 2200 kcal/kg]. (Congruent with the definition adopted by MoC )

The policy will apply to the rejects from washeries set up by CIL either with its own investment or for its own interest by any mode of construction.

The Policy will be applicable across all subsidiaries with the aim to dispose/utilize gainfully, the rejects generated by all CIL washeries, existing and those being set up or will be set up in future, following environment friendly norms and all Environmental policies of the country including its international Environment commitments, facilitating Environmental clearances.

The policy will comprise of two options, in the sequential order of precedence or a combination of both in one or several units in a single subsidiary.

The options are as follows:

##### **i. Selling as the First Option:**

If some revenue can be generated by exploring the selling of the

rejects based on GCV or otherwise, the subsidiaries should look out for customers who will be ready to buy the rejects for gainful utilization.

CIL would not be liable to ensure how the rejects sold would be utilized.

The mode of sale should be kept open, through Memorandum of Understanding, E-Auction, or other available modes of sale, to give flexibility to the subsidiaries.

As the quality of rejects may vary widely, depending on the washability characteristics of the coal being treated and the calorific value of the Rejects produced, the subsidiaries, at the time of sale, may decide on a basic price/s as per extant practice. However, while preparing Project Reports, the rejects should be considered as a by-product with zero book value due to the uncertainty and/or irregularity of its demand.

**ii. Utilisation in FBC based Power Plants as the Second Option:**

Rejects may be linked with FBC based power plants that are owned either by CIL or other company (with appropriate financial implication), subject to the availability of requisite grade of rejects and the quantity at one place or within close surrounding areas.

If the two options are not feasible or partially feasible due to techno-economic reasons, the rejects/balance rejects may be

stored/disposed off through environmentally friendly methods with proper and prior study of implications involved and with proper 'engineering solutions', if required.

Subsidiaries shall mention the mode/s of gainful utilization/ disposal of rejects clearly in EC applications and Project Reports.

In future, however, if some new technology is developed (e.g., using hydrophobic properties of coal) to substantially upgrade high ash or low GCV coal or to utilize rejects of inferior grades in newer environmentally acceptable ways, it may be explored by the subsidiaries after due diligence.

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## नोट-शीट

विषय – CIL policy on disposal of washery rejects, etc. – regarding

दिनांक:  
जनवरी 04,  
2016

CIL's subsidiary coal companies are submitting EIA-EMP reports for seeking EC for coal washery projects both for coking and non-coking coal washeries. Few washeries are two products while rest are three products washeries. Different coal companies have adopted different mechanism for disposal of washery rejects. EAC wants to know what is CIL's policy for disposal of these products in an environment friendly manner. There is a need to have uniform policy at CIL level, may be with certain flexibility to address local conditions.

In this regard It is requested that kindly direct concerned officers to prepare a draft policy which may be discussed in next CMDs' conference before finalizing the same.

रा. कु. गर्ग  
(डा. राजीव कुमार गर्ग)  
प्रमुख सलाहकार  
कोल इंडिया लिमिटेड, दिल्ली

निदेशक (तकनीकी).

Minutes of 112<sup>th</sup> Meeting of CMDs held on 17.04.2017 AT KOLKATA

The Chairman, CIL extended warm welcome to all CMDs of Subsidiary Companies, Functional Directors of CIL, CVO of CIL and other officials present in the meeting. Thereafter discussion on agenda items was started.

List of participants is enclosed as Annexure-I.

**1.0 Confirmation of the Minutes of the 111<sup>th</sup> meeting of CMDs held on 18<sup>th</sup> January, 2017 through Video Conference.**

Since no comment was received, the minutes of the 111<sup>th</sup> Meeting of CMDs held on 18<sup>th</sup> January, 2017 through video conference stands confirmed, as circulated.

Action: All CMDs/FDs CIL

**2.0** Chairman, CIL mentioned that MOC vide its letter No. 17014/07/2016-PMS dated 12/13.04.2017 communicated that the Annual Plan Target for both coal production and offtake for the year 2017-18 is 600 MT and requested for submission of subsidiary wise break up of 600 MT. It was also communicated that internal target for review of performance of each subsidiary company would remain same as fixed earlier i.e. 660 MT for the year 2017-18.

After discussion on this at length, the break-up of target in respect of each subsidiary company as agreed by CMDs is as under:-

ECL	-	47.0
BCCL	-	40.5
CCL	-	72.0
NCL	-	89.0
WCL	-	48.5
SECL	-	153.0
MCL	-	149.3
NEC	-	0.7
Total		<b>600.0</b>

CMDs reaffirmed that the above target shall be met with all out efforts.

Action: All CMDs

**3.0 Safety issues**

3.1 From the statistics for the period January-March, 2017 vis-à-vis January-March, 2016, there was considerable increase in no. of accidents as well as fatality. Progressively in whole of CIL, there were 12 fatal accidents with 14 fatalities during the period January-March, 2017 against 11 fatal accidents with 11 fatalities during the same period last year.

3.2 The CMDs were advised to make all out efforts to improve the safety to achieve Zero target of accident. Chairman expressed concern over the increase in number of accidents and advised CMDs that efforts be made to achieve Zero Harm Potential in the mines which could be the only target for safety.

3.3 Chairman, CIL desired to know the reasons for increase in accidents in the mine where production is very less than the number of accidents in highly producing mines. ED(S&R)

After discussion at length, subsidiary companies were advised to submit a plan and explore the possibility of making the loss making mines viable. Possibility may be explored for offering the mine to MDO or through contractual option (HoE) so that mines become viable.

As such, it has been decided that either the mine should be made viable or on the Doctrine of Unviability it should be closed down.

CMD, MCL mentioned that there is no option to redeploy the manpower of loss making mine in other mines. It was advised that an attractive policy be framed including offering Golden Handshake. D(P&IR), CIL was advised to take action accordingly.

Action: All CMDs / FDs CIL/D(P&IR), CIL

**13.0 Draft Reject disposal policy for rejects generated from coal washeries of CIL (existing & future)**

Rejects generated from existing coal washeries have been dumped in areas adjacent to washeries over the years as per usual practice. Somewhere, if found usable, rejects have been sold through various modes to consumers interested in its utilization. Rest have remained unused / unsold and left to accumulate in reject dumps creating huge space and environmental issues.

Dump rejects are causing growing environmental concern due to its storage as they degrade the soil and ground water wherever dumped or stored. This necessitates giving importance to Reject Disposal modalities of the proposed washeries for which application for EC is being submitted. In almost all EAC meetings they always insist for bringing out a policy for disposal of rejects. It was given to understand that MOC is likely to promulgate a policy for Reject Disposal for private washeries. However, after discussion at length, the CMDs suggested that a committee be constituted consisting of following executives for framing an uniform policy for reject disposal / utilization by all subsidiaries:

- |      |                           |   |             |
|------|---------------------------|---|-------------|
| i)   | Shri S. Chandra, DT, CCL  | - | As Chairman |
| ii)  | Representative of DF, CIL | - | Member      |
| iii) | Representative of DT, CIL | - | Member      |
| iv)  | Representative of DM, CIL | - | Member      |

TS to DT, CIL was advised to issue office order for the constitution of committee, as above.

Action: All CMDs/FDs CIL/TS to DT CIL

**14.0 Model Contract Agreement (MCA) for selection of MDO**

The draft Model Contract Agreement for selection of MDO was placed before the CMDs for deliberation. CMDs noted that as decided earlier, CIL approached ISI (Indian Statistical Institute), Kolkata to examine the escalation clause associated with various indices such as WPI, CPI(IW) etc. used in the MCA and verification of price escalation clauses vis-à-vis conventional practices. M/s.ISI, Kolkata submitted their draft final report with recommendations, which was placed before the CMDs. After discussion at length, CMDs agreed with the recommendations of ISI and directed to circulate the file through Finance.

*Handwritten signature/initials*

**32.0 Status of MoU 2016-17 of subsidiaries for signing with CIL.**

As per recording in Point No. (2.0-2nd paragraph) the target against 600 MT has been proportionately distributed against each subsidiary company based on potential and other ground reality and also reducing the figures as earlier agreed for achieving 660 MT. CMD, CCL requested for further reduction in the said distribution. WCL, MCL also requested for moderation in target. It was decided that DT, CIL shall convene a meeting of all the subsidiary companies and shall try to adjust any of the figures that can be agreed to. Chairman, CIL welcomed any optimal way of adjustment but ultimately CIL's MoU has to match with aggregate of all the subsidiary companies.

**Action: All CMD / DT CIL**

All information items were noted.

All other agenda items were deferred.

The meeting ended with a vote of thanks to the Chair.

*celw*  
18/5

GM & TS to Chairman

Ref.No. CH: TS: 74(A): 51

Dated: 18.05.2017

Distribution:

Director (Finance).

Director (Technical).

Director (Marketing).

Director (P&IR).

CVO, CIL.

All CMDs - ECL/BCCL/CCL/NCL/WCL/SECL/MCL/CMPDI.

Advisor (Railway), CIL.

Advisor (Land), CIL.

Advisor (P&V), CIL.

ED (S&R), CIL.

GM/TS to DT, CIL.

Subject: Committee for framing an uniform policy for reject disposal / utilization by all subsidiaries.  
To: tsdt.cil@coalindia.in, dt.cil@coalindia.in  
Cc: rtalapatra.cil@coalindia.in, poonam.singhal@coalindia.in  
Date: 05/28/17 10:14 AM  
From: GM PMD CIL <gmpm.cil@coalindia.in>  
Reply-To: gmpm.cil@coalindia.in ,image001.png (2kB)  
Reject disposal policy OO.pdf (251kB)

Shri A K Nath Sb

TS to DT CIL

Sir,

This committee is incomplete without representation from CMPDI Washery Division.

Please induct.

With warm Regards.

M K Singh, GM,PMD,CIL

The committee for "Framing an uniform policy for reject disposal/utilisation by all subsidiaries" has been constituted (Copy attached) as per decision of 112<sup>th</sup> CMDs Meet. Sri M K Singh, GM, PMD, CIL, one of the member of the said Committee has communicated (as above) for inclusion of one member from CMPDI in the committee.

Submitted for kind perusal and advice please.

*Ak Nath* 29/5/17  
(A K Nath)  
GM,TS to DT,CIL

~~Director(Tech), CIL~~

*S: B.K. Dey, GM(CMP) may be included as additional member*

GM(PMD)

*[Signature]*  
29/5

*CIL PMD/ M-163  
29.05.2017*

## कोल इंडिया लिमिटेड

(भारत सरकार का उपक्रम)  
महाराष्ट्र सार्वजनिक क्षेत्र प्रतिष्ठान  
सी आई एन: L23109WB1973GOI02844  
परिसर सं.-04एम.ए.आर., प्लॉट नं.-ए.एफ.-III,  
एक्शन एरिया- 1A, न्यू टाउन,  
राजरहाट, कोलकाता-700156  
फोन 033 23244024 फैक्स 033 23244082  
ई-मेल dt.cil@coalindia.in  
वेबसाइट www.coalindia.in



## Coal India Limited

(A Government of India Enterprise)  
A Maharatna PSU  
CIN: L23109WB1973GOI02844  
Premises No 04 MAR, Plot No. AF-III,  
Action Area 1A, New Town,  
Rajarhat, Kolkata-700156  
Phone: 033 23244024. Fax: 033 23244082  
E-mail: dt.cil@coalindia.in  
Website: www.coalindia.in

पत्र संख्या: CIL/DT/TS/035/17/453

दिनांक: 27.05.2017

// कार्यालय आदेश //

During 112<sup>th</sup> Meeting of CMDs, it has been decided to constitute a committee for framing an uniform policy for reject disposal / utilization by all subsidiaries. This is in reference to point no. 13, which is quoted below:

### \*13.0 Draft Reject disposal policy for rejects generated from coal washeries of CIL (existing & future)

Rejects generated from existing coal washeries have been dumped in areas adjacent to washeries over the years as per usual practice. Somewhere, if found usable, rejects have been sold through various modes to consumers interested in its utilization. Rest have remained unused / unsold and left to accumulate in reject dumps creating huge space and environmental issues.

Dump rejects are causing growing environmental concern due to its storage as they degrade the soil and ground water wherever dumped or stored. This necessitates giving importance to Reject Disposal modalities of the proposed washeries for which application for EC is being submitted. In almost all EAC meetings they always insist for bringing out a policy for disposal of rejects. It was given to understand that MOC is likely to promulgate a policy for Reject Disposal for private washeries. However, after discussion at length, the CMDs suggested that a committee be constituted for framing an uniform policy for reject disposal / utilization by all subsidiaries."

In view of above a committee is hereby constituted with following members:

- |      |                                    |   |          |
|------|------------------------------------|---|----------|
| i)   | Shri S. Chandra, DT, CCL           | - | Chairman |
| ii)  | Shri M K Singh, GM (PMD), CIL      | - | Member   |
| iii) | Shri Rajesh Bhushan, GM (S&M), CIL | - | Member   |
| iv)  | Shri J Bagchi, CM (F), CIL         | - | Member   |

The committee shall frame an uniform policy for reject disposal / utilization by all subsidiaries and submit its report within one month.

This issues with approval of the competent authority.

आनंद कुमार नाथ  
(ए. के. नाथ) 27/5/17

म.प्रब./निदेशक (तक.) के तकनीकी सचिव  
कोल इंडिया लिमिटेड

### प्रतिलिपि:

1. Committee members.
2. TS to Chairman, CIL
3. TS to CMD, CCL
4. GM (Fin), CIL

Subject: Committee- Draft Reject Disposal Policy for rejects generated from Coal washeries of CIL EXISTING AND FUTURE.

Date: 06/07/17 02:34 PM

To: gmcp.cmpdi@coalindia.in, 'T K Sinha' <gmcp.cil@coalindia.in>, 'Rajesh Bhushan' <gmsnm.cil@coalindia.in>, rtalapatra.cil@coalindia.in, subirchandra58@gmail.com, dto.ccl.cil@coalindia.in, 'Sanjay Dubey' <ts.cmpdi.cil@coalindia.in>, tsdt.cil@coalindia.in, dt.cil@coalindia.in

From: GM PMD CIL <gmcp.cil@coalindia.in>  
Reply-To: gmcp.cil@coalindia.in

Cc: mkayal07@gmail.com

image001.jpg (16kB) image002.jpg (5kB) image004.png (2kB)

CIL- Committee on Reject Disposal of CIL Washerries... (62kB)



## परयोजना बोधन विभाग कोल इंडिया लिमिटेड

(आई एस ओ 9001:2015 & ISO 50001:2011 सत्यापित संस्थान)

नोटशीट: कोल इंडिया/ प.रयोजना बोधन/ Washery Committee/ 22

दिनांक

07-06-2017

### Office Order

Apropos Of ice Order number CIL/ DT/TS/ 035/17/453 Dated 27<sup>th</sup> May 2017, with reference to formation of Committee on Draft Reject Policy for rejects generated from Coal Washerries of CIL (Existing and Future), competent authority has approved the inclusion of Shri B K Dey, GM CMP CMPDI as a member in the committee.

The formation of committee stands revised as:

1. Shri S Chandra, DT CCL - Chairman
2. Shri B K Dey, GM CMP CMPDI- Member
3. Shri M K Singh, GM PMD CIL - Member
4. Shri Rajesh Bhushan GM S&M- Member
5. Shri J Bagchi CM (F) - Member

The terms and Conditions of the earlier order will remain the same.

M K Singh  
General Manager  
Project Monitoring Division  
Coal India Limited  
9433006096  
gmcp.cil@coalindia.in

**Record notes of meeting of Committee for formulation of a Uniform Reject Policy for CIL Washeries (Existing & Future) held on 18.7.2017 in CIL Hq**

As per the Office Order No: CIL/DT/TS/035/17/453 dated 27.5.2017 the Committee constituted had 4 members:

1. Sri Subir Chandra, Director (tech/Ops), CCL – Chairman
2. Sri M K Singh, GM (PMD), CIL – Member
3. Sri Rajesh Bhusan, GM (M&S), CIL – Member
4. Sri J Bagchi, CM (F), CIL - Member
5. Sri B K Dey, GM (CMP), CMPDI - Member (added subsequently)

As Sri Rajesh Bhusan was not able to attend, his representative, GM (M&S) Dr Anurag Garg attended the meeting with Sri S K Merkap, CM(M&S). The Finance Member Sri J Bagchi was held up in other official assignments and could not attend. Ms Vinita Arora, Sr Manager (Env), CMPDI was co-opted in the Committee.

Dir (Tech/Ops), CCL chaired the meeting through VC.

Being the first meeting, the reasons for the constitution of the committee were explained to the members and the Terms of Reference finalized which are as follows:

1. To adopt the definition of Rejects.
2. To study the modalities of reject disposal currently in practice in the existing washeries
3. To study the “Draft Policy of Disposal of Washery Rejects...” for Private Non-CIL washeries as received from MoC in December 2016 & its applicability with CIL washeries
4. To study EC conditions in respect to Reject Disposal of any existing BOO washery, if available.

**Actionable Points:**

1. It was advised that the document prepared by GM (CMP), CMPDI may be circulated to all members and others present.
2. DT/Op, CCL requested that comments from the GM (Washerries) of the subsidiaries may be taken on these aspects and their opinions considered.
3. It was informed that in some developed countries, dumping of washery rejects to fill mine voids is a regular practice, which can be explored in CIL.
4. Regarding the impact of dumping on ground water through leaching and other trace element contamination of the soil that may be highlighted by MoEF, Sr Manager (Env), CMPDI was requested to carry out a detailed study on that aspect and furnish a report on the chance or amount of presence of trace elements in such a dump.
5. It was advised that the MOUs placed in EAC by BCCL while applying for ToR for EC in the BOM Washeries being set up may be studied for practicality.

6. The possibility of getting the EC conditions, if possible, on any washery that is running on BOO concept, may be explored.
7. The next meeting of the Committee will be held in the 1<sup>st</sup> week of August, 2017.

Participants: -

1. Sri Subir Chandra , DT/Ops, CCL - Chairman –through VC
2. Sri M K Singh, GM (PMD), CIL -Member
3. Sri Bidyut Kumar Dey, GM (CMP), CMPDI –Member
4. Dr Anurag Garg, GM (M&S), CIL – Member in place of Sri R Bhusan
5. Ms Vinita Arora, Sr Manager (Env) – Member co-opted in the meeting

Invitees:

1. Sri SK Merkap, CM (M&S), M&S Div, CIL
2. Sri Ranajit Talapatra, Sr Manager (CP), PMD, CIL
3. Sri Abhishek Anand, Dy Manager (CP), CMP, CMPDI
4. Ms Poonam Singhal, Dy Manager (CP), PMD, CIL

Reject Disposal Policy

**DRAFT POLICY**  
**ON**  
**DISPOSAL OF WASHERY REJECTS, MIDDLING,  
SURPLUS COAL**

**December 2016**



**Ministry of Coal**  
**Government of India**  
**New Delhi, INDIA**

## 1. BACKGROUND

Various block allocatees of captive coal blocks had been requesting Ministry of Coal (MoC) time and again for disposal of surplus/ unusable coal, middlings, coal rejects, washeries by products, etc. citing the reason that the same pose serious risk of fire due to self-combustion/oxidation, environmental pollution and are prone to theft and pilferage. It was considered that there was a need to regulate disposal of such material through a flexible and legally tenable mechanism. Accordingly, a proposal for formulation of guidelines / policy relating to disposal of surplus coal, washeries products and other carbonaceous products was initiated in December 2007. Thereafter, a series of meetings were held in MoC on various occasions for consideration and finalization of the policy / guidelines in consultation with different ministries.

Hon'ble Supreme Court vide its judgement dated 25.08.2014 and order dated 24.09.2014 passed in W.P. (Crl.) No.120/2012 had cancelled 204 captive coal blocks. The 14 blocks which were not cancelled included 12 coal blocks allocated to Ultra Mega Power Projects (UMPP) and one block each allocated to SAIL (Tasra) and NTPC (Pakri Barwadih). In respect of UMPPs, Hon'ble Supreme Court vide its above-mentioned judgment/order had directed that coal produced from UMPP coal blocks would only be used for UMPP Power Plants and no commercial exploitation was permissible. The 204 cancelled coal blocks are now being auctioned/allotted as per the provisions of the Coal Mines (Special Provisions) Act, 2015 [CM(SP) Act] and rules framed thereunder.

For the coal blocks auctioned/ allotted as per the provisions of the Coal Mines (Special Provisions) Act, 2015 [CM(SP) Act] and MMDR Act, 1957 and the rules framed thereunder, certain agreements/ contracts have been executed by the Nominated Authority on behalf of the Ministry of Coal in Government of India and the successful bidders/allotees viz. Standard Coal Mines Development and Production Agreement (CMDPA), which covers provision for disposal of surplus coal, washery rejects and middlings.

### 1.2. PREAMBLE

After series of extensive discussions, the following emerged with respect to ambit of coverage of the policy:

#### a) **Coal Blocks Auctioned/ Allotted :**

As the standard CMDPA/ Standard Allotment Agreement already provide for disposal of surplus coal, washery rejects, middlings, etc. for the captive coal blocks allottees and also similar provision are there in the coal block development and production agreement which is entered between government and the allocate(s) of coal blocks under the amended provisions of MMDR Act, 1957, as of now, **there is no requirement of a separate policy for disposal of surplus coal, washery rejects/middlings, etc. in respect of captive coal blocks.** These would be governed as per the provisions in these agreements.

b) **Coal sold through e-Auction** : As far as the coal sold through e-auction to non-regulated sector (viz. Iron & Steel, Cement, etc.) is concerned, the coal purchased by the consumer is at market discovered price and therefore, there is no need of any separate policy in respect of any rejects/middlings generated in a washery from such coal.

c) **Coal sold as part of linkages to Linkage Holders** : There remains the issue of finalization of policy with respect to disposal of washery rejects/middlings generated from coal being sold by CIL/its subsidiaries as part of linkages.

In respect of coal being sold by CIL/its subsidiaries as part of linkages, the title of the goods is transferred to the buyer once the consignment leaves colliery premises. Such coal is getting washed under a bi-lateral arrangement between the buyer (i.e., the linkage-holder) and a washery operator. The policy is enforceable only in respect of coal being sold by CIL/its subsidiaries as part of linkages at the notified price which is less than the market/discovered price. As the bi-products coming from coal washery are washery rejects and/or middlings only, other than the washed coal as main product, there would be no surplus coal left in the washery. As such, the policy is applicable only for the washery reject/ middlings generated out of washing of linkage coal.

### **1.3. OBJECTIVE**

To formulate a policy, that is:-

- a) transparent and promotes establishment of washeries in private sector.
- b) based on norms and minimizes the discretion and subjectivity.
- c) flexible and environment friendly.
- d) simple and easy to implement.
- e) to ensure that raw/ washed coal is not diverted under the garb of washery rejects/ middlings and washing process is not misused for siphoning off CIL coal supplied at sub-market/ nominated price for undue profit generation.

## **2. THE POLICY ON DISPOSAL OF WASHERY REJECT/MIDLINGS**

### **2.1 Definition of Washery Rejects**

Washery reject is the by-product of washing the run-of-mine (ROM) coal. It would be called Washery reject only when its Gross Calorific value (GCV) is less than the GCV value of lowest grade of coal determined from time-to-time [currently it is 2200 kcal/kg].

This is applicable to all washeries, irrespective of the end user.

**2.2** Where ever CIL is mentioned in the Policy, it shall be substituted by SCCL in all cases where the linkages are provided by SCCL.

### **2.3 Quantitative assessment through PGT**

There are certain parameters which are to be kept in mind while selecting a technology for washing coal such as desired ash percentage, moisture percentage, yield percentage etc. These data would be specific to a particular coal quality. As per

the extant practice, washability test is done before designing a washery to develop a "washability curve" for that quality of coal. The washability curve gives an idea assuming 100% efficiency of operation of washery which is never achieved in practice. Thus, a performance guarantee test is done before the actual start of operation of a washery to ensure that washery when it runs, delivers the desired percentage of ash, moisture and yield of washed coal and also determines percentage of rejects to be generated during washing. The results of performance guarantee test can be considered as a parameter for fixing a particular yield, ash and moisture percentage for a particular washery for a particular grade of coal which can be converted into targets for minimum percentage of washed coal to be produced of desired ash percentage, the quality and quantity of rejects produced. Once the parameters are fixed, it can be considered as a parameter for monitoring.

To monitor the quantity of rejects generated by a coal washery a performance guarantee test (PGT) is to be conducted. Period of PGT will be 30 (thirty) days.

Quality (Ash%) and specific quantity of reject generated per unit raw coal feed shall be established through Performance Guarantee Tests (PGT) of the washery and will be treated as normative limits.

#### **2.4 Conducting the Performance Guarantee Test (PGT)**

2.4.1 For assessment of generation of washed coal and rejects (per tonne of feed basis) through PGT of a washery, a committee will be constituted comprising of representatives of CIL, CCO and one member each from linkage-holder and washery operator.

CIL will provide the list of linkage holders who intend to wash coal, along with the location of the washery to CCO.

2.4.2 Conducting PGT in presence of the PGT Committee is the responsibility of the washery operator and the linkage-holder and they shall extend all necessary supports to the PGT committee.

2.4.3 Obligation of the washery operator and the linkage-holder towards conducting PGT:

- a) Plant should be made ready for PGT and all on-line instrumentations such as belt-weighers, ash-analyzers, moisture-analyzers etc. fitted in flow streams of feed coal, washed coal and reject/middling shall be properly calibrated by authenticating agencies.
- b) All Expenditure towards conducting PGT and testing of samples of feed coal and the products shall be borne by washery operator/ linkage holder.

2.4.4 Tests for the RoM coal samples and the products (reject/middling) samples shall be done in a NABL accredited/ CSIR labs as per the relevant Indian Standards. The laboratories shall be decided by the CCO and the tests would be conducted under supervision of CCO.

2.4.5 During 30 days PGT, data shall be collected and recorded with variation in feed coal (viz. source and ash content) and corresponding generation of washed coal and

reject with emphasis on maximum yield of washed coal and generation of reject having GCV within the defined range.

2.4.6 PGT will be conducted for coal supplied by CIL/ subsidiary company on actual-supply basis, single source or blended from different sources.

2.4.7 PGT shall be conducted at rated capacity of the washery.

2.4.8 In case the washery is washing RoM coals of different linkage-holders, such coal shall be stacked on separate and demarcated land for different linkage-holders.

2.4.9 Once the parameters on generation of reject are fixed by the PGT committee for the washery, it will be considered as a norm for operation of the washery.

## **2.5 Reassessment of Norms**

2.5.1 PGT shall be repeated every fifth year for reassessment of norms.

2.5.2 However, if within the period of five years, performance of washery deteriorates and percentage of washery rejects increases due to any reason whatsoever, including significant deviation in the raw coal quality, the washery operator and linkage-holder may request the CCO for a revised performance guarantee test to reset the norms.

2.5.3 However, such tests under clause 2.5.2 above cannot be carried out before a period of 3 years is over, unless it is for the reason of deterioration of quality of raw coal.

## **2.6 Monitoring the Washery Reject**

2.6.1 An MoU/ agreement will be signed between the linkage-holder and the washery operator for adhering to the norms of the Policy. It is the responsibility of the linkage-holder to look into the operation of the washery and ensure the adherence to the norms by the washery operator.

2.6.2 The washery operator through the linkage-holder shall submit to CCO monthly as well as annual signed return indicating the details of quantity and quality of washed coal and rejects produced/ dispatched/ stored vis-a-vis raw coal received. CCO would be responsible for scrutinizing those returns and to ensure the enforcement of norms. For this purpose CCO may also obtain details of washed coal supplied to the end plants of linkage holder through railways and/or through other means of transport. CCO may also, for this purpose call for any records/information from the linkage holders, washery operator and any other person associated with supply/usage/ transport of raw coal/ washed coal/ washery rejects.

2.6.3 In case the washery rejects are more than normative limits, CCO will intimate the linkage-holder and washery operator for taking necessary corrective actions at their end so that norms can be adhered to at the earliest.

2.6.4 Non-compliance to norms will attract penalty on linkage-holder as per Clause 2.8.

2.6.5 CCO shall at regular intervals take samples of the rejects generated to check and ensure that GCV value of the rejects is less than the prescribed limit.

## **2.7 Disposal of Reject**

2.7.1 The washery rejects belong to the linkage holder and he can dispose off the rejects in any manner, i.e. use for his own purpose, sale to the washery operator or any other person for any purpose. However, the disposal of the rejects shall strictly be as per the prevailing environmental and pollution norms and shall strictly comply with conditions imposed in Environment and Pollution Clearance.

## **2.8 Penalty Provision**

2.8.1 Once the parameters are fixed, these would be considered as the norms for operation of the washery by the washery operator. Linkage holder is expected to set up a monitoring mechanism to ensure that washed coal and washery rejects are within the norms.

2.8.2 Non-compliance of PGT norms, observed at any point of time will attract penalty on linkage-holder.

2.8.3 The norm would be said to have been violated if:-

- i. either the percentage of washed coal is below the norm
- ii. or the GCV value of the washery rejects is more than the GCV value of lowest grade of coal determined from time-to-time [currently it is 2200 kcal/kg].

2.8.4 No penalty would be imposed if the deviation in quantity of washed coal is less than 2% of the norm and variation in GCV of the rejects is less than 10% of the normative GCV. However, the CCO in any case would serve the notice to the linkage holder and the washery operator for taking corrective measures. If violation continues for more than 2 quarters the penalty would become imposable as per 2.8.5.

2.8.5 The amount of penalty will be calculated:-

- a) In case of less production of washed coal than the norms-

$$P = 1.5 * (Q_n - Q_w) * C$$

Where P= Penalty

Q<sub>n</sub>= Quantity as per norm

Q<sub>w</sub>= Quantity of coal washed

C= cost of raw coal in Rs. per tonne as per the CIL notified price.

- b) When the GCV of rejects generated for washing of coal is more than the prescribed limits

$$P = 1.5 * Q_r * V * C$$

Where P= Penalty

Q<sub>r</sub>= Quantity of rejects generated during the quarter ( in tonne)

V = (Percentage variation of actual GCV of the rejects vis a vis Normative GCV)  
= (Actual GCV of the sample - Normative GCV) / Normative GCV

C= cost of raw coal in Rs. per tonne as per the CIL notified price.

2.8.6 Assessment of penalty will be on quarterly basis.

2.8.7 However, before imposing penal action on the washery operator/ linkage holder an opportunity of being heard shall be given to the linkage holder and washery operator.

2.8.8 Notices will also be served by CCO on washery operator/ linkage holder for corrective measures. The washery operator/ linkage holder is required to take all necessary measures immediately in the washery so that norms are adhered to.

CCO will be the competent authority to impose the penalty, which shall be deposited with CIL.

2.8.9 Consistent failure to deliver washery reject within the normative limit may lead to recommendation by the CCO to CIL/ Ministry of Coal, to direct linkage holder to terminate contract with current washery operator and make fresh arrangements for washing of coal.

### **3. ABBREVIATIONS USED**

a)	CCO	:	Coal Controller Organization
b)	CIL	:	Coal India Limited
c)	CIMFR	:	Central Institute of Mining and Fuel Research
d)	CMDPA	:	Coal Mines Development and Production Agreement
e)	GCV	:	Gross Calorific Value
f)	MoC	:	Ministry of Coal
g)	NABL	:	National Accreditation. Bureau for Laboratory
h)	PGT	:	Performance Guarantee Test
i)	ROM	:	Run-of-Mine
j)	SCCL	:	Singareni Collieries Company Limited

\*\*\*\*\*

**MOU with qualified Bidders against EOI for disposal of process rejects produced from proposed  
Patherdih 5 Mtpa. washery on NLW coal under BOM concept.**

1. BCCL had called Expression Of Interest (EOI) vide BCCL/S&M/PS/F-EOI/499 dated 30/31.08.2011 from the interested consumers for utilisation of rejects generated from Patherdih 5 Mtpa washery on NLW coal under BOM concept.
2. BCCL and qualified bidders hereby agree to enter into a **LONG TERM** MoU for disposal of rejects generated from Patherdih 5 Mtpa washery on NLW coal under BOM concept. Finally, selected bidders have also agreed for lifting the entire quantity of rejects and BCCL has agreed to give the entire quantity on **LONG TERM BASIS** by tendering route with these undernoted qualified bidders.
3. The other applicable statutory charges on rejects will have to be complied as per the prevailing guidelines/ rules at the time of start of actual production and despatch.
4. Abiding by the existing and applicable environmental laws governed by Ministry of Environment & Forest and State Pollution Control Board will be the sole responsibility of the qualified bidder(s).
5. The transportation of rejects will be allowed by rail or through road as per the guide lines of MoEF.
6. The bidders have to assure that the stock of the rejects shall be liquidated preferably within two days of production from the washery end as per the MoEF guidelines.
7. The other general terms and conditions of the Sales & Marketing Division will be added at the time of despatch of the product.

**For BCCL**

*S. Mendel*  
12.11.11

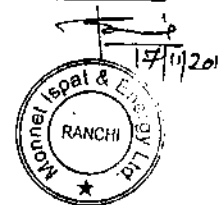
1. General Manager(S&M)  
**General Manager (S&M)**  
**B.C.C.L., Koyla Bhawan**  
**Dhanbad**

2. General Manager (Finance) *S/c* 17/11/11

**G. M (Finance) I/c**  
BCCL, Koyla Bhawan  
BCCL Township  
Dhanbad-826005

3. GM (Washery)  
*Anat's*  
17.11.11  
General Manager GM(Ws)/EWZ/WCD  
Bharat Coking Coal Ltd.  
Washery Construction Division  
Koyla Bhawan

**For Monnet Ispat & Energy Ltd.**





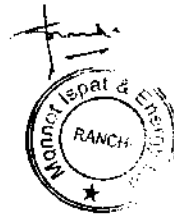
**MoU with the qualified Bidders against EoI for disposal of process rejects produced from proposed Bhojudih 2.0 Mtpa NC washery under 'BOM' concept**

1. BCCL had called Expression of Interest (EoI) vide BCCL/S&M/PS/F-EOI/499 dated 30/31.08.2011 from the interested consumers for utilization of rejects generated from Bhojudih 2.0 Mtpa NC washery under BOM concept.
2. BCCL and selected Bidders hereby agree to enter into a **LONG TERM** MoU for disposal of rejects generated from Bhojudih 2.0 Mtpa NC washery under BOM concept. Finally, selected bidders have also agreed for lifting the entire quantity of rejects and BCCL has agreed to give the entire quantity on **LONG TERM BASIS** by tendering route with the undernoted qualified Bidder.
3. The other applicable statutory charges on rejects will have to be complied as per the prevailing guidelines/rules at the time of start of actual production and dispatch.
4. Abiding by the existing and applicable environmental laws governed by Ministry of Environment & Forest (MoEF) and State Pollution Control Board will be the sole responsibility of the qualified bidders).
5. The transportation of rejects will be allowed by rail or through road as per the guide lines of MoEF.
6. The Bidders have to assure that the stock of the rejects shall be liquidated preferably within two days of production from the washery end as per the MoEF guidelines.
7. The other general terms and conditions of the Sales & Marketing Division will be added at the time of dispatch of the product.

**For BCCL**

- [Signature]*  
1. General Manager (S&M)  
B.C.C.L., Koyla Bhawan  
Dhanbad
- [Signature]*  
2. General Manager (Finance) OSD  
GM/PS  
BCCL, Koyla Bhawan  
Dhanbad-826005
- [Signature]*  
3. General Manager (Washery)  
General Manager GM/WS/NEWZ/WCD  
Bharat Coking Coal Ltd.  
Washery Construction Division  
Koyla Bhawan

**For Monnet Ispat & Energy Ltd.**



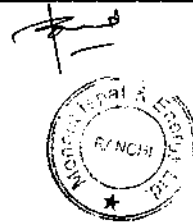
**MoU with the qualified Bidders against EoI for disposal of process rejects produced from proposed Patherdih 2.5 Mtpa NLW washery under 'BOM' concept**

1. BCCL had called Expression of Interest (EoI) vide BCCL/S&M/PS/F-EOI/499 dated 30/31.08.2011 from the interested consumers for utilization of rejects generated from Patherdih 2.5 Mtpa NLW washery under BOM concept.
2. BCCL and selected Bidders hereby agree to enter into a **LONG TERM** MoU for disposal of rejects generated from Patherdih 2.5 Mtpa NLW washery under BOM concept. Finally, selected bidders have also agreed for lifting the entire quantity of rejects and BCCL has agreed to give the entire quantity on **LONG TERM BASIS** by tendering route with the undernoted qualified Bidder.
3. The other applicable statutory charges on rejects will have to be complied as per the prevailing guidelines/rules at the time of start of actual production and dispatch.
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5. The transportation of rejects will be allowed by rail or through road as per the guide lines of MoEF.
6. The Bidders have to assure that the stock of the rejects shall be liquidated preferably within two days of production from the washery end as per the MoEF guidelines.
7. The other general terms and conditions of the Sales & Marketing Division will be added at the time of dispatch of the product.

**For BCCL**

- Shanaka*  
1. General Manager (S&M)  
B.C.C.L.
- Ajma*  
2. General Manager (Finance) OSD  
GM(FDS)  
BCCL, Koyla Bhowan  
DIPLOMA D-826005  
*Rhata*
3. General Manager (Washery)  
General Manager GM(W&E)WZWC  
Bharat Coking Coal Ltd.  
Washery Construction Division

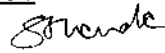
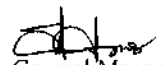
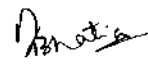
**For Monnet Ispat & Energy Ltd.**



**MoU with the qualified Bidders against EoI for disposal of process rejects produced from proposed Dahibari 1.6 Mtpa NLW washery under 'BOM' concept**

1. BCCL had called Expression of Interest (EoI) vide BCCL/S&M/PS/F-EOI/499 dated 30/31.08.2011 from the interested consumers for utilization of rejects generated from Dahibari 1.6 Mtpa NLW washery under BOM concept.
2. BCCL and selected Bidders hereby agree to enter into a **LONG TERM** MoU for disposal of rejects generated from Dahibari 1.6 Mtpa NLW washery under BOM concept. Finally, selected bidders have also agreed for lifting the entire quantity of rejects and BCCL has agreed to give the entire quantity on **LONG TERM BASIS** by tendering route with the undernoted qualified Bidder.
3. The other applicable statutory charges on rejects will have to be complied as per the prevailing guidelines/rules at the time of start of actual production and dispatch.
4. Abiding by the existing and applicable environmental laws governed by Ministry of Environment & Forest (MoEF) and State Pollution Control Board will be the sole responsibility of the qualified bidder(s).
5. The transportation of rejects will be allowed by rail or through road as per the guide lines of MoEF.
6. The Bidders have to assure that the stock of the rejects shall be liquidated preferably within two days of production from the washery end as per the MoEF guidelines.
7. The other general terms and conditions of the Sales & Marketing Division will be added at the time of dispatch of the product.

For BCCL

-   
1. General Manager (S&M)  
**General Manager (S&M)**  
**B.C.C.L., Koyla Bhawan**  
**Dhanbad**
-   
2. General Manager (Finance) OSD  
BCCL, Koyla Bhawan  
DHANBAD-826005
-   
3. General Manager (Washery)
- General Manager GM(Ws)EWZWC0  
Bharat Coking Coal Ltd.

For Monnet Ispat & Energy Ltd.



**MoU with the qualified Bidders against EoI for disposal of process rejects produced from proposed Dugda 2.5 Mtpa NLW washery under 'BOM' concept**

1. BCCL had called Expression of Interest (EoI) vide BCCL/S&M/PS/F-EOI/499 dated 30/31.08.2011 from the interested consumers for utilization of rejects generated from Dugda 2.5 Mtpa NLW washery under BOM concept.
2. BCCL and selected Bidders hereby agree to enter into a **LONG TERM** MoU for disposal of rejects generated from Dugda 2.5 Mtpa NLW washery under BOM concept. Finally, selected bidders have also agreed for lifting the entire quantity of rejects and BCCL has agreed to give the entire quantity on **LONG TERM BASIS** by tendering route with the undernoted qualified Bidder.
3. The other applicable statutory charges on rejects will have to be complied as per the prevailing guidelines/rules at the time of start of actual production and dispatch.
4. Abiding by the existing and applicable environmental laws governed by Ministry of Environment & Forest (MoEF) and State Pollution Control Board will be the sole responsibility of the qualified bidder(s).
5. The transportation of rejects will be allowed by rail or through road as per the guide lines of MoEF.
6. The Bidders have to assure that the stock of the rejects shall be liquidated preferably within two days of production from the washery end as per the MoEF guidelines.
7. The other general terms and conditions of the Sales & Marketing Division will be added at the time of dispatch of the product.

**For BCCL**

*Schende*

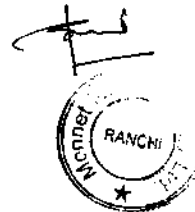
1. General Manager (S&M)  
B.C.C.L., Koyla Bhawan  
Dhanbad

2. General Manager (Finance) OSD  
BCCL, Koyla Bhawan  
DHANBAD-826005

3. General Manager (Washery)

General Manager GM(Ws)/EWZ/WCD  
Bharat Coking Coal Ltd.  
Washery Construction Division

**For Monnet Ispat & Energy Ltd.**



**MoU with the qualified Bidders against EoI for disposal of process rejects produced  
from proposed Bhojudih 2.0 Mtpa NC washery under 'BOM' concept**

1. BCCL had called Expression of Interest (EoI) vide BCCL/S&M/PS/F-EOI/499 dated 30/31.08.2011 from the interested consumers for utilization of rejects generated from Bhojudih 2.0 Mtpa NC washery under BOM concept.
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7. The other general terms and conditions of the Sales & Marketing Division will be added at the time of dispatch of the product.

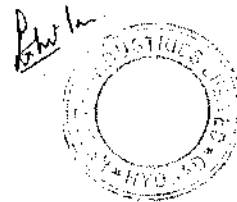
For BCCL

*[Signature]*  
General Manager (S&M)  
BCCL, Koyla Bawan  
Dhanbad

*[Signature]*  
General Manager (Finance) OSD M (Finance)  
BCCL, Koyla Bawan  
BCCL Township  
Dhanbad-820005

*[Signature]*  
19.04.12  
General Manager (Washery)  
General Manager GM(Ws)/EWZ/WCD  
Bharat Coking Coal Ltd.  
Washery Construction Division

For Keerthi Industries Ltd.



**MoU with the qualified Bidders against EoI for disposal of process rejects produced from proposed Patherdih 2.5 Mtpa NLW washery under 'BOM' concept**

1. BCCL had called Expression of Interest (EoI) vide BCCL/S&M/PS/F-EOI/499 dated 30/31.08.2011 from the interested consumers for utilization of rejects generated from Patherdih 2.5 Mtpa NLW washery under BOM concept.
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5. The transportation of rejects will be allowed by rail or through road as per the guidelines of MoEF.
6. The Bidders have to assure that the stock of the rejects shall be liquidated preferably within two days of production from the washery end as per the MoEF guidelines.
7. The other general terms and conditions of the Sales & Marketing Division will be added at the time of dispatch of the product.

**For BCCL**

1. *Srinivasa*  
12.08.12  
**General Manager (S&M)**  
**B.C.C.L., Koyla Bhawan**  
**Dhanbad**
2. *[Signature]*  
**General Manager (Finance) OSD**  
**G.M (Finance)**  
**BCCL, Koyla Bhawan**  
**BCCL Township**  
**Dhanbad-826005**
3. *[Signature]*  
14.07.12  
**General Manager (Washery)**  
**General Manager GM(Ws)EWZ/WCD**  
**Bharat Coking Coal Ltd.**  
**Washery Construction Division**  
**Koyla Bhawan**

**For Keerthi Industries Ltd.**



**MoU with the qualified Bidders against EoI for disposal of process rejects produced from proposed Dahibari 1.6 Mtpa NLW washery under 'BOM' concept**

1. BCCL had called Expression of Interest (EoI) vide BCCL/S&M/PS/F-I/OI/499 dated 30/31.08.2011 from the interested consumers for utilization of rejects generated from Dahibari 1.6 Mtpa NLW washery under BOM concept.
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7. The other general terms and conditions of the Sales & Marketing Division will be added at the time of dispatch of the product.

**For BCCL**

1. General Manager (S&M)  
  
**General Manager (S&M)**  
**B.C.C.L., Koyla Bhawan**  
**Dhanbad**
2. General Manager (Finance)  
  
**G.M. (Finance)**  
**BCCL, Koyla Bhawan**  
**BCCL Township**  
**Dhanbad-828003**
3. General Manager (Washery)  
  
**General Manager GM(W)EWZWC**  
**Bharat Coking Coal Ltd.**  
**Washery Construct**

**For Keerthi Industries Ltd.**



**Record notes of the 2<sup>nd</sup> meeting of the Committee for formulation of a Uniform Reject Policy for CIL Washeries (Existing & Future) held on 22.08.2017 in CIL Hq**

The 2<sup>nd</sup> meeting of the Committee for formulation of a Uniform Reject Policy for CIL Washeries (Existing & Future) was held under the chairmanship of Director (Tech/Ops), CCL and other committee members namely, GM (PMD), CIL, GM (CMP), CMPDI, GM (M&S), CIL (not present), CM (Fin/M&S), CIL & Sr Manager (Env), Advisor (Forest)'s Office, Delhi (Co-opted).

Though the Updated draft of the policy prepared by CMP Division was circulated among all HODs of Washery divisions in the relevant subsidiaries, comments were received only from SECL till the date of the meeting (copy attached).

After deliberations on the lines of the decisions taken in earlier meeting, the following Points were decided

1. It was unanimously agreed that the definition of rejects will be as per the MOC related guidelines, which is

*“Washery reject is the by-product of washing the run-of-mine (ROM) coal. It would be called Washery reject only when its Gross Calorific value (GCV) is less than the GCV value of lowest grade of coal determined from time-to-time [currently it is 2200 kcal/kg].”*

2. Wherever there is a possibility of selling the rejects legally as per the extant guidelines, it will be explored. SECL, in its comments has endorsed the modalities suggested by CMPDI, namely, through MoU and through e-auction.
3. In most countries, even in developed ones, Rejects are disposed by filling in mine voids. It was agreed that this is a prudent method of disposal. However, a study has already been initiated by Sr Manager (Env), Advisor (Forest)'s Office, Delhi, in CMPDI Environment Department laboratories, in line with the decision of the 1<sup>st</sup> meeting. Report of the study, ascertaining the trace elements present in the samples of Rejects collected, is awaited. Subsequently it can be decided whether this Disposal method can also be applied for CIL washery rejects.
4. In case an FBC power plant based on rejects is desired to be set up by any interested Power Producer in the vicinity of the washeries, considering all factors like land availability, land prices, quality of rejects produced, supply of an assured quantity of rejects and not the least important, the price of power to be produced, CIL or its subsidiaries (in which the washery is located) will facilitate setting up of the same. SECL has expressed

apprehension that considering insufficient quantity of Rejects in one place, GCV of rejects mostly below 1800 Kcal/Kg and difficulty in getting adequate land, utilization of rejects through FBC based power plants (through CNUPL - the JV between CIL & NTPC or otherwise, if allowed) may not be feasible presently.

5. It was also suggested by SECL, in its comments, that the price of washery rejects/by products may be finalized on the basis of above GCV bands and be included in the reject policy document.

As marketability of Rejects will be doubtful, the price range and demand for rejects cannot be pre-fixed. If we place any notional value at price of rejects while it remains unsaleable, it will be difficult to write it off financially and it may cumulatively contribute to liabilities with accumulation of the Reject Stock. Historically, SCCL maintained a sale price for Rejects, at present Rs 138/- per Tonne. They are finding it difficult to write off the stock of Rejects to the tune of about 15 lakh tonnes, which has a substantial book value, whereas it is not moving as there is no market. In view of the above and the fact that pricing was not in the scope of the committee, the comment was not considered.

6. Further, it was suggested that Ms Suchandra Sinha Sarkar, Sr Manager (E&M), CMPDI, who is looking after FBC in CMPDI, may be invited in the next meeting for the purpose of ascertaining the desirability of setting up of FBC plants.
7. On case to case basis, CIL/Subsidiary Company should explore the possibility of designing the future washeries so as to produce only 2 products like high & low grade coal (within notified grades), both of which will be easily saleable. However, the marketability of these products on long term basis should be explored by CIL Marketing divisions of CIL/subsidiaries.

However, SECL in its comments, have pointed out that *“Production of lower ash washed coal may involve additional washing processes and lower yield %, which will increase the selling price of washed coal. The Power plants may not agree to buy washed coal at increased price in absence of any MOEF constraints, when 34% ash washed coal is suitable for both from boiler design and MOEF requirements”.* This issue may be deliberated again in the next meeting.

8. Further, it was decided that CM (Fin/M&S), CIL will produce a study regarding the economics of 2 product generation considering different GCV

levels of High grade & Low Grade Coal for a 1 Mty Plant vis-à-vis their currently notified prices.

It was agreed that the next meeting of the committee will be held after the report of the study, ascertaining the trace elements present in the samples of Rejects, being undertaken by the Environment Deptt, CMPDI is placed.

List of Participants:

1. Sri Subir Chandra, Director (Tech/Ops), CCL – Chairman
2. Sri M K Singh, GM (PMD), CIL – Member
3. Sri B K Dey, GM (CMP), CMPDI - Member
4. Sri J Bagchi, CM (F), CIL - Member
5. Ms Vinita Arora, Sr Manager (Env), Delhi - Member (Co-opted)
6. Sri V K Pandey, Sr Manager (Env), CMPDI - Invitee
7. Sri R Talapatra, Sr Manager (CP), PMD, CIL - Invitee
8. Ms P Singhal, Dy Manager (CP). PMD, CIL - Invitee

**Subject: Proposal to carry out a study for assessing the impact of the dumped washery rejects on water regime.**

**Reference:** MoM of 18.7.17 in CIL, Kolkata on “Uniform Reject Policy for CIL Washeries (Existing & Future)”

A meeting was held in CIL, Kolkata on “Uniform Reject Policy for CIL Washeries (Existing & Future)” on 18.7.17. As per outcome of this meeting, CMPDI is required to carry out study on impact of dumping on water regime through leaching and other trace element contamination and furnish a report. For undertaking the above assignment, the following scope of work is proposed:

**Scope: For assessing the impact of coal rejects on water regime:**

**(A) Identification and Sampling of rejects and water samples**

- (i) The dumping sites of washery rejects (coking coal and non-coking coal washeries) will be identified in association with General manager (Coal & Mineral Preparation), CMPDI
- (ii) The sample of washery rejects will be jointly collected with the help of officials from CMD Department of CMPDI
- (iii) The leachate/run off from the washery reject heaps and also water samples from nearby streams and rivers (both upstream and downstream of reject dump sites) will be identified and samples will be collected with the help of officials from selected washeries in CCL and BCCL.

**(B) Analysis of reject and water samples**

- (i) The gross calorific value (GCV) of the identified washery reject samples collected if available at the chemical laboratory at the subsidiary level shall be recorded
- (ii) The sample of identified washery rejects will be analysed for its calorific value and chemical constituents in the chemical lab of CMPDI(HQ) and washery lab of CMPDI(HQ)
- (iii) Leachates from identified washery rejects shall be prepared in the Env. Lab of CMPDI(HQ)
- (iv) Elemental analysis of the washery rejects shall be carried out in the Env. Lab of CMPDI(HQ)
- (v) Elemental analysis of the leachates prepared as in B (iii) above; run off / leachate from the washery rejects heaps and water samples from nearby streams shall be done in Environment Lab of CMPDI (HQ).

**(C) Data Interpretation & Report Preparation**

- (i) The analysis results shall be collated and data interpretation shall be done to see the trend if any.
- (ii) A report shall be prepared on the chance and amount of trace elements present in the washery rejects dumped and its likely impact on the water regime.

\*\*\*\*\*



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A MINI RATNA  
ISO 9001 COMPANY

**LEACHABILITY STUDY OF TRACE ELEMENTS  
FROM COAL WASHERY REJECTS OF BCCL & CCL**

**FOR**

**COAL INDIA LIMITED**

*(A Maharatna Company)*

**October 2017**

**Environment Division**

**Central Mine Planning & Design Institute Limited**

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## Executive Summary

The report titled “**Leachability Study of Trace Elements From Coal Washery Rejects of BCCL and CCL**” has been prepared for assessment of leachability of trace metals from washery rejects. The Toxicity Characteristics Leaching Procedure (TCLP) Test (USEPA, 1986) was conducted to simulate leaching of trace metals. The synthetic leachates were analysed for various trace elements and compared with the Primary Drinking Water Standards (PDWS) i.e. IS -10,500 and corresponding TCLP Limits. **The TCLP limit for an element has been taken as 100 times the corresponding value of PDWS.** The TCLP tests, conducted on washery rejects of Moonidih, Madhuband (BCCL), Kathara and Swang (CCL), show that only Iron (Fe) concentration in leachates ( prepared at pH 2.88 +/- 0.05) is more than the TCLP limits in all samples, whereas the Manganese (Mn) concentration in leachate (prepared at pH 2.88 +/- 0.05) exceeds the TCLP limits for Swang Washery Reject only. The analysis results indicate possibility of water pollution owing to higher concentration of iron and manganese in the leachate of washery rejects. The concentration of the rest of the trace elements (Arsenic, Selenium, Mercury, Copper, Zinc, Nickel, Cadmium, Lead, Chromium and Boron) are below the corresponding TCLP limits in leachate samples of all washery rejects.

In the light of this study, it is suggested that the physio-chemical analysis of washery rejects along with the leachate tests (TCLP) should be carried out before deciding about their mode of disposal with adequate control measures as coal is a heterogeneous material and reject generated from each washery may exhibit different characteristics. The actual condition of the ground water and surface water bodies around the reject dump has to be assessed by regular monitoring and comparison with baseline ground water quality data.

## 1.0 Genesis:

A meeting was held at CIL, Kolkata on 18.07.2017 to frame a “Uniform Reject Policy for CIL Washeries (Existing & Future)”. In this meeting, it was decided that CMPDI in association with subsidiary companies should undertake a short-term study for assessment of impact of washery rejects on water regime to facilitate framing the policy.

## 2.0 Methodology:

The ‘**Toxicity Characteristics Leaching Procedure (TCLP) Test**’ developed by United States Environmental Protection Agency (USEPA,1986) has been conducted on washery rejects to simulate leaching of trace elements and assess the long term leaching possibility. The synthetic leachates have been prepared from washery rejects by using two extraction fluids, one at pH 2.88 +/- 0.05 and another at pH 4.93 +/- 0.05 as per standard protocol given in Test Method 1311 of USEPA. The concentration of trace elements in synthetic leachates have been analysed by using Varian / Agilent make Atomic Absorption Spectrophotometer (AA -280 FS). The test results have been compared with the Primary Drinking Water Standards (PDWS) *i.e.* IS -10,500 and corresponding TCLP Limits. **The TCLP limit for an element has been taken as 100 times the corresponding value of PDWS.** The Drinking Water Standards (IS -10,500) and corresponding TCLP limits is presented in Table 1.0. (Reference: Assessment of leachability of trace heavy metals from ash ponds to ground water, CPCB Publication, May-2007).

**Table 1.0: Drinking water standards (IS:10500) and corresponding TCLP limits**

Metal	D.W. Standards (mg/l)	TCLP Limits (mg/l)	Metal	D.W. Standards (mg/l)	TCLP Limits (mg/l)
Arsenic(As)	0.01	1.0	Manganese Mn)	0.1	10.0
Boron(B)	0.5	50.0	Mercury (Hg)	0.001	0.1
Cadmium(Cd)	0.003	0.3	Lead (Pb)	0.01	1.0
Chromium (Cr)	0.05	5.0	Nickel (Ni)	0.02	2.0
Copper (Cu)	0.05	5.0	Selenium (Se)	0.01	1.0
Iron (Fe)	0.3	30.0	Zinc (Zn)	5.0	500.0

### 3.0 Sample Collection and Preparation:

The following coal washeries were selected for this study:

- (i) Moonidih Washery, BCCL
- (ii) Madhuband Washery, BCCL
- (iii) Kathara Washery, CCL
- (iv) Sawang washery, CCL

Coal reject and water samples were collected from these washeries as detailed in Table 2.0.

**Table 2.0: Details of Rejects and Water Samples**

Company	Washery	Date of Sampling	Reject Sample	Water Sample
BCCL	Moonidih Washery	08.08.17	1. Washery Coal Reject (From old dump)	1. From Settling Pond No.-01 2. Moonidih U/G Mine Water
BCCL	Madhubandd Washery	09.08.17	1. Washery Coal Reject (From dump No. 1501)	1. Reject Yard Water Sample 2. Pond Water (Near Reject Yard) 3. HandPump (Office Campus)
CCL	Kathara Coal Washery	10.08.17	1. Washery Coal Reject	
CCL	Sawang Coal Washery	10.8.17	1. Washery Coal Reject	

The above coal reject samples were subjected to coning and quartering and finally one kg of coal sample was carefully ground to 72 mesh in the Coal Preparation Laboratory of CMPDI. Two portions of each samples were made. One portion was sent to the Environment laboratory for conducting TCLP test and another portion to the Geo-Chemical laboratory for Proximate and Ultimate Analysis.

The water samples were collected in two portions. One portion was acidified with Nitric Acid for analysis of metals and another portion was used for analysis of rest of the parameters. The pH was measured at the site. The analysis of water samples were performed in the Environment Laboratory of CMPDI (HQ), Ranchi.

### 3.0 Analysis of Samples:

Coal reject samples were mixed with water in 1: 05 ratio (solid: water) and analysed for pH & Conductivity. Synthetic leachates prepared from the rejects as per Test Method 1311 of USEPA were analysed for trace elements in the Environment Laboratory. The rejects were also subjected to Proximate and Ultimate analysis in the Geo-Chemical Laboratory. Standard methods for analysis of various parameters were followed. The analysis results have been presented in Table 3.0 to 9.0.

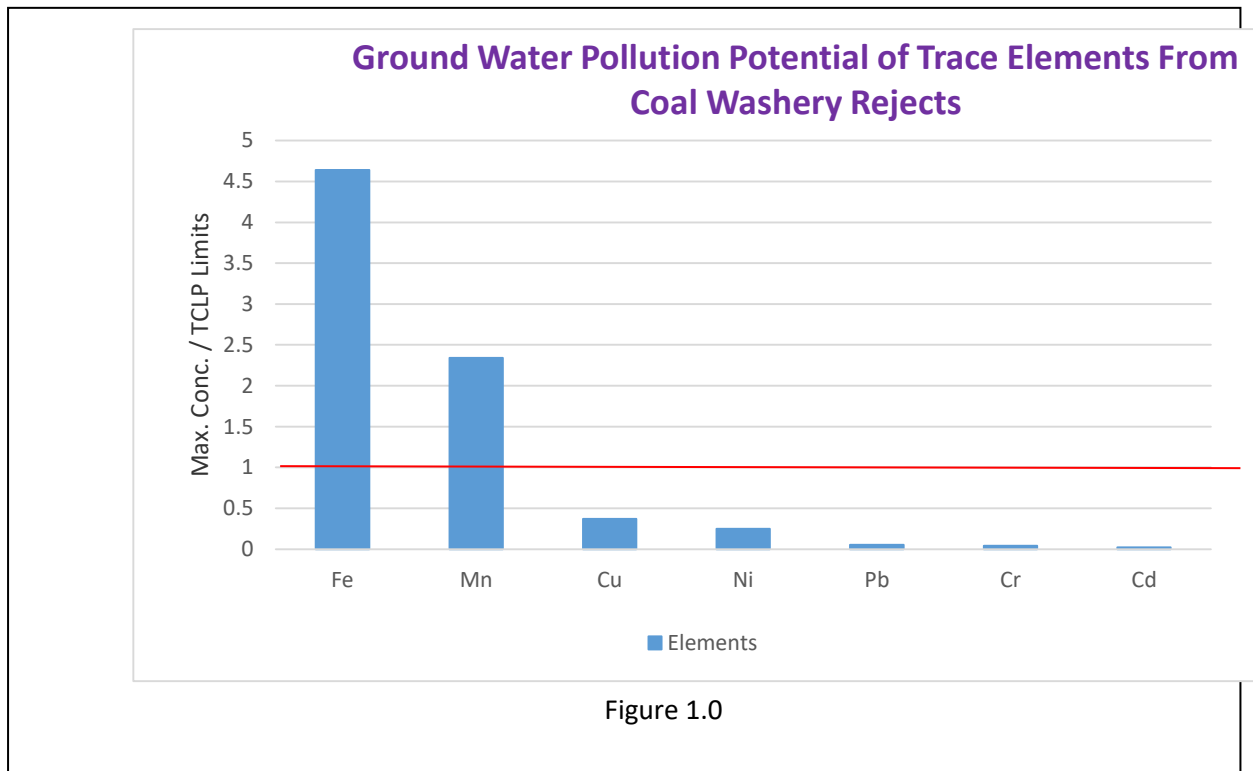
### 4.0 Interpretation of TCLP Test Results:

A close examination of the analysis results of the leachates prepared from washery rejects, presented in Table 3.0, reveal the followings:

- (i) The **pH** of the suspension formed from reject samples (solid: water:: 1:5) is in the range of 6.73 to 7.44. The pH value for the suspension obtained from Moonidih washery reject is weakly acidic whereas the values for the rest of the samples have been observed in slightly alkaline range. The pH indicate that the washery rejects contain mostly neutral ingredients or the substances which in contact with water almost produce neutral solutions.
- (ii) The **conductivity** of the suspension formed from reject samples (solid: water : : 1:5) have been found in the range of 35 to 202  $\mu\text{S}/\text{cm}$ . The older rejects of coking coal washeries of BCCL *i.e.* Moonidih and Madhubandd have lower conductivity values *i.e.* 35 and 95.7  $\mu\text{S}/\text{cm}$  respectively in comparison to coal washeries of CCL *i.e.* Swang and Kathara, showing conductivity values of 137 and 202  $\mu\text{S}/\text{cm}$ . Higher conductivity values indicate higher concentration of total dissolved solids. This indicates that with ageing/weathering, the soluble contents get removed from the rejects by the action of water.
- (iii) Two types of extraction fluids are used for preparation of leachates. One at pH  $2.88\pm 0.05$  and another at pH  $4.93\pm 0.05$ . Generally higher concentration of trace metals were observed in leachates prepared from extraction fluid having lower pH.
- (iv) The concentration of trace elements like **Arsenic (As), Selenium (Se) and Mercury (Hg)** has been found to be *Below Detection Limits (BDL)* in leachates prepared from both types of extraction fluids for all four washery reject samples.
- (v) The average concentration of trace elements in leachates are in the following order:  
**Fe > Mn > Zn > Cu > B > Ni > Cr > Pb > Cd**

- (vi) The concentration of Iron (Fe) and Manganese (Mn) in leachates samples is high (mean value Fe: 43.9 mg/l and Mn : 7.1mg/l). It indicates high concentration of water soluble Iron and Manganese salts in the rejects. The threshold limit for Fe and Mn is 0.3 and 0.1 mg/l respectively as per Drinking Water Standards (IS:10500). The corresponding TCLP limit is 30 and 10 mg/l respectively for Fe and Mn. TCLP tests indicates that Fe concentration in leachates prepared at pH  $2.88 \pm 0.05$  is more than the TCLP limits for all samples, whereas the Mn concentration exceed the TCLP limits for Swang Washery Reject only.
- (vii) The threshold limit for Copper (Cu) is 0.05 mg/l (IS:10500). The concentration of Cu is equal to or higher than the permissible Indian Standards for drinking water in 7 out of 08 leachate samples (87.5 %). The maximum value of copper in leachate sample is 1.86 mg/l, which is much below the TCLP limits.
- (viii) The threshold limit for Zinc (Zn) is 5.0 mg/l (IS:10500 Standards). The concentration of Zinc in all leachate samples have been found to be below the threshold value as per Drinking Water Standards.
- (ix) The concentration of **Nickel (Ni)** is more than the permissible value for drinking water in all leachate samples (IS: 10500). The maximum value of Nickel in leachate sample is 0.29 mg/l, which is quite below the TCLP limit of 2 mg/l.
- (x) **Cadmium (Cd), Lead (Pb) and Chromium (Cr)** are considered as highly toxic elements. The permissible limits as per IS:10500 are 0.003, 0.01 and 0.05 mg/l respectively. The concentration of Cd, Pb and Cr are equal to or higher than the threshold values in 3 out of 8 (37.5 %), 8 out of 8 (100 %) and 4 out of 8 (50 %) samples respectively. The maximum observed concentration of Cd, Pb and Cr in the leachates are 0.0058, 0.055 and 0.21mg/l respectively. These values are lower than the corresponding TCLP limits of 0.3, 1.0 and 5 mg/l.
- (xi) The permissible limits for **Boron** in drinking water is 0.5mg/l as per IS -10,500. The concentration of Boron is equal to or higher than the threshold value in 4 out of 8 (50 %) samples. The maximum concentration of Boron in leachate was observed as 0.7 mg/l, which is quite below the TCLP limit of 50 mg/l.

The potential of various trace metals to pollute ground water due to leaching from washery rejects has been presented by taking the ratio of Maximum Concentration of an element in the synthetic leachate and corresponding TCLP limits and the same has been depicted in Figure 1.0. If the ratio is more than 1, it indicates probability of ground water contamination.



### 5.0 Interpretation of Analysis Results of Water Samples:

- (i) The water sample collected from the Madhuband Reject Yard (Table 4.0), analysed as per MOEF Schedule–VI Standards, Class ‘A’, shows that all parameters are within limits.
- (ii) The Pond Water sample, located near the coal reject yard (Table 5.0), has been analysed as per IS:10500 Standards. It shows higher concentration of Fluoride, Total Hardness and Turbidity but the trace metal concentration are within the prescribed limits.
- (iii) The Madhuband Hand Pump water sample (Table 6.0), collected from the washery premises, shows higher concentration of Calcium, Iron, Lead, Sulphate, Total Alkalinity, Total Dissolved Solids and Total Hardness in comparison to the prescribed limits for Drinking Water Standards (IS:10500).
- (iv) The Moonidih U/G Mine Water (Table 7.0) and Moonidih Settling Pond Water sample (Table 8.0), analysed as per MOEF Schedule–VI Standards, Class ‘A’, show that all parameters are within the prescribed limits.

## 6.0 Impact of Keeping the Washery Rejects on the Land:

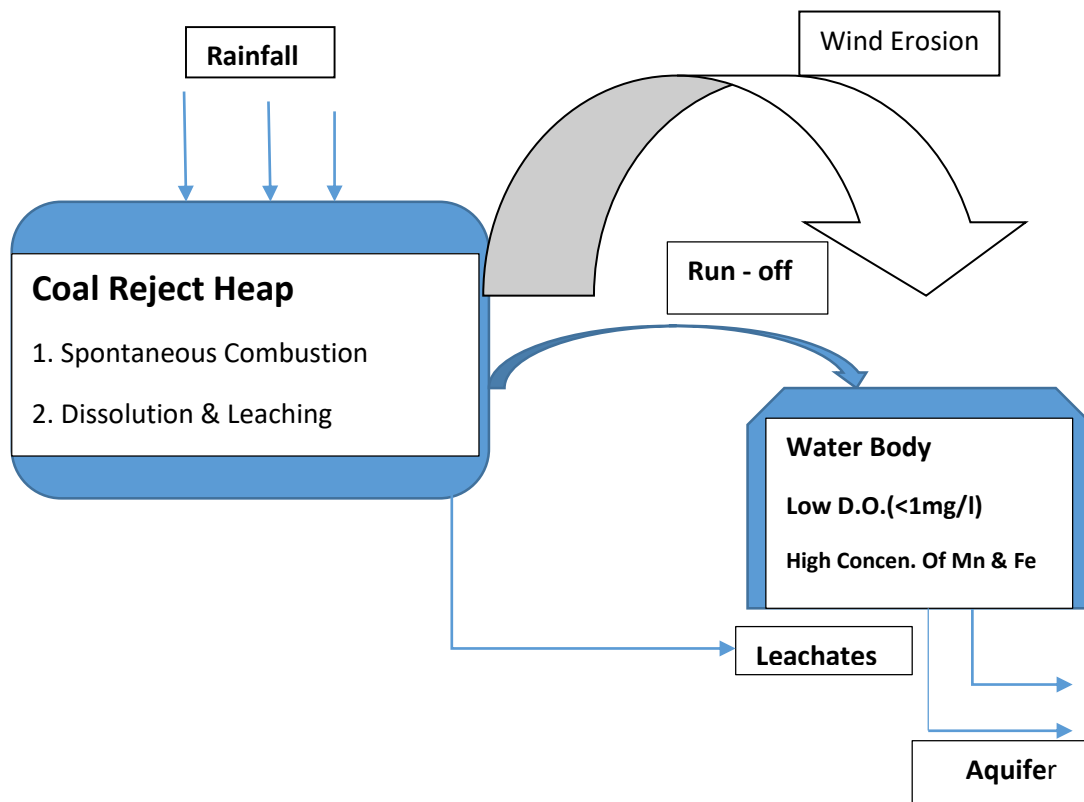
Washery rejects, kept on the land, interacts with air and water. Air contact may induce spontaneous combustion resulting in generation of various air pollutants. Trace metals in coal are either associated with organic or inorganic matrix. Metals, associated with organic matters, are generally not leached when they come in contact with water whereas inorganic portion gets leached relatively easily by action of water. Spontaneous combustion in reject heaps results in destruction of complex organic matrix and increase in *in-situ* temperature of the dump and it finally leads to faster leaching of trace metals. Leachates containing Iron and Manganese may enter the surface water bodies including nearby abandoned mine voids. Iron and Manganese exist in variable oxidation states *i.e.* Fe<sup>(2+)</sup>, Fe<sup>(3+)</sup>, Mn<sup>(2+)</sup> and Mn<sup>(4+)</sup>. Dissolved oxygen content is generally lower (<1 mg/l) in the bottom of the water bodies and ground water. Anaerobic condition facilitates conversion of these metals to lower oxidation states. Both Iron and Manganese compounds have higher solubility in water if Dissolved Oxygen content is less than 1 mg/l. Seepage from the water bodies may increase the concentration of these metals in the ground water. It may be prevented by taking suitable measures which may include the followings:

- (i) Reduction in volume of reject generation by washing non coking coal with more than 34% ash content depending upon its feasibility. It will also reduce the Carbon contents in the rejects and may help in controlling spontaneous combustion. This will help in controlling air and water pollution arising out of washery reject disposal.
- (ii) Use of suitable chemical inhibitors for controlling the spontaneous combustion.
- (iii) Providing a suitable cover over the reject heap both during progressive dumping and on final closure of the site.
- (iv) Run-off from the reject dumps should be passed through a settling pond for arresting Total Suspended Solids (TSS). A garland drain around the dump may be provided for this purpose. The trace metal contents in the output of the settling tank may be removed through **phytoremediation**.
- (v) Reject heaps may be covered with inert materials and top soil for biological reclamation using native varieties of plant species. Suitable species of plants may be grown for **phytoremediation**.

The movement of trace elements from reject heaps to ground water has been shown in Figure 2.0.

## 7.0 Impact of Keeping the Washery Rejects in Mine Void:

Washery rejects, if kept in a mine void, may interact with water and generate leachates having Fe, Mn and other metals. High concentration of Fe and Mn in leachate is expected due to prevailing anaerobic condition. The contamination of ground water may be controlled by using suitable liners if required. The actual condition of the ground water has to be assessed by regular monitoring and comparison with baseline data.



**Figure 2.0: Movement of Trace Elements from Coal Reject Dumps**

## 8.0 Conclusion:

On the basis of the leachate test carried out for washery rejects for a few samples (04 Nos), the following conclusion may be drawn:

- (i) Leachates generated from Washery Rejects show high concentration of Iron (Fe), Manganese (Mn) and other trace elements in comparison to Drinking water Standards (IS:10500). Only Iron (Fe) concentration in leachates prepared at pH  $2.88 \pm 0.05$  is more than the TCLP limits for all samples, whereas the Manganese (Mn) concentration exceed the TCLP limits for Swang Washery Reject only.
- (ii) *The physio-chemical analysis of washery rejects along with the leachate (TCLP) tests should be carried out before deciding about their mode of disposal with adequate control measures as coal is a heterogeneous material and reject generated from each washery may exhibit different characteristics. The actual condition of the ground water and surface water bodies around the reject dump has to be assessed by regular monitoring and comparison with baseline data.*

**Table: 3.0 : Concentration of Trace Elements in Leachates Prepared from Washery Rejects (mg/l)**

Sample Identity	pH of Extraction Fluid	Concentration of Trace Elements in Leachates Prepared from Washery Rejects (mg/l)											pH	Conductivity, (µS/cm)	
		Cr	Mn	Fe	Zn	Ni	Cu	Cd	Pb	B	Se	As			Hg
<b>Moonidih Reject</b> S = 0.55%	4.93±0.05	<0.04	2.6	0.23	0.38	0.12	<0.03	0.0023	0.031	0.5	<0.002	<0.002	<0.0005	6.73	35
	2.88±0.05	0.15	3.53	84.4	1.57	0.21	0.27	0.0026	0.047	0.6	<0.002	<0.002	<0.0005		
<b>Madhuband Reject</b> S = 0.24%	4.93±0.05	<0.04	5.4	0.95	2.16	0.11	0.25	0.0024	0.029	0.1	<0.002	<0.002	<0.0005	7.09	95.7
	2.88±0.05	0.09	6.81	76.35	3.35	0.17	1.59	0.0028	0.031	0.3	<0.002	<0.002	<0.0005		
<b>Swang Reject</b> S = 2.27 %	4.93±0.05	<0.04	9.12	0.99	1.35	0.26	0.09	0.0037	0.053	0.5	<0.002	<0.002	<0.0005	7.08	137.3
	2.88±0.05	0.05	23.4	139.17	2.07	0.4	0.10	0.0058	0.055	0.4	<0.002	<0.002	<0.0005		
<b>Kathara Reject</b> S =0.18%	4.93±0.05	<0.04	2.49	0.37	0.83	0.29	0.32	0.0023	0.034	0.4	<0.002	<0.002	<0.0005	7.44	202
	2.88±0.05	0.21	3.65	49.12	2.53	0.5	1.86	0.0032	0.037	0.7	<0.002	<0.002	<0.0005		
<b>Range</b>		0.04 to 0.21	2.49 to 23.4	0.23 to 139.7	0.38 to 3.35	0.11 to 0.50	0.03 to 1.86	0.0023 to 0.0058	0.029 to 0.055	0.1 to 0.7	<0.002	<0.002	<0.0005	-	-
<b>Mean Concentration</b>		<b>0.08</b>	<b>7.12</b>	<b>43.94</b>	1.78	<b>0.26</b>	<b>0.56</b>	<b>0.0031</b>	<b>0.039</b>	0.44	<0.002	<0.002	<0.0005	-	-
<b>Maximum Concentration [A]</b>		0.21	23.4	139.17	3.35	0.5	1.86	0.0058	0.055	0.7	<0.002	<0.002	<0.0005	-	-
<b>Drinking Water Standards (IS -10,500)</b>		0.05	0.1	0.3	5.0	0.02	0.05	0.003	0.01	0.5	0.01	0.01	0.001	-	-
<b>TCLP Limits [B]</b>		5.0	10	30	500	2.0	5.0	0.3	1.0	50	1.0	1.0	0.1	-	-
<b>[A/B]</b>		0.042	<b>2.34</b>	<b>4.64</b>	0.007	0.25	0.37	0.02	0.055	0.014	<0.002	<0.002	<0.005	-	-



**Table: 5.0: TEST REPORT**

<b>2017/09/Test Report No. 2</b>	<b>Job No.</b>	<b>Year</b>	<b>2017-18</b>
Type of Sample:	<b>Drinking Water</b>	Quarter Ending	<b>August '17</b>
Customer / W.O. no. & Date:	CCL	Date of Receipt of Sample:	08.08.17
Mode of Receipt of Sample:	Picked up sample by laboratory	Date of Analysis:	08.08.17-16.08.17
Testing Protocol:	<b>IS:10500 Drinking Water Standards</b>	Date of Reporting:	16.08.17
Remarks & Observation:	Samples received in 2 ltr plastic Jerri cane, Colour as observed is transparent	Date of Issue:	As per the date of Emailing to the Customer

**TEST RESULT**

The sample has been tested with the following results:-

**Area :** Madhuband **Project:** Madhuband Washery  
**Stations:** 1. Pond Water (Reject Yard) **Date of Sampling:** 08.08.17

SLNo	Parameter	Sampling Stations			Detection Limit	IS:10500 Drinking Water Standards	Standard / Test Method
		1	2	3			
1	Cadmium (as Cd), mg/l, Max	0.0008			0.0005	0.003	APHA, 22 <sup>nd</sup> Edition, AAS-GTA
2	Calcium (as Ca), mg/l, Max	51.2			1.60	75	IS-3025/40:1991, EDTA
3	Chloride (as Cl), mg/l, Max	30			2.00	250	IS-3025/32:1988, R-2007, Argentometric
4	Copper (as Cu), mg/l, Max	<0.03			0.03	0.05	IS 3025/42 : 1992R : 2009, AAS-Flame
5	Fluoride (as F) mg/l, Max	<b>1.32</b>			0.02	1.0	APHA, 22 <sup>nd</sup> Edition , SPADNS
6	Iron (as Fe), mg/l, Max	<0.06			0.06	0.3	IS 3025 /53 : 2003,R : 2009 , AAS-Flame
7	Lead (as Pb), mg/l, Max	0.013			0.005	0.01	APHA, 22 <sup>nd</sup> Edition, AAS-GTA
8	Manganese (as Mn), mg/l, Max	<0.02			0.02	0.1	IS-3025/59:2006,AAS-Flame
9	Nickel (as Ni), mg/l, Max	<0.01			0.01	0.02	IS-3025/54:2003, AAS-Flame
10	Nitrate (as NO <sub>3</sub> ), mg/l, Max	0.80			0.5	45	APHA, 22 <sup>nd</sup> Edition,UV-Spectrophotometric
11	Odour	Agreeable			Qualitative	Agreeable	IS 3025 /05:1983, R-2012, Qualitative
12	pH value	7.64			0.2	6.5 to 8.5	IS-3025/11:1983, R-1996, Electrometric
13	Selenium (as Se), mg/l, Max	<0.002			0.002	0.01	APHA, 22 <sup>nd</sup> Edition, AAS-GTA
14	Sulphate (as SO <sub>4</sub> ) mg/l, Max	104			2.00	200	APHA, 22 <sup>nd</sup> Edition. Turbidity
15	Total Alkalinity (c <sub>a</sub> CO <sub>3</sub> ), mg/l, Max	60			4.00	200	IS-3025/23:1986, Titration
16	Total Arsenic (as As), mg/l, Max	<0.002			0.002	0.01	IS 3025/ 37:1988 R : 2003, AAS-VGA
17	Total Chromium (as Cr), mg/l, Max	<0.04			0.04	0.05	IS-3025/52:2003, AAS-Flame
18	Total Dissolved Solids, mg/l, Max	416			25.00	500	IS 3025 /16:1984 R : 2006, Gravimetric
19	Total Hardness (c <sub>a</sub> CO <sub>3</sub> ), mg/l, Max	<b>232</b>			4.00	200	IS-3025/21:1983, R-2002, EDTA
20	Turbidity, NTU, Max	<b>16</b>			1.0	1	IS-3025/10:1984 R-1996, Nephelometric
21	Zinc (as Zn), mg/l, Max	<0.01			0.01	5.0	IS 3025/ 49 : 1994, R : 2009, AAS-Flame





**Table: 8.0: TEST REPORT**

<b>2017/09/Test Report No. 5</b>	<b>Job No.</b>	<b>Year</b>	<b>2017-18</b>
Type of Sample:	<b>Effluent Water</b>	Month Ending	<b>August '17</b>
Customer / W.O. no. & Date:	BCCL	Date of Receipt of Sample:	08.08.17
Mode of Receipt of Sample:	Picked up sample by laboratory	Date of Analysis:	08.08.17-16.08.17
Testing Protocol:	<b>MOEF -SCH-VI STANDARDS, Class 'A'</b>	Date of Reporting:	16.08.17
Remarks & Observation:	Samples received in 2 ltr plastic Jerri cane, Colour as observed is transparent	Date of Issue:	As per the date of Emailing to the Customer

**TEST RESULT**

The sample has been tested with the following results:-

**Area :** Moonidih **Project:** Moonidih Washery  
**Stations:** 1. Moonidih Settling Pond No. - 1 **Date of Sampling:** 08.08.17

Sl.No.	Parameter	Sampling Stations			Detection Limit	MOEF -SCH-VI STANDARDS Class 'A'	BIS Standard & Method
		1	2	3			
1	Arsenic (as As), mg/l, Max	<0.002			0.002	0.2	IS 3025/37:1988 R : 2003, AAS-VGA
2	Cadmium(as Cd), mg/l, Max	0.0008			0.0005	2.0	APHA, 22 <sup>nd</sup> Edition, AAS-GTA
3	COD, mg/l, Max	16			4.00	250.0	APHA, 22 <sup>nd</sup> Edition, Closed Reflux, Titrimetric
4	Copper (as Cu), mg/l, Max	<0.03			0.03	3.0	IS 3025/42: 1992 R : 2009, AAS-Flame
5	Fluoride (as F) mg/l, Max	0.80			0.02	2.0	APHA, 22 <sup>nd</sup> Edition, SPADNS
6	Iron (as Fe), mg/l, Max	<0.06			0.06	3.0	IS 3025 /53 : 2003, R : 2009 , AAS-Flame
7	Lead (as Pb), mg/l, Max	0.006			0.005	0.1	APHA, 22 <sup>nd</sup> Edition, AAS-GTA
8	Manganese(as Mn), mg/l, Max	<0.02			0.02	2.0	IS-3025/59:2006, AAS-Flame
9	Nickel (as Ni), mg/l, Max	<0.01			0.01	3.0	IS-3025/54:2003, AAS-Flame
10	Nitrate Nitrogen, mg/l, Max	0.5			0.50	10.0	APHA, 22 <sup>nd</sup> Edition, UV-Spectrophotometric
11	pH value	8.42			0.2	5.5 to 9.0	IS-3025/11:1983, R-1996, Electrometric
12	Selenium (as Se), mg/l, Max	<0.002			0.002	0.05	APHA, 22 <sup>nd</sup> Edition, AAS-GTA
13	Total Chromium (as Cr), mg/l, Max	<0.04			0.04	2.0	IS-3025/52:2003, AAS-Flame
14	Total Suspended Solids, mg/l, Max	66			10.00	100.0	IS 3025/17:1984, R :1996, Gravimetric
15	Zinc (as Zn), mg/l, Max	<0.01			0.01	5.0	IS 3025 /49 : 1994, R : 2009, AAS-Flame

**Table 9.0: Proximate & Ultimate Analysis Results of Coal Samples**

		<b>भू-साधन प्रयोगशाला विभाग</b> <b>सी.एन.पी.डी.आई. (मुकुटवालय) रांची</b>										NABL Accredited T-4328	
TEST REPORT NO: सीएनपीडीआई/सीटी/2017/		दिनांक 14.09.2017		PAGE 1 TO 3									
JOB NO./APPLIED FOR:		CUSTOMER: CMP WASHERY CNPDI HQ				WORK ORDER RE: Eay/VKP/5.04.2017/1.							
SAMPLE NAME SEAM OVERALL:		SAMPLE RECEIPT DATE 04.09.2017.											
Sl. NO	SAMPNO	BASIS	PROXIMATE ANALYSIS					ULTIMATE ANALYSIS					
			M%	ASH%	VM%	FC%	GCV	C%	H%	N%	S%		
1	Mathubond, Raw Coal-1	AR	1.62	32.34	21.73	44.30	5234	AR	56.06	3.18	0.76	0.74	
								DMF	89.17	5.06	1.21	0.94	
2	Sewang Coal, Reject-2	AR	1.60	71.86	16.52	10.03	1327	AR	16.17	1.01	0.43	2.27	
								DMF	80.23	5.20	2.21	1.11	
3	Moonidih, Raw Coal-3	AR	1.57	18.79	23.52	56.11	6898	AR	68.41	3.91	0.62	0.36	
								DMF	88.02	5.03	0.80	0.37	
4	Mathubond, Old Reject-4	AR	1.83	67.57	15.04	15.95	1654	AR	20.73	1.22	0.32	0.24	
								DMF	87.17	5.12	1.34	0.80	
5	Mooseidih, Washed Coal-5	AR	1.70	18.77	23.33	56.19	6683	AR	68.09	3.90	0.56	0.41	
								DMF	89.01	5.03	0.72	0.42	
6	Mathubond, End Product-6	AR	1.15	40.02	18.04	40.78	6716	AR	49.09	2.75	1.14	0.31	
								DMF	89.58	5.02	2.08	0.45	
7	Moonidih Reject Coal-7	AR	1.47	31.05	21.94	45.53	5612	AR	57.26	3.27	1.56	0.55	
								DMF	89.06	5.09	2.12	0.68	
8	Kathara, Reject-8	AR	1.20	62.88	17.83	18.08	2281	AR	26.27	1.52	0.63	0.18	
								DMF	88.78	5.13	2.16	0.49	
9	Mathubond, Washed Coal-9	AR	1.66	18.85	23.10	56.39	6668	AR	68.73	3.90	1.68	0.90	
								DMF	88.53	5.02	2.16	0.82	
10	Moonidih Power Coal-10	AR	1.27	39.90	20.73	38.11	6666	AR	48.55	2.78	1.24	0.71	
								DMF	88.58	5.07	2.26	1.03	

Note:

a) CNPDI (CT&Lab) will not retain these samples after a period of three months from the date of receipt of samples at your end.

b) Analysis carried out as per IS 1350 Part 1, 1984 (Revised 2013) IS 1350 Part 2:1970 (Revised 2013) ASTM D3885-09

Date: 15/9/17  
 Checked by: [Signature]

[Signature] 15/9/17  
 AUTHORIZED REPRESENTATIVE

## ANNEXURE - X

### List of Attendees in 3<sup>rd</sup> and final meeting of the Committee for formulation of a Uniform Policy for Disposal and Utilisation of rejects generated from CIL Washeries (Existing & Future)

Sl	Name	Company	Designation	
1	Mr Subir Chandra	CCL	Director (Technical)/Operations	Chairman of committee
2	Mr M K Singh	CIL	General Manager (PMD)	Member
3	Mr B K Dey	CMPDI	General Manager (CMP)	Member
4	Dr Anurag Garg	CIL	General Manager (M&S)	Member Representative *
5	Mr A K Ojha	CCL	General Manager (Ws)	Invitee
6	Mr C Vinod Kumar	CCL	Chief Manager (CP)	Invitee
7	Mr A P Swarnakar	CCL	Chief Manager (CP)	Invitee
8	Mr Soumitra Singh	CCL	Chief Manager (Env)	Invitee
9	Mr R Talapatra	CIL	Senior Manager (CP)	Invitee
10	Mrs Suchandra Sinha	CMPDI	Senior Manager (E&M)	Spl Invitee
11	Dr Vinita Arora	CMPDI	Senior Manager (Env)	Spl Invitee
12	Mr P C Jha	CMPDI	Senior Manager (Env)	Invitee
13	Mr V K Pandey	CMPDI	Senior Manager (Env)	Invitee
14	Mr A Anand	CMPDI	Deputy Manager (CP)	Invitee

\* In place of original member Mr Rajesh Bhushan, General Manager (M&S), CIL

**REFERENCE LIST FOR THYSSENKRUPP INDUSTRIES INDIA LTD. (TKIIL)****BOILER AND POWER PLANT DIVISION****CFBC BOILERS IN OPERATION**

Client and location of Plant	Consultant	No. of units	Steam Parameters Capacity / Press / Temp TPH / bar / Deg. C.	Fuel
Tata Chemicals Ltd. Mithapur, Gujarat	--	1	200 / 112 / 565	Petcoke / Lignite / Coal
Nava Bharat Ferro Alloys (Unit No.1) Paloncha, Andhra Pradesh.	Desein Pvt. Ltd, New Delhi	1	151 / 91 / 530	<b>Coal</b> having 55% ash and 3000 GCV
Hindalco Industries Ltd., (Unit Birla Copper) Dahej, Gujarat	Desein Pvt. Ltd, New Delhi	1	151 / 67 / 500	Lignite / Coal
Bihar Caustic & Chemicals Ltd. Garhwa Road, Jharkhand	Development Consultants Pvt. Ltd., Kolkata	1	135 / 65 / 485	Coal
Nava Bharat Ferro Alloys (Unit No.2) Paloncha, Andhra Pradesh.	Desein Pvt. Ltd, New Delhi	1	151 / 91 / 530	<b>Coal</b> having 55% ash and 3000 GCV
Hindalco Industries Ltd., (Unit Birla Copper) Dahej, Gujarat	TCE Consulting Engrs Bangalore,	2	150 / 95 / 535	Coal
Hindalco Industries Ltd. (Formerly INDAL) Hirakud, Orissa	Development Consultants Pvt. Ltd., Kolkata	3	155 / 90.2 / 515	Coal
HEG Ltd. (Graphite Division) Mandideep, Near Bhopal, M. P.	Development Consultants Pvt. Ltd., Kolkata	1	140 / 66 / 485	Coal
Hindalco Industries Ltd. (Formerly INDAL) Hirakud, Orissa (1 <sup>st</sup> Repeat Order)	Development Consultants Pvt. Ltd., Kolkata	3	155 / 90.2 / 515	Coal
JaiPrakash Associates Ltd., Rewa, Madhya Pradesh	Avant-Garde, Chennai, HOLTEC-Delhi	1	170 / 87 / 515	Coal / Washery Rejects / Pet Coke
Tata Chemicals Ltd, Mithapur, Gujarat.	L&T- S.L.	1	220 / 114 / 530	Coal / Lignite / Petcoke
Hindalco Industries Ltd. (Formerly INDAL) Hirakud, Orissa ( 2 <sup>nd</sup> Repeat Order)	Development Consultants Pvt. Ltd., Kolkata	3	165 / 90.2 / 515	Coal
Ultratech Cement Ltd. (erstwhile Jaypee Group) Bhuj Gujarat (1 <sup>st</sup> Repeat Order)	Avant-Garde, Chennai, HOLTEC-Delhi	1	170 / 87 / 515	Coal / Lignite / Petcoke
Aditya Cement Ltd. Chittorgarh, Rajasthan	Fichtner Consulting Engineers Pvt Ltd.	2	115 / 98.07 / 540	Coal / Lignite / Petcoke
Saurashtra Chemicals Ltd. (Nirma Group) Porbandar, Gujarat.	Jacobs H&G Pvt Ltd Mumbai.	1	120 / 105 / 510	Coal / Lignite / US Petcoke

Client and location of Plant	Consultant	No. of units	Steam Parameters Capacity / Press / Temp TPH / bar / Deg. C.	Fuel
Saurashtra Chemicals Ltd. (Nirma Group) Porbandar, Gujarat. (Repeat order)	Jacobs H&G Pvt Ltd Mumbai.	1	120 / 105 / 510	Coal / Lignite / US Petcoke
Ultratech Cement Ltd. Tadipatri, Andhra Pradesh	Fichtner Consulting Engineers Pvt Ltd	2	115 / 98.07 / 540	Washery Rejects having 58 - 60 % ash and 2500 kcal/kg GCV. / Petcoke / Indian Coal
HEG Ltd. (Graphite Division) Mandideep, Near Bhopal, M. P. (Repeat Order)	Development Consultants Pvt. Ltd., Kolkata	1	140 / 66 / 485	Coal
Ultratech Cement Ltd. (erstwhile Jaypee Group) Balaji, Andhra Pradesh (2 <sup>nd</sup> Repeat Order)	Avant-Garde, Chennai, HOLTEC- Delhi	1	170 / 87 / 515	Coal / Lignite / Petcoke
Gupta Energy Pvt. Ltd. Chandrapur, Maharashtra	HIQ Consultants, Chennai	2	250/ 97/ 540	Indian Coal + Washery Rejects having 58 - 60 % ash and 2500 kcal/kg GCV.
Facor Power Limited Bhadrak Orissa	Fichtner Consulting Engineers Mumbai	3	155/100/540	Indian Coal having 3500 kcal/kg GCV and 45 % ash.
Monnet Ispat and Energy Limited Naharpali, Raigarh Chattisgarh	Desein Pvt. Ltd, New Delhi	1	336 / 95/ 540	Washery rejects having 52 – 55 % ash and 250 kcal/kg GCV
Action Ispat and Power Pvt. Ltd.	Desein Pvt. Ltd, New Delhi	2	185 / 92 / 523	Washery Rejects
The India Cements Limited (1 x 48 MW EPC Project)	MN Dastur & Company Pvt. Ltd.	2	115 / 100 / 540	Indian Coal / Imported coal
Bajaj Infrastructure Dev. Com. Pvt. Ltd.	--	6	190 / 110 / 540	Indian Coal / Imported Coal
Bhushan Power and Steel Limited Sambalpur, Orissa	Development Consultants Pvt. Ltd., Kolkata	1	390 / 105 / 535	Washery rejects / Char
ANRAK Aluminium Limited (3 x 74.6 MW BTG)	MN Dastur & Company Pvt. Ltd.	3	315 / 112 / 540	Indian Coal
Bhushan Steel Limited Meramandali, Angul Orissa	Desein Pvt. Ltd, New Delhi	2	275 / 105 / 545	Washery rejects / Char
Ultratech Cement Ltd. Tadipatri, Andhra Pradesh	Avant Garde Chennai / Holtec Consulting Engineers Ltd, Gurgaon	2	115 / 112 / 540	Washery Rejects / Petcoke / Indian Coal

Client and location of Plant	Consultant	No. of units	Steam Parameters Capacity / Press / Temp TPH / bar / Deg. C.	Fuel
Hindalco Industries Ltd.	Development Consultants Pvt. Ltd., Kolkata	2	165 / 90.2 / 515	Indian Coal
Star Cement Meghalaya Limited	--	2	90 / 92 / 525	Indian Coal
Bhushan Power and Steel Ltd.	---	1	340 / 105 / 535	Washery Rejects
Shyam SEL Ltd.	--	1	135 / 92 / 525	Indian Coal / Char / Washery Rejects
Orient Cement Ltd. (1 x 45 MW EPC Project), Chittapur, Gulburga	Holtec Engineers Consulting Ltd, Gurgaon	2	94 / 110 / 540	Indian Coal

**Total no. of installations: 60 units**

**REFERENCE LIST FOR THYSSENKRUPP INDUSTRIES INDIA LTD. (TKIIL)**

**BOILER AND POWER PLANT DIVISION**

**CFBC BOILERS UNDER EXECUTION**

<b>Client and location of Plant</b>	<b>Consultant</b>	<b>No. of units</b>	<b>Steam Parameters Capacity / Press / Temp TPH / bar / Deg. C.</b>	<b>Fuel</b>
Bhushan Steel Limited Meramandali, Angul Orissa	Desein Pvt. Ltd, New Delhi	1	275 / 105 / 545	Washery rejects / Char
Concast Steel & Power Ltd. Jharsuguda , Odisha (erstwhile SPS Steel and Power Ltd.)	Avant-Garde, Chennai,	1	180 / 110 / 540	Indian Coal / Washery Rejects / Char
CEPALCO Balingasag, Philippines	---	3	220 / 93 / 515	Semirara Coal
Bhushan Power & Steel Limited Jharsuguda	---	1	250 / 88 / 520	Washery Rejects / Char
PT Megadaya Tangguh, Indonesia (2 x 30 MW EPC Project)	---	2	130 / 100 / 535	Indonesian Coal
Andhra Sugars Ltd. (1 x 30 MW EPC Project), Rajahmundry, Telangana	---	1	135 / 110 / 540	Imported coal, Indian Coal, Singareni Coal, Chile Coal, Washery Rejects, Rice Husk
Gulf Cement company (GCC Ltd.) Ras- Al-Khaimah	ERCOM, Delhi	1	90 / 14 / 345	South African coal

**Total no. of installations: 10 units**

**REFERENCE LIST FOR THYSSENKRUPP INDUSTRIES INDIA LTD. (TKIIL)**  
**BOILER AND POWER PLANT DIVISION**

**WASTE HEAT RECOVERY BASED PROJECTS HANDLED**

Client and location of Plant	Consultant	No. of units	Steam Parameters Capacity / Press / Temp TPH / bar / Deg. C.	Fuel
Sathavahana Ispat Ltd. Hyderabad. Andhra Pradesh	Nil	1	120 / 98 / 540	Waste Recovery Heat
Concast Steel Ltd. (erstwhile SPS Steel and Power Ltd.)	Avant-Garde, Chennai,	10	2 x 35 / 110 / 540 And 8 x 10 / 110 / 540	Waste Recovery Heat
Gulf Cement Ltd. Ras-Al Khaimah, Dubai on EPC Basis	ERCOM, Delhi	5	2 Nos. PH + 2 Nos. AQC + 1 No. HRSG	Waste Heat from Cement Kiln + GT exhaust
Sagar Cements Ltd.		2	1 no. PH and 1 no. AQC	Waste Heat from Cement Kiln

**Total no. of Units : 18**

**DISPOSAL OF COAL WASHERY REJECT BY MCL**  
**FOR ALL PROPOSED WASHERIES IN THE COMMAND AREA OF MCL**

MCL has planned to set-up the following four (4) washeries under phase-1 of CIL on Build-Operate-Maintain (BOM) Concept:

1. Hingula Washery (in Talchar Coalfield)- 10 Mtpa Capacity
2. Jagannath Washery (in Talchar Coalfield)- 10 Mtpa Capacity
3. Ib-Valley washery at Lakhanpur (in Ib-valley Coalfield)-10 Mtpa Capacity
4. Basundhara Washery (in Ib-valley Coalfield)-10 Mtpa Capacity

**Total Capacity – 40 Mtpa**

Rejects generated from the above proposed four washeries of MCL under phase-1 is about 25% of Raw coal throughput capacity. GCV/Heat content of washery rejects depends largely on ash content in raw coal, desired ash% of Washed Coal and technique of washing etc.

The rejects of washery having an average GCV of about 1500 Kcal/Kg (ie within the range of 1200-1700 Kcal/Kg) can be gainfully utilized for generation of power through Fluidised-Bed Combustion (FBC). Considering this and life of washery as about 25 years, MCL has kept the following priority wise options for utilisation /disposal of washery rejects for all the four upcoming washeries under Phase-1 throughout its period of operation:

- a) 1<sup>st</sup> Option (Utilisation of rejects in FBC Plant):- CIL & NTPC had formed a joint Venture Company namely CIL-NTPC Urja Private Limited (CNUPL). CNUPL in its 27<sup>th</sup> Board Meeting held on 26.04.2016, has decided for setting up of Fluidized Bed Combustion (FBC) based power plants using rejects from existing/upcoming Coal washeries of Subsidiaries of Coal India Limited (CIL). First of all, MCL will try to utilize the washery rejects in the FBC based power plants to be set-up by CNUPL.
- b) 2<sup>nd</sup> Option (disposal through e-auction or MoU Route): - Till FBC Plants is set-up, in light of the decision of MCL Board Meetings held on 11.07.2013 & 05.02.2014, the reject will be disposed off to the prospective buyers either through e-auction or MoU Route.  
As setting-up of FBC plants by JV of CIL-NTPC is the first priority for utilizing rejects of upcoming washeries of MCL and without knowing the firm time frame of commercial operation of the Washery & availability of rejects, its exact quantity and quality, it may not be feasible to arrive at the base price of the rejects and enter into the MoU with prospective buyers. Hence, MOU with buyers may be done at a later stage.  
In this context, MCL would like to state that a Request for Expression of Interest (REOI) was invited in Jan,2014 by MCL to know the interest of the prospective consumers who have their own plants or likely to set-up the same to purchase the rejects from the proposed four washeries of MCL for their captive use.
- c) 3<sup>rd</sup> Option (Backfilling in mine voids) :- If the Ash content in the reject is very high or GCV is low and thus not usable in FBC power plant or not saleable through e-auction or MoU Route, then the washery rejects will be dumped in the nearby mine voids identified by MCL in an **ENVIRONMENTAL FRIENDLY MANNER.**

This methodology will be applicable to all future washeries in MCL.

## **SECL'S COMMENTS ON DRAFT POLICY ON UTILISATION OF WASHERY REJECTS FOR CIL WASHERIES (EXISTING AND FUTURE)**

The record notes of the meeting of Committee for formulation of a Uniform Reject Policy for CIL Washeries (Existing & Future) held on 18.7.17 at CIL Hq was received via e-mail for comments from the GM (Washeries) of the subsidiaries on the document prepared by GM (CMP),CMPDIL.

***Definition of Rejects-*** *Coal washery 'Rejects' is a washery by-product, it is either a secondary or tertiary product of coal washing plants with GCV less than that of lowest GCV grade of coal determined from time to time (currently it is 2200 Kcal/kg).*

The policy discusses possibilities of reducing the quantity of rejects produced from the washeries by supplying higher ash% washed coal (say 36%-37%) if acceptable to power Plants. To achieve this, relaxation of the present MOEF guidelines for limit of ash% (34%) of washed coal to power plants beyond 500 kms is to be effected first.

Another possibility discussed in the draft document was to produce lower ash% washed coal (say 25%-30%) so that the GCV value of second product is improved and it falls under graded GCV category, making it a saleable product. ***Production of lower ash washed coal may involve additional washing processes and lower yield %, which will increase the selling price of washed coal. The Power plants may not agree to buy washed coal at increased price in absence of any MOEF constraints, when 34% ash washed coal is suitable for both from boiler design and MOEF requirements.***

### **Comments on alternatives proposed on utilization of rejects in the draft policy**

- a) **Utilization of rejects through FBC based Power Plant** :- In the proposed document, Rejects have been classified based on GCV range from 1000-2200 kcal/kg with a band width of 300 kcal/kg as

FBC1-1901-2200Kcal/kg

FBC2=1601-1900 Kcal/kg

FBC3= 1301-1600 Kcal/kg

FBC4= 1000-1300Kcal/kg

However, as per the discussion held with NTPC officials at SECL Hqrs, FBC based power plants require coal with GCV in excess of 1800Kcal/kg. So, classification of rejects as mentioned above may not be appropriate since rejects falling under FBC grade III & IV have GCV range 1000-1600 Kcal/kg which are not suitable for direct use in FBC based power plants.

***Instead, the Rejects generated from the washeries may be classified under bands R1 to R4 based on calorific value of the rejects as mentioned in the office memorandum of MOC, dtd.07.11.14***

***R1-1901-2200Kcal/kg***

***R2=1601-1900 Kcal/kg***

***R3= 1301-1600 Kcal/kg***

**R4= 1000-1300Kcal/kg**

***It is also suggested that the price of washery rejects/by products may be finalized on the basis of above GCV bands and be included in the reject policy document.***

It has been proposed in the draft document that rejects generated from washeries may be linked with FBC based plants to be set up through joint venture company CNUPL .*The following Issues need to be addressed first before exploring the possibility of setting up FBC based plant through joint venture company CNUPL:*

*1. Whether the quantum of rejects generated from individual washeries will be sufficient for setting up of minimum capacity FBC power plant by NTPC in the vicinity of coal washeries, which would be economically viable.*

*2. Whether the GCV of rejects generated by the SECL washeries (Tentative GCV range: Kasmunda Washery 1400-2200 Kcal/Kg, Baroud Washery : 1200 – 1600 Kcal/Kg ) will conform to GCV requirement(min 1800 Kal/kg and Average around 2000 Kcal/kg) of NTPC for their FBC plant design.*

*3. Whether sufficient land is available in the vicinity of coal washeries for setting up FBC Power Plants. It was decided in the board meeting of CNUPL on 26.04.16 at CIL, Kolkata, that the land for setting up FBC Plant is to be in the possession of respective CIL subsidiary company at location nearer to the washery site. Land requirement and water requirement for setting up of FBC plant by NTPC is very high, which SECL may not be able to provide. (Land requirement by NTPC for setting up of 2 x 250 MW CFBC plant was about 385 Ha by utilizing rejects of about 7.8 MT to be generated from earlier proposed 25 MTY Kasmunda washery on turn-key basis , ref- letter of ED (Coal washery),NTPC addressed to D(T)/(P&P) dtd 22.12.16).*

***In view of the above, utilization of rejects through FBC based power plant through CNUPL in case of SECL is not feasible at present.***

***b) Utilization of Rejects if set up of FBC based Power Plant is delayed-*** It has been proposed that land for temporary storage of rejects is to be provided by Subsidiary coal company till the FBC based Power Plant comes into operation . ***As setting up of FBC Power plant through the Joint venture CNUPL is not feasible at present in case of SECL washeries due to constraints mentioned in point(a), this option is not applicable for SECL.***

***c) Stacking/Dumping of Rejects in Mine void/on Land-*** This option has been proposed for rejects produced from Washeries with GCV below 1000 Kcal/Kg , which are not suitable for use in FBC power Plants. ***This option may be extended to allow stacking/ dumping of rejects with GCV more than 1000 Kcal/kg also,*** in mine voids / land identified by subsidiary coal company, if no buyers for such rejects are available in certain minimum period of time . ***The minimum storage period of rejects at the temporary site identified by subsidiary company, in conformity with the environmental norms, may be specified in the reject Policy.***

***d) Utilization of rejects by third party through MoU-*** It has been proposed in the draft document to sell the rejects to the Washery operator if they desire to buy the rejects. *However, to avoid any scope of manipulation and disputes,it is proposed that the rejects generated by the Washeries should not be sold to the*

washery operator. **The Subsidiary Coal company may sell the washery rejects to prospective buyers through MoU other than the washery operator.**

**The pricing of rejects based on GCV bands may be mentioned in the reject policy document as is done for graded non coking coal . This will facilitate selling of rejects to other consumers through MoU on uniform basis across the subsidiaries.**

**e) Rejects sold through e- auction- Selling of rejects through e-auction may be preferred as this may fetch higher market price. The base price of offered rejects may be taken as per the corresponding GCV band price to be fixed in the proposed reject policy document as suggested above.**

**Sub: CIL policy on disposal of washery rejects****A Note on WCL**

- In the view to meet the requirements of Steel plants, one medium coking coal washery i.e. Nandan washery was strategically constructed nearby medium coking deposit in the year 1984, situated at Kanhan Area, Damua, Madhya Pradesh having capacity of 1.2 Mty. The washery has two products one clean coal and middling. Clean coal is being supplied to steel plants and middlings to Thermal Power plants.
- It is proposed to setup non-coking coal washeries in command area of WCL under Joint Venture with Mahagenco. But, MoU for formation of Joint Venture Company in this regard is not yet finalised till date.

Since, we do not have any washeries producing rejects at this moment; hence an expert input in this regard is difficult to be comprehended. However, following suggestions may be considered

1. Washery reject are normally contain heat value i.e. GCV- 0 to 2000 Kcal/kg having %Ash more than 50%.
2. There is a need of gainful utilization of carbon content present in the rejects.
3. Pulverized coal combustors have limitations in using coal with Ash > 50%. Technological developments have facilitated using coal with ash more 50% in fluidized bed combustors fluidized bed combustors (FBC/CFBC).
4. Efficient burning in FBC/CFBC may be achieved for the rejects in the range of 1360 – 2000 kcal/kg.
5. FBC/CFBC plants should be strategically located near to source of the washery rejects.
6. Establishment of FBC/CFBC plants at strategic location in co-ordination with concern state governments.
7. State government power generation companies and coal companies co-ordinately address the issue with joint agreements for establishment of FBC/CFBC Plants.
8. Provisions for use of washery rejects by domestic consumers shall be made in the policy with stringent environmental norms.

वर्षिय:- Note on Draft Reject Disposal Policy for rejects generated from Coal Washeries of CIL (existing and future).

Traditionally, Rejects generated from coal washeries over the years have been dumped in areas adjacent to the washeries from where some of it, if usable, have been sold through various modes to consumers interested in its utilization for briquette factories or other low grade users where low carbonaceous properties are not a hindering factor. Where the grades are very poor (extremely high ash or low calorific values), rejects have been used to fill mine voids or levelling of land, road making etc. The rest have remained unused/unsold and left to accumulate in reject dumps creating huge environment and logistical issues.

The focus of Environment Regulatory agencies has turned on to the means of disposal and utilization of the rejects produced from Coal washeries in an environmentally friendly manner.

While processing the documents for Environment Clearances of New Washeries, the project proponent has to clarify the modalities with respect to the disposal and utilization of rejects generated from these washeries post commissioning thereof.

During discussion in Expert Appraisal Committee (EAC) meetings, while considering the proposals for grant of EC for new washery projects, the issue with respect to storage/disposal and utilization plan for washery rejects has been raised with concern. At times, the response of the industry on the issue has been varied at different forums - Government level and other stakeholder interactions.

In view of above, Advisor (Forests), CIL, in his note (enclosed as Annexure I), had suggested the following:

### Quote

CIL's subsidiary coal companies are submitting EIA-EMP reports for seeking EC for coal washery projects both for coking and non-coking coal washeries. Few washeries are two products while rest are three products washeries. Different coal companies have adopted different mechanism for disposal of washery rejects. EAC wants to know what is CIL's policy for disposal of these products in an environment friendly manner. There is a need to have uniform policy at CIL level, may be with certain flexibility to address local conditions.

In this regard it is requested that kindly direct concerned officers to **prepare a draft policy which may be discussed in next CMDs' conference before finalizing the same.**

### Unquote.

The matter was put up in the 112th CMDs' Meet held on 17.4.2017 wherein it was decided to constitute a committee for framing a uniform policy for Reject disposal/utilization for all subsidiaries. (Minutes –Annexure - II)

In view of above, a committee was constituted vide Office Order No: CIL/DT/TS /035/17/453 dated 27.5.17 to deliberate and formulate a draft for a Uniform Policy for Disposal of Rejects in CIL washeries, both existing and future.

The committee constituted comprised of the following members:

- i.
  - i. Shri S Chandra, Director Tech, Ops, CCL - Chairman
  - ii. Shri M K Singh, GM (PMD), CIL - Member
  - iii. Shri Rajesh Bhushan. GM (S&M), CIL - Member
  - iv. Shri J Bagchi, CM (F), CIL – Member

Later, Sri B K Dey, GM (CMP), Coal & Mineral Processing Division, CMPDI, Ranchi was added as a member (Committee constitution office order and addition of GM(CMP), CMPDI, placed at Annexure - III).

The committee through its deliberations has recommended the modalities for the above policy.

The comprehensive committee report together with the draft of a Uniform Policy for disposal of Rejects from CIL Washerries (existing & Future) has been prepared.

Submitted for further necessary action.

- 📎 [Annexure II MoM 112th CMDs' Meet.pdf](#)
- 📎 [Annexure III Committee on Reject Disposal CIL.pdf](#)
- 📎 [Final Committee Report and Draft Reject Policy Signed.pdf](#)
- 📎 [Annexure I Note frm Adv Reject Policy.pdf](#)

29/03/2018 7:28 PM

**RANAJIT TALAPATRA**  
**(SENIOR MANAGER(COAL PREPARATION))**

**Minutes of 122<sup>nd</sup> Meeting of CMDs held on 04.06.2018 at Kolkata**

Chairman, CIL extended warm welcome to all CMDs of Subsidiary Companies, Functional Directors of CIL and other officials present in the meeting.

At the outset DT, CIL also extended warm welcome to Shri A.K.Jha, Chairman, CIL and expressed pleasure on his joining as Chairman, CIL and presiding the meeting of CMDs for the first time after joining as Chairman, CIL.

Chairman, CIL expressed pleasure in joining as Chairman, CIL and complemented the companies which had registered positive growth in respect of production and offtake last year and also expressed happiness to mention that upto May, 2018 NCL, WCL, SECL & NEC have performed well besides satisfactory performance of ECL (93%) & BCCL (91%) who are achieving more than 90% of their coal production target. It is expected that CCL (79%) & MCL (82%) would also pick up soon. He urged upon CMDs to feel free to express any difficulty and whatever help is required, same would be rendered.

List of participants is enclosed as Annexure-I.

**1.0 Confirmation of the Minutes of the 120<sup>th</sup> meeting of CMDs held on 18<sup>th</sup> April, 2018 through Video Conference**

1.1 The recording of Point No.4.0 under the heading "Development of Captive Transport Modes by Power Plants" shall stand modified to read as under.

*"After prolonged discussion on "Development of Captive Transport Modes by Power Plants", DM, CIL was requested to place a draft policy on supply of coal under FSA/MOU from mine specific source for uniform implementation across the subsidiary companies after taking into account the following issues:*

- (i) *Payment terms – i.e. extra premium chargeable or not.*
- (ii) *Infrastructure – whether to be installed by consumer or coal company under CAPEX.*
- (iii) *Whether installation of infrastructure would qualify for eco-friendly mode.*

*It was further expressed that existing MGR mode of supply, already in place with NTPC, would fall under the above supply of coal from dedicated mine supply of source be examined. Suggestion / modification / correction in the existing policy for supply of coal under FSA or MOU from mine specific source were invited from CMDs for necessary review by DM, CIL.*

Action: All CMDs / DM, CIL

- 1.2 The recording of Point No.5.0 under the heading "raising of bills on Rs./Per GCV basis" shall stand modified to read as under.

*"The issue was earlier discussed in FDs meeting wherein it was explained that CIL Board in its 354<sup>th</sup> meeting held on 8.1.2018 decided migration to coal sale billing on GCV (Kcal/kg) basis. According to this concept, the price will be fully variable for each GCV even within the same grade band. As decided by the Board, this system was to be implemented w.e.f. 1<sup>st</sup> April, 2018 or earlier, once the requisite system is ready.*

*After prolonged discussion and as agreed by all CMDs to implement the new scheme of raising bill on Rs./Per GCV basis phase wise for which Pilot Project would be undertaken with one consumer NTPC and thereafter replicated against all the supplies. CMDs were advised to identify mines for implementation initially. With the above, the proposal be taken to Board for deliberation and decision."*

*Action : DM, CIL / All CMDs*

- 1.3 The recording of Point No.8.0 under the heading "Construction of Washeries" shall stand modified to read as under.

*"In a Round Table meeting of ASSOCHAM National Council on Coal held on 3<sup>rd</sup> April, 2018 chaired by Hon'ble Minister and participation of other senior officials of MOC & Power, the issue related to setting up of Washery under EPC contract was also discussed and members requested to re-examine the EPC/BOO/BOM model. The present contracts provide for submission of a Performance Bank Guarantee equivalent to 100% of contract value. The Hon'ble Minister assured revision of the policy guideline on this.*

*In a meeting through VC regarding construction of Washeries held on 12.4.2018 wherein CMD, CMPDI and DT, CIL along with all concerned Directors of subsidiary companies participated and discussed the deviations from the BOO and BOM Model Bid Document (MBD). The observations / recommendations as brought out in the record notes in a comparative table was placed before the CMDs. After discussion at length and based on ground realities that:-*

- a) CIL Board had already empowered subsidiary companies to decide terms & conditions.*
- b) Efforts to be made for wider participation aiming to benefit the interest of CIL.*

*CMDs opined that the recommendations as per the minutes of the meeting, listed deviations and the observations, as placed before the CMDs, be examined for taking needful action in future tenders.*

*Action: DT, CIL*

- 1.4 The recording of Point No.10.0 under the heading "Recruitment of Security Personnel in Executive Cadre" shall stand modified to read as under.

*"D(P&IR), CIL mentioned that proposal for recruitment of Security personnel in executive cadre needs approval of competent authority. After discussion at length, CMDs agreed to go ahead with the proposal in respect of recruitment of security personnel in executive cadre as brought out in the agenda note. Regarding recruitment / deployment / engagement of security personnel through DGR Agency / CISF / other State Security Forces, subsidiary companies may take up the work in the light of Government guidelines issued from time-to-time and Board decisions, as applicable."*

*Action: D(P&IR)*

- 1.5 With the above modifications, GM & TS to Chairman was advised to circulate the minutes of the 120<sup>th</sup> meeting of CMDs held on 18.4.2018.

Action: GM & TS to Chairman

- 2.0 **ATR on the decision taken in 120<sup>th</sup> meeting of CMDs in respect of Point No.2.0 under the heading "Status of Grade Conformity across different coal companies" of the draft minute circulated.**

The recording of the draft minutes of the 120<sup>th</sup> meeting of CMDs held on 18<sup>th</sup> April, 2018 through video conference in respect of Point 2.0 under the heading "Status of Grade Conformity across different coal companies" was discussed. CMD, WCL mentioned that inspite of downgrading the quality of coal in the recent past, results of 80% of samples being analysed by CIMFR has been reported to be further downgraded.

The above has resulted in considerable loss of revenue to WCL and if such situation continues then the days are not very far off when WCL would become in the red due to poor Net Worth. He suggested that as a temporary measure, another independent agency be engaged for at least three months on a pilot basis and after comparing the results by CIMFR and the Agency, a view may be taken subject to getting variation in result.

Moreover, CIMFR is engaged jointly by CIL & NTPC at loading end and also at unloading end by NTPC alone. Hence they are justifying their result by only tallying with the results of both ends. If coal companies would require to curb the situation, it is essential that an independent agency be deployed on a

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pilot project for a temporary period of three months for which CIL would require to borne the expenditure on testing of samples additionally.

CMD, BCCL also informed that nowadays CIMFR has put restriction on the coal companies for sending referee samples to various laboratories of their choice only for analysis. Those laboratories are situated mostly at Hyderabad and Bengaluru. In spite of having NABL Accredited Lab in all the coal companies or in nearby Institutes like IITs/ISM, CIMFR is restricting us to send the referee samples to Hyderabad and Bengaluru only. CMD, BCCL informed that BCCL is incurring loss to the tune of thousand crores on this account due to results declared by CIMFR's.

The issue was thread bare discussed in 120<sup>th</sup> meeting of CMDs held on 18.4.2018 wherein a committee consisting of following executives was constituted to recommend measures to minimize loss incurred on account of grade slippage with the advise to submit its report within a month.

- i) Dr.Anurag Garg, GM(M&S)/QC, CIL.
- ii) Shri M.S. Temurnikar, GM(QC), WCL.
- iii) Shri A.K.Prasad, GM(QC), BCCL.
- iv) Shri U.T.Kanzarkar, GM(QC), SECL.
- v) Shri I.C. Mehta, GM(QC), CCL.
- vi) Ms. Jeba Imam, Sr.Manager (Geology), CMPDIL, Ranchi.

CMDs requested that the report from the committee be expedited for taking a view on engagement of CIMFR / or any other reputed agency.

Action: All CMDs / DM, CIL

### 3.0 **Confirmation of the Minutes of the 121<sup>st</sup> meeting of CMDs held on 30<sup>th</sup> April, 2018**

- 3.1 The recording of Point No.9.0 under the heading "Decision regarding already floated NIT in MCL for setting up of two Non-Coking Washeries at Jagannath and Hingula" shall stand modified to read as under:

*"The above issue was discussed at length. DT, MCL (through V.C.) explained in details and informed that NIT for construction of two Washeries namely, Jagannath & Hingula of 10 MTPA capacity each has been floated on 26.3.2018 (as per time line committed before MOC) on BOM basis against which provision for PBG equivalent of 100% of set up cost has been kept.*

*In the mean while, as per recommendations of the Director's Committee on 12.4.2018 in which CMD, CMPDI, DT, CIL and concerned Director (Technical) of subsidiary companies recommended for PBG equivalent of 50% of the set*

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*up cost in BOM Model and in subsequent meeting with CMDs it was agreed that the same may be examined for taking needful action in future tenders for onward incorporation in the NIT to ensure uniformity and wider participation.*

*Now, MCL desires clarification whether to continue in the NIT which has already been floated earlier on 26.3.2018 or to incorporate the above provision in the NIT as per meeting held on 12.4.18 for which fresh approval of the MCL Board would be required after cancellation of the NIT floated on 26.3.18.*

*After discussion at length, it was clarified that each subsidiary company is authorized to take decision as per the decision taken in their Board."*

*Action: All CMDs*

- 3.2 With the above modifications, GM & TS to Chairman was advised to circulate the minutes of the 121<sup>st</sup> meeting of CMDs held on 30.4.2018.

Action: GM & TS to Chairman

Thereafter discussion on agenda items took place.

#### 4.0 **Production Performance and Monitoring of Production**

The internal target for monitoring of production performance is 652 MT and offtake 681 MT during 2018-19. The overall target for the purpose of MOU calculation etc. only will be 610 MT.

Chairman, CIL directed that monitoring of coal production target should be as per the target of 652 MT of coal production, which is sacrosanct.

On the request of CMDs and considering the ground realities, it was decided that dispatch target of 655 MT shall be appropriate and accordingly be proposed before MOC for its concurrence. However, till such time any clearance is obtained from MOC, CMDs were advised to submit month wise, quarter wise target distribution in respect of coal production and dispatch to match the overall target of 652 MT coal production and 681 MT dispatch.

Action: All CMDs / DT & DM, CIL

#### 5.0 **Extension of Validity of CIL Board's Approved PWC Report – 2011 for Normative Rates of ESM Companies till the Approval of New Normative Rates of IIT Kharagpur by CIL Board.**

GM (CMC), MCL explained in details regarding Normative rate of ESM companies including formula for diesel escalation and mentioned that CIL Board in its meeting held on 31.7.2012 approved the PWC report 2011 on the subject item with a validity of three years and thereafter it was further extended upto 31.3.2016. Approval of PWC rates has been quashed by the Hon'ble Court. CIL Board in its 318<sup>th</sup> Meeting approved engagement of IIT, Kharagpur for derivation of normative rates for ESM Companies against which

they have already submitted their report which has been processed for approval of CIL Board.

In the light of above, he informed that as on date, the PWC – 2011, Normative rate approved in 2012 is not valid and the new Normative rate derived by IIT, Kharagpur is yet to be approved. In the absence of any approved formula for diesel escalation with respect to the present market rate which is hovering near Rs.70.00 per litre is not possible to be taken into account for release of payment.

In view of the above circumstances and after prolonged discussion, it was decided that –

- (i) DT, CIL shall take necessary action to expedite approval of New Normative Rate derived by IIT, Kharagpur by CIL Board.
- (ii) In the intervening period MCL may take up the issue with their respective Board for relief, if any.

Action: CMD, MCL/DT, CIL

## 6.0 Coal Offtake

The performance of coal offtake of all the subsidiary companies were reviewed thoroughly. GM (M&S), CIL explained in details and mentioned that average loading in the month of May, 2018 achieved as under.

ECL	1.39 Lakh ton
BCCL	1.03 Lakh ton
CCL	2.06 Lakh ton
NCL	2.72 Lakh ton
WCL	1.50 Lakh ton
SECL	4.46 Lakh ton
MCL	3.87 Lakh ton
NEC	<u>0.02 Lakh ton</u>
Total	<u>17.05 Lakh ton</u>

The present trend of dispatch in the month of June, 2018 is as under:

ECL	1.27 Lakh ton
BCCL	1.00 Lakh ton
CCL	2.07 Lakh ton
NCL	2.07 Lakh ton
WCL	1.57 Lakh ton
SECL	4.50 Lakh ton
MCL	3.97 Lakh ton
NEC	<u>0.013 Lakh ton</u>
Total	<u>16.47 Lakh ton</u>

It was also opined that during rainy season, as per the trend upto last year, there would be reduction in loading of coal in the rakes to the tune of 20%. Hence considering all the factors in mind and taking into account the advise of MOC who is constantly pursuing for raising the level of dispatch upto 2 MT per day as against present level of 1.647 MT be strictly adhered to.

CMDs were advised to take all out efforts so that maximum dispatch level is achieved to reach the desired target.

Action: All CMDs / DM, CIL

#### 7.0 **Outstanding Dues**

CMDs expressed concern on coal sale outstanding dues, which is hovering around Rs.10600.00 crores as on 30.5.2018 as against Rs.10467.00 crores as on 31.3.2018. Lot of persuasion with Power Gencos are being made to improve the situation. But sometimes all efforts have gone in vain. In order to meet the target in respect of coal production, coal companies should make every effort for enhancement of dispatch so that stock does not pile up. In the event of more stock, it may attract more inventory carrying cost besides probability of catching fire due to spontaneous heat generation arising out of prolonged stock (more than six months approx.).

CMD, WCL suggested that CIL should take up the matter with appropriate authority at the level of Chief Secretary or Energy Secretary on Board to resolve the issue and requested Chairman, CIL for necessary letter / correspondence to the respective authorities.

CMDs were advised to submit detailed note stating the coal sale dues, company wise, consumer wise, to DM, CIL for necessary compilation and onward correspondence with the authorities.

Action: All CMDs / DM, CIL

#### 8.0 **Recommendation on CLOA**

GM (M&S), CIL forwarded a note through DM, CIL enclosing therewith recommendations of CLOA, which was placed on Table before the CMDs. It was expressed by all the CMDs that the recommendations would require further examination by them.

CMDs were advised to examine the same and forward their comments to DM, CIL within a week time so that necessary approval may be obtained from Chairman, CIL.

Action: All CMDs / DM, CIL

## 9.0 **Draft Reject Disposal Policy for Rejects generated from Coal Washery of CIL**

The report of the committee constituted for the purpose regarding formulation of uniform policy for disposal of rejects generated from Coal Washery of CIL was placed before the CMDs. After prolonged discussion on the same, the following options forwarded by the committee was considered for adoption.

- (i) Selling as the First Option – In order to generate some revenue, possibilities should be explored for selling of the rejects based on GCV. Subsidiary companies should look out for customers who would be ready to buy the rejects for gainful utilization. The mode of sale and basic price of sale would depend on the basic ground realities and GCV content respectively.
- (ii) Utilisation in FBC based Power Plants as the Second Option – The rejects may be linked with FBC based Power Plants located at nearby Washeries so that EC, FC conditions are not violated for carrying such rejects. Subject to availability of requisite grades of rejects and the quantity at one place or within close surrounding areas, possibilities for installation of the FBC based Power Plants should be explored.
- (iii) Dumping in Mine Voids as the Third Option – Not agreed by CMDs.

With the above recommendation of CMDs stated in Point No. (i) & (ii), draft uniform policy for disposal of rejects generated from Coal Washery of CIL was agreed for uniform implementation.

Action: DT, CIL

## 10.0 **Safety issues.**

From the statistics for the period January-May 2018 vis-à-vis January-May, 2017, it is noted that there was considerable decrease in no. of accidents as well as fatality in all the subsidiary companies, except SECL and NEC. Progressively in whole of CIL, there were 9 fatal accidents with 9 fatalities during the period January-May 2018 against 17 fatal accidents with 19 fatalities during the same period last year.

The CMDs were advised to apply all out effort to further improve the safety to achieve Zero target of accident. Chairman, CIL advised CMDs that they must ensure zero accident in the mine which is the only target for safety.

Action: All CMDs/ DT, CIL/ GM(S&R), CIL

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**11.0 Relevance of continuing of existing R&R Policy of CIL, 2012 in the wake of implementation of the provisions of RFCTLARR Act, 2013**

CM (L&R), CIL explained in details regarding R&R Policy of CIL circulated in 2012 with the approval of CIL Board vis-à-vis the provisions of RFCTLARR Act, 2013. All the relevant issues pertaining to offering employment against acquisition of land was also discussed especially Section 14.1 of RFCTLARR Act, 2013, which provides more compensation and prohibits giving employment in lieu of land. Relevant provisions listed in RFCTLARR Act mandates computing cost of land, expenses incurred due to employment and compensation etc. which would result in maximum number of project to become unviable.

CMDs were advised to examine all the relevant issues and offer comments within one month to D(P&IR), CIL who will compile and place in the next CMDs meet for thread bare discussion.

Action: All CMDs / D(P&IR), CIL

**12.0 Report of the committee constituted to examine the pros & cons of requirement of Bearings in connection with overpriced purchase of Bearing by WCL : Decision on banning on PAN CIL as per purchase manual with reference to CVC recommendation**

Deferred.

Due to paucity of time, all other Agenda items are deferred.

The meeting ended with a vote of thanks to the Chair.



GM & TS to Chairman

Ref.No. CH: TS: 74(A):358

Dated: 06.07.2018

Distribution:

Director (Finance), CIL.

Director (Marketing), CIL.

Director (Technical), CIL.

Director (P&IR), CIL.

All CMD- ECL/BCCL/CCL/NCL/WCL/SECL/MCL/CMPDI.

GM & TS to Chairman, CIL.

GM (S&R), CIL.

## ANNEXURE - I

### List of Participants

1. Shri A.K.Jha, Chairman, CIL.
2. Shri B.Dayal, DT, CIL.
3. Shri Ram Prakash Srivastava, D(P&IR), CIL.
4. Shri A.K.Singh, CMD, BCCL/CMD, ECL(Addl. Charge).
5. Shri Gopal Singh, CMD, CCL.
6. Shri P.K.Sinha, CMD, NCL.
7. Shri R.R. Mishra, CMD, WCL.
8. Shri B.R.Reddy, CMD, SECL.
9. Shri S. Saran, CMD, CMPDI.

### In Attendance :

10. Shri Prabhakar Chowki, GM & TS to Chairman, CIL.
11. Shri R. Bhushan, GM (M&S), CIL.
12. Shri A. Garg, GM(QC), CIL.
13. Shri Mahabir Mukhopadhyay, CM (Excv.), Ch. Sectt., CIL.

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TABLE SHOWING RANGE OF GROSS CALORIFIC VALUE OF ALL GRADES

<b>Grade</b>	<b>GCV Range (Kcal/Kg)</b>
G1	Exceeding 7000
G2	Exceeding 6700 and not exceeding 7000
G3	Exceeding 6400 and not exceeding 6700
G4	Exceeding 6100 and not exceeding 6400
G5	Exceeding 5800 and not exceeding 6100
G6	Exceeding 5500 and not exceeding 5800
G7	Exceeding 5200 and not exceeding 5500
G8	Exceeding 4900 and not exceeding 5200
G9	Exceeding 4600 and not exceeding 4900
G10	Exceeding 4300 and not exceeding 4600
G11	Exceeding 4000 and not exceeding 4300
G12	Exceeding 3700 and not exceeding 4000
G13	Exceeding 3400 and not exceeding 3700
G14	Exceeding 3100 and not exceeding 3400
G15	Exceeding 2800 and not exceeding 3100
G16	Exceeding 2500 and not exceeding 2800
G17	Exceeding 2200 and not exceeding 2500



Coal India Ltd.  
(A Maharatna Company)  
Engineering & Equipment Division  
Coal Bhawan, 10, N. S. Road,  
Kolkata- 700 001

Phone : 033-2231 4501  
Fax : 033-2243 6586  
Email : gmeed@coalindia.in

CIL/EED/ CPP/N/23

Dated: 15.05.2012

Sub: FBC Power plants in view of Setting up washery & MOEF's stipulation

The issue of setting up reject-based power plant has been raised in view of setting up several non-coking and coking coal washeries by CIL subsidiaries where washery rejects are to be used for power generation.

In this regard CMPDI has written a letter No.CMPDI(HQ)/E&M/ CPP/155 Dated 14.02.2012 (enclosed) for setting up of FBC based power plant (2X30 MW) of Ashoka project in CCL from rejects of proposed Ashoka washery (10MTY capacity). CMPDI informed that they have offered consultancy services to facilitate any communication with BHEL in this regard. CMPDI has also asked CIL's advice for direction/ mode for setting up of CPPs. This scenario has come in view of the following:

- Proposal for setting up of number of washeries by CIL/Subsidiaries.
- MOEF's stipulation for utilization of washery rejects for FBC power plants

In this context it may be mentioned that CMPDI prepared a draft NIT for FBC plant and sent to CIL and subsidiaries for their comments.

EED, CIL examined the draft document and gave its comments on it and as per advise of D (T), CIL, EED representative met CMPDI officials at Ranchi and discussed the matter with them. It was felt that CMPDI was not much aware of the performance of existing FBC power plant of CIL subsidiaries. However, the matter was discussed at length and a report submitted by the E&M/EED to D (T), CIL.

Further, CMPDI hold a meeting with M/S BHEL regarding FBC power plant and BHEL desired to work in joint working group. BHEL wrote to Chairman, CIL for a meeting and Chairman, CIL replied that the meeting might be held later after discussion with the subsidiaries. (Letters enclosed)

The matter further discussed with D (T), CIL and a note was placed for discussion in CMDs meet but it was not discussed in the CMDs meet so far.

In view of experience of FBC CPP it is pertinent the mode/route for CPP installation is to be selected very cautiously if CIL/Subsidiaries go for FBC reject base power plants again. On the subject matter some important points have been furnished below for kind perusal:

#### I. PAST EXPERIENCE ON POWER PLANTS OF CIL SUBSIDIARIES

- Experience on setting up of Captive Power Plants (CPPs) under ' ownership' and on 'BOO' scheme in CCL and BCCL is not encouraging.

- CIL introduced the idea of setting up of FBC CPPs earlier in CCL & BCCL with the objective of utilizing rejects and getting uninterrupted power supply from pit-head generation at cheaper rate than the existing supply agencies. The result came contrary to the aimed one. Some are being pointed out as hereunder.
- *Several FBC power plant contracts were concluded which results in set up of small reject based CPPs in CCL and BCCL under 'ownership' and on BOO scheme in nineties.*
- *CPPs could not be operated successfully at Kathara and Moonidih due to lack of expertise and ultimately the plant at CCL& BCCL has been given on lease of late, after struggling to operate for several years.*
- *It has been experienced such reject-based power plants are not reliable and prone to frequent breakdowns ranging from several hours to several months.*
- *Poor performance of the CPPs led the subsidiaries to depend on double source of supply i.e.in addition to CPP they have to maintain CD with the utility and ultimately the cost of energy increases and venture of CPP becomes burden to the concerned subsidiaries.*
- *Due to Techno-economic un-viability and un-reliability CIL and its subsidiaries (CCL/BCCL) had no option than to foreclose several such contracts on BOO scheme and preferred to continue with the existing utilities.*

The Status & PLF (Plant Load Factor) of breakdown prone power plants at Rajrappa, Gidi & Kathara is furnished below which is a poor performance indicator of FBC power plants when Madhuband power plant is not in operation for considerable period:

Name of the Power Plant /Year	09-10	10-11	11-12	Remarks
Rajrappa (1X10MW)	27%	21.6%	19.2%	The plant is under operation by M/s DLF on BOO scheme. The plant is breakdown prone and CCL has to pay penalty on overdrawal if adhoc power is not available. It is also suffering from litigation for tariff matters etc. with the entrepreneur.
Giddi (1X10MW)	24%	27.5%	24.8%	- Do -
Kathara (2X10MW)	56%	40.6%	43.1%	The plant belongs to CCL; CCL could not operate the plant successfully for several years due to lack of expertise and it has been given on lease about four years.
Madhuband (1X10MW)	The plant is not in operation for four years. BCCL is suffering from litigation with the BOO contractors on tariff matters etc.			
Moonidih (2X10 MW)	The plant belongs to BCCL. BCCL could not operate the plant successfully for several years due to lack of expertise and it has been given on lease about one year.			

## II. BHEL'S PROPOSAL & COMMENTS:

- In view of proposed washery and use of washery rejects for power plant, M/S BHEL has shown interest to co-operate CIL/subsidiaries for setting up power plants in a meeting with CMPDI, Ranchi. They have indicated to work as JV partner for setting / operating such plants. BHEL also proposed to give consultancy to prepare road map for CIL power plants.
- CMD, BHEL written a letter to Chairman, CIL for a meeting with Chairman, CIL in this regard. Chairman, CIL replied that the matter would be taken up after discussion with the subsidiaries.
- It may be noted that BHEL is a well-known manufacturer of Power Generating Equipments in India but whether BHEL is running or maintaining power plants or supplying power individually or jointly needs to be ascertained.
- The existing power utility/agency appears to be a better option for joint venture as they are already accustomed with the area and they have the required infrastructure.
- It may not be out of place to mention that once while BHEL was installing Kathara & Moonidih Plant, they had complained about security problem of the area.
- However, BHEL is a PSU company, their approach may be duly deliberated for utilization of their expertise if needed.

III. In case it is decided to go for FBC TPP, in view of MOEF's stipulation for setting up of washeries, the available options/mode is furnished below:

- *Own power Plant by the subsidiaries*
- *Power Plant on BOM basis*
- *Power Plant on BOO basis*
- *Joint Venture (JV) Plant*
- *Power Plant on BOO without PPA*

### Salient Points of the above modes:

- **Own Power Plant:**
- Plant is to be set up by the subsidiaries with full capital investment. Operation / maintenance /grid synchronization etc., the total responsibilities will have to be catered by the subsidiaries.
- Such own power plants at CCL & BCCL could not be operated successfully for several years due to lack of expertise and ultimately Kathara & Moonidih plants have been given on lease.
- Generation of power is a very **specialized subject** consist several items like boiler system, turbine, water plant, cooling system, disposal system, steam pressure line, alternator, switchyard, control system etc. CIL / Subsidiaries has no expertise on it.
- In view of above, further investment on such type of plant is not suggested.

- **Plant on BOM (Build-Operate-Maintain):**

- The total capital investment/Synchronization/Arrangement of land, water and power distribution will be the responsibility of the subsidiaries where they possess no expertise. To take financial burden on such venture is not recommendable.

- **Plant on BOO (Build- Own- Operate) basis with PPA:**

- In BOO principle, the plant will be built, owned and operated by the IPP (Independent Power Producer) i.e. BOO operator.
- The land has to be given on lease and the rejects will have to be supplied by the subsidiaries on prevailing rate. Power will be purchased by the subsidiary from the operator on agreed rate.
- Performance of BOO plants at CCL and BCCL are not encouraging rather problematic. Subsidiaries have been suffering from frequent outage of the plants. The subsidiaries are obligated to depend on double source of supply maintaining CD (contract demand) and often going for over-drawl with penalty from the utility.
- Coal companies have also faced other problems for these plants like litigation with the operator for quality of rejects, non-availability of water and tariff matters etc. for these plants. Further setting up of such type of plants is not suggested.

- **Joint Venture (JV) Plants:**

- In JV, capital investment will be shared with JV partner. The power generation, evacuation, distribution all responsibilities of the plant will also be shared by the partners.
- This provision appears to be better option than BOM method as the responsibility will be shared by the two partners.
- The chosen JV partner must have experience in power generation/evacuation and distribution and preferably conversant with the area of command. CIL/subsidiaries have no experience in power generation matters.
- In case subsidiary desires to go for power business, preferably they should go on JV with proven utility preferably who is operating in the area, taking up one plant initially on trial.

**BOO Plant without PPA:**

Subsidiaries are already facing problem from BOO plants at BCCL and CCL with PPA. It appears that the matter will be less complicated if subsidiaries go for this type of plant i.e. BOO without PPA with the operator. The operator will generate power and sell to grid on synchronization. Subsidiary will not take power from them and as usual the subsidiary will take the power from existing utility. Subsidiary will supply rejects to the BOO operator on chargeable basis. It appears that in this system, minimum commitment will be with the subsidiaries i.e. only to supply rejects to the operator. The operator may be private / PSU or existing utility. The existing utility may be preferred if possible for its proven and acquaintance with the subsidiary/area.

**OVERALL COMMENTS/CONCLUSION:**

- In view of proposed washeries and stipulation by MOEF, CIL/Subsidiaries have compelled to enter into this territory again. It is not known how much washeries will ultimately come and what will be the actual quantity and quality of rejects.
- It is not desirable that the washery, which will not come at all, but power plant proposal /contract is concluded with the entrepreneur. **It would have been better if the power plants were planned at least after the installation of washery.**
- Installation cost of power plants is not less than the installation of connected washeries. For example, proposed 10 MTY (Non-Coking) Ashoka washery's capital cost will be approximately Rs.200 Crores when 2X30 MW Power plant's cost is around Rs.360 Crores. It reveals that the expenditure for the management of byproduct comes as higher than the investment for prime product in this methodology of reject management.
- From the performance and complication of existing power plant it is evident that CIL/Subsidiaries should avoid venture on reject based power plant further of its Own/BOM/BOO with PPA. It appears that if the rejects are salable to other consumers who can produce power from it and sell to grid/consumers without any commitment from CIL, appears to be the best option for CIL/Subsidiaries. Other options for utilization of rejects may be explored so that setting of FBC TPP can be avoided if possible.
- The matter may be discussed and suitable option may be selected critically considering the above aspects particularly our past performance with power plants. Expression of interest may be floated by the subsidiaries on the subject matter with modalities/ Pre-NIT meeting may be held to gauge the pulse of the entrepreneurs, if subsidiaries have to enter into this arena. Steps should be taken cautiously so that the old consequence/suffering of CPPs is not repeated again.
- The selected option should have minimum commitments from the Subsidiaries. It is not desirable that gain accumulated out of setting up of proposed washeries does not dissipate by the losses of installing of FBC Power plants.
- It is preferable that any new venture should not be taken up in mass scale; may be planned in phases depending on its merit and success.
- In a workshop held at CMPDI, Ranchi on 07.04.2012, Secretary, Ministry of Coal has expressed that serious problem for setting up washery is the proper Reject management.

Considering the above fact, it is proposed that the subject matter may be discussed in CMDs meet for taking suitable decision in this regard.

Encl: As stated

~~General Manager (EED), CIL~~

For kind perusal ..  
S.C. Choudhury  
16/05/12

Bhambhani 15.05.12  
(S.C.Choudhury)  
CM (E&M)

Director (Technical), CIL

D. 477/12  
16/5/12



# BHARAT COKING COAL LIMITED

(A subsidiary of Coal India Limited)

## WASHERIES CONSTRUCTION DIVISION

Koyla Bhawan, Koyla Nagar,

DHANBAD - 826005

Telephone/Fax no.: 0326-2230201



Ref No : BCCL:WCD:26(1)A:10: 1156

Dated: 21.12.2010

2<sup>nd</sup> Reminder

To  
The Director(Technical) RD&T,  
Central Mine Planning & Design Institute,  
Gondwana Place, Kanke Road,  
Ranchi-834031

21/3099/22  
7/11/11

**Sub.: Project Report for FBC based TTP for Madhuband NLW Washery**

Dear Sir,

We have received a request again from our Environment Deptt. regarding compliance of condition no. (xvii) of ToR issued by MoEF for Madhuband Washery which states as *"Management / disposal / use of coal waste rejects: The coal rejects should be completely used in an FBC based TPP and any balance rejects can be sold to other users. The details of these should be explained as part of the EIA/EMP record. In case of other uses an MOU should be entered into with potential buyers for their long-terms use."*

In this connection, we have already requested you vide our letter nos. BCCL/D(T)P&P/F-04/10/809-892 dated 08/09.12.2010 and BCCL/WCD/26(1)A/10/1137 dated 14/15.12.2010 to arrange to expedite the work for preparation of the project Report for FBC based TTP for Madhuband Washery on priority basis.

Since signing of the contract agreement for construction of Madhuband washery will be done only after EIA/EMP clearance from MoEF and the details in the Project Report for FBC based TTP will be recorded in the EMP Report, it has become urgent to prepare the FBC based TTP Report for Madhuband Washery.

As such, once again you are requested to kindly instruct the officials concerned to expedite the work for preparation of the report.

Thanking you sir,

Yours Faithfully

Chief General Manager (Ws)/WCD

~~GM (E&M)~~  
Anupam  
7.1.11

For M. A. P.  
08/01/11

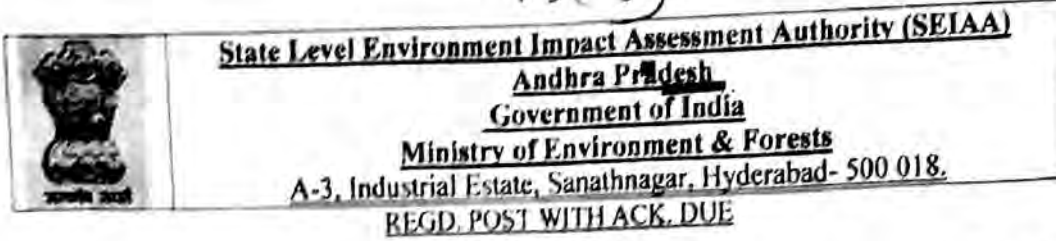
① GM (E&M) encl 1/11  
② CM (E&M) 'S

Copy to: 1. Director(T),CIL,Kolkata

2. D(T)P&P, BCCL

R. O. Reman,  
13(3)

C.F.O.  
C.F.C



Order No. SEIAA/AP/KHA- 03 /08-

Dt:28-08-2008

**Sub: SEIAA— M/s. Global Coal & Mining Pvt. Ltd., Manuguru, Khammam Dist., A.P. - Environmental Clearance- Issued -Reg.**

- I. This has reference to your application No. Ir.No. GCMPL/RGM/Manuguru/EAC/2007-08/, D1. 31.03.2008, 03.07.2008 in this regard, seeking Environmental Clearance for the proposed Coal Beneficiation Plant titled – M/s. Global Coal & Mining Pvt. Ltd., Manuguru, Khammam Dist. The proposal has been examined and processed in accordance with EIA Notification, 2006. It is observed that there are no Archaeologically & Historically important sites within the study area of 10 km around the proposed site. It is proposed to deliver the beneficiated coal and other products back to M/s. Singareni Collieries Company Ltd., The project is proposed in an area of 6.25 Ha allotted by M/s. SCCL., near KCPH& PK-OCIV of Manuguru area, by the side of Auto Workshop. The total cost of the project is Rs. 25 crores. An amount of Rs.8.50 Lakhs is allocated towards recurring cost per annum for Environmental management. It is noted that the capacity of the project, for which Environmental clearance has been considered are as follows:

**Coal Beneficiation Plant – 0.96 Million TPA**

- II. The JIG process is proposed. The raw coal is received into hoppers, screened, crushed, Passed through desliming screen, fed into Betac Jig and dewatered. Finally, the washed coal is stored in hoppers. The rejects are de-watered and stored in hoppers.
- III. The SEAC in its meeting held on 30.04.2008, 23.07.2008 has considered the project under 'B2' Category and recommended for issue of Environmental Clearance. The State Level Environment Impact Assessment Authority (SEIAA), in its meeting held on 02.08.2008 examined the proposal and the recommendations of SEAC. It was decided to issue Environmental Clearance. The SEIAA, A.P hereby accords Environmental Clearance to the project as mentioned at Para no. I under the provisions of the EIA Notification 2006 and its subsequent amendments issued under Environment (Protection) Act, 1986 subject to implementation of the following conditions/safeguards:

## A. Specific Conditions:

### a) Air pollution:

- i The difference in the value of suspended particulate matter, delta (A) measured between 25 and 30 metre from the enclosure of coal crushing plant in the downward and leeward wind direction shall not exceed 115 microgram per cubic meter. Method of measurement shall be High Volume Sampling and Average flow rate, not less than 1.1 cubic metre per minute, using upwind downwind method of measurement.
- ii Noise levels in the Operational/Working zone-not to exceed 85 dB(A) Leq for 8 hours exposure.
- iii The ambient air quality standards in respect of noise as notified under Environmental (Protection) Rules, 1986 shall be followed at the boundary line of the coal washery.
- iv Water or water mixed chemical shall be sprayed at all strategic coal transfer points such as conveyors, loading unloading points etc., Conveyors shall be provided with enclosures to reduce fugitive emissions. All the roads in the plant area shall be asphalted/concreted and water sprayed to reduce the fugitive dust emissions.
- v The crushers/pulverisers of the coal washeries shall be provided with enclosures, fitted with suitable air pollution air pollution control measures and finally emitted through a stack of minimum height of 30m, conforming particulate emission standard of 115 mg/Nm<sup>3</sup> or provided with adequate water sprinkling arrangement
- vi Water sprinkling by using fine atomizer nozzles arrangement shall be provided on the coal heaps and on land around the crushers/pulverizers.
- vii Area, in and around the coal washery shall be pucca either asphalted or concreted.
- viii **Water consumption in the coal washery shall not exceed 1.5 cubic meter per tonne of coal.**
- ix The efficiency of the settling ponds of the waste water treatment system of the coal washery shall not be less than 90%
- x Green belt shall be developed along the road side, coal handling plants, residential complex, and office building an all around the boundary line of the coal washery. The width of the green belt along the boundary of the premises shall not be less than 10m.

- xi Storage bunkers, hoppers, rubber decks in chutes and centrifugal chutes shall be provided with proper rubber linings.
- xii Vehicles movement in the coal washery area shall be regulated effectively to avoid traffic congestion; High pressure horn shall be prohibited. Smoke emission from heavy duty vehicle operating in the coal washeries should conform to the standards prescribed under Motor Vehicle Rules, 1989.
- xiii Ambient air quality including ambient noise levels must not exceed the standards stipulated under EPA or by the State authorities. Monitoring of ambient air quality and stack emissions shall be carried out regularly in consultation with APSPCB and report submitted to the Board and to the Ministry's Regional Office at Bangalore half yearly.

**b) Water Pollution:-**

- i. The water is supplied by M/s. SCCLtd. About, 288 KLD of Water is to be utilized for various purposes. Out of that 28.512 KLD for dust suppression; 38.016 KLD for development of green belt; 9.504 KLD for domestic purposes; 9.504 KLD for cleaning purposes. About 169.4 KLD of treated water will be recycled. It is estimated that about 288 KL of water is required for initial input. Subsequently, 100KLD of fresh water may be required due to recycling of treated waste water.
- ii. Catch drains and siltation ponds of appropriate size should be constructed for the working pit to arrest flow of silt and sediment. The water so collected should be utilized for watering the mine area, roads, green belt development etc. The drains should be regularly desilted, particularly after monsoon, and maintained properly.
- iii. Regular monitoring of ground water level and quality should be carried out by establishing a network of existing wells by the project proponent in and around project area in consultation with Regional Director, CGWB, Southern Region, Hyderabad. Data thus collected should be sent at regular interval to MoEF, CGWA and CGWB, Southern, Region, Hyderabad.
- iv. Suitable conservation measures to augment groundwater resources in the area shall be planned and implemented in consultation with Regional Director, CGWB, Southern Region, Hyderabad. Suitable measures should be taken for rainwater harvesting.
- v. Permission from the competent authority should be obtained for drawl of ground water required for this project.
- vi. The Coal washeries shall maintain the close circuit operation with zero effluent discharge.

vii.

If in case due to some genuine problems like periodic cleaning of the system, heavy rainfall etc. it become necessary to discharge the effluent of sewer/land/stream then the effluent shall conform to the following standards at the final outlet of the coal washery.

19-0  
EPA

S.No.	Parameter	Limits
1.	pH	5.5-9.0
2.	Total suspended solids	100 mg/l
3.	Oil & Grease	10 mg/l
4.	B.O.D (3 days, 27 <sup>o</sup> C)	30 mg/l
5.	COD	250 mg/l
6.	Phenolics	1.0 mg/l

viii. Water consumption in the coal washery shall not exceed 1.5 cubic meter per tonne of coal.

ix. The efficiency of the settling ponds of the waste water treatment system of the coal washery shall not be less than 90%

**c) Solid Waste:-**

x. Topsoil, if any, shall be stacked properly with proper slope with adequate measures and should be used for plantation purpose.

xi. The following measures are to be adopted to control erosion of dumps:-

➤ Retention/toe walls shall be provided at the foot of the dumps.

➤ Worked out slopes are to be stabilized by planting appropriate shrub/grass species on the slopes.

xii. The finished coal will be separated into two products, i.e. clean coal and rejects. These are to be transported to SCCL. The dust settled in the settling tank shall be taken out periodically and disposed along with inferior coal as proposed.

**B. General Conditions.**

i. This order is valid for a period of 5years.

ii. "Consent for Establishment" shall be obtained from Andhra Pradesh Pollution Control Board under Air and Water Act and a copy shall be submitted to the SEIAA before the start of any construction work at site.

iii. No change in mining technology and scope of working should be made without prior approval of the SEIAA, A.P.

iv.

Four ambient air quality-monitoring stations should be established in the core zone as well as in the buffer zone for RSPM, SPM, SO<sub>2</sub>, Nox monitoring. Location of the stations should be decided based on the meteorological data, topographical features and environmentally and ecologically sensitive targets and frequency of monitoring should be undertaken in consultation with the State Pollution Control Board.

v.

Data on ambient air quality (RSPM, SPM, SO<sub>2</sub>, Nox) should be regularly submitted to the Ministry including its Regional Office located at Bangalore and the State Pollution Control Board/ Central Pollution Control Board once in six months.

vi.

Personnel working in dusty areas should wear protective respiratory devices and they should also be provided with adequate training and information on safety and health aspects.

vii.

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

viii.

A separate environmental management cell with suitable qualified personnel should be set-up under the control of a Senior Executive, who will report directly to the Head of the Organization.

ix.

The funds earmarked for environmental protection measures should be kept in separate account and should not be diverted for other purpose. Year wise expenditure should be reported to the Ministry and its Regional Office located at Bangalore.

x.

The Regional Office of MOE&F located at Bangalore monitor compliance of the stipulated conditions. The project authorities should extend full cooperation to the officer (s) of the Regional Office by furnishing the requisite data/information/monitoring reports.

xi.

A copy of clearance letter shall be marked to concerned Panchayat/local NGO, if any, from whom suggestion / representation has been received while processing the proposal.

xii.

State Pollution Control Board should display a copy of the clearance letter at the Regional Office, District Industry Center and Collector's Office /Tehsildar's Office for 30 days.

xiii.

The project authorities should advertise at least in two local newspapers widely circulated, one of which shall be in the vernacular language of the locality concerned, within 7 days of the issue 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 SEIAA, A.P.

- xiv. The SEIAA or any other competent authority may alter/modify the above conditions or stipulate any further condition in the interest of environment protection.
- xv. Failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attract action under the provisions of Environment (Protection) Act, 1986.
- xvi. The proponent shall obtain all other mandatory clearances from respective departments.
- xvii. 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.

Sd/-  
MEMBER SECRETARY  
SEIAA, A.P.

Sd/-  
MEMBER  
SEIAA, A.P

Sd/-  
CHAIRMAN  
SEIAA, A.P.

To

Sri. P.R.K.Rao, Chief General Manager,  
M/s. Global Coal & Mining Pvt. Ltd.,  
4<sup>th</sup> floor, Maruthi Complex,  
Somajiguda, Hyderabad-82.

Copy to:

1. Dr. M. Anji Reddy, Chairman, SEAC, A.P. for kind information.
2. The Member Secretary, APPCB for kind information.
3. The EE, RO, APPCB, Kothagudem for information.
4. The Zonal Officer, MoE&F, GOI Bangalore for kind information.
5. The Secretary, MoE&F, GOI New Delhi for kind information.

//T.C.F.B.O//  
Sd/-

**JOINT CHIEF ENVIRONMENTAL ENGINEER (CFE)**

### Relevant points in the NIT for Setting up Sattupalli Washery of SCCL

- 14.8. **The firm has to construct sufficient capacity elevated bunkers to store the clean/washed coal.**

The firm has to transport and stock the washed coal in the designated clean coal yard with in the washery premises.

The firm shall ensure that clean coal should not get contaminated with any foreign material. Proper fencing of the yard is to be arranged and maintained.

- 14.9 Installation of the washing plant with all its accessories like Auto Density Adjustment System etc. for washing coal of sizes up to (-) 50mm size or otherwise as per their design requirements.

- 14.10 **The washing agency has to construct sufficient capacity elevated bunkers to store the generated rejects during washing process of coal. The washing Agency has to transport & stock the rejects to the site identified by SCCL at the distance of around 1 Km.**

- 14.11 The firm has to transport the slurry after caking to the yard provided by SCCL at a distance of around **1Km**.

- 14.12 **The bunkers constructed as above shall be labeled legibly in BOLD CAPITAL RADIIUM letters clearly indicating the type of coal i.e. washed / clean coal or rejects stored in them.**

- 14.13 Two nos. of Auto Sampling Systems (ASS) are to be installed on Conveyors belts for collection of (a) raw coal samples (i.e. after crushing to <50mm) and (b) clean coal samples, respectively.

- 14.14 SCCL (the concerned area authorities) reserves the right to inspect and monitor the construction activities of the washery /plant to ensure compliance of the order conditions with respect to varies capacities and facilities to be provided by the firm for successful operation of the plant.

However, this shall not relieve the firm in any case under any circumstances from discharging of their obligations as per the terms & conditions of the order.

#### 15.0. Technical Information:

- 15.1. The Tenderers shall furnish the following and other requisite technical details of their proposed "coal washery".
- 15.2. "Type of washery" proposed to be installed having internationally proven state of art technology equipped with continuous and zero effluent discharge system.
- 15.3. Peak Raw Water requirement per day, per tonne of raw coal, including to meet the dust suppression requirements. Details of optimum utilization of water by re-cycling.
- 15.4. Peak monthly Electricity consumption required for meeting washery requirement.
- 15.5. Washing time needed for a batch operation or/and day wise (shift of 8 Hrs) capacity of the plant.
- 15.6. Schematic diagram of the proposed coal washery plant etc.
- 15.7. The details of their earlier established coal washery in operation in India for technical inspection by SCCL, if required.
- 15.8. **A brief on the Environmental impact of the washery with proposed remedial measures.**

- 15.9. Any other technical information about the proposed coal washery detailing the washing technique and other connected matters.
- 15.10. Proof of knowledge and Expertise: The Tenderer should have proven knowledge, expertise in establishing and operating experience of coal washery as per the stipulated qualifying requirements and documentary evidence is to be furnished by the tenderers in support of the same.
- 15.11. The successful tenderer should submit the drawings to SCCL for approval within 30 days from the date of Letter of Intent (LOI) and make their applications to various agencies for getting needed approvals.
- 15.12. The successful tenderer shall obtain necessary legal, Environmental and other clearances along with all statutory / Non-statutory permissions from Govt., Semi Govt., Municipalities, Panchayat Boards, etc., as the case may be for establishing and operating the washery with in a period of 18 months from the date of issue of Letter of Intent by SCCL (LOI). The above period is extendable only in case of reasonable delays as accepted by SCCL in obtaining statutory clearances / permissions from Govt., Semi Govt., Municipalities, Panchayat Boards etc.
- 15.13. The status of applications made to various agencies for approval shall be appraised to SCCL from time to time.
- 15.14. The successful tenderer shall complete the installation and commissioning of coal washery within **10 months** from the date of getting approval from the MoEF & CC etc.
- 15.15. In case of delay in commissioning the plant, liquidated damages for delay in establishing the washery shall be levied on the washing agency at the rate of 10% of the security deposit value per month. If the delay is beyond 3 months, the total Security deposit shall be forfeited, and SCCL shall terminate the contract.
- 15.16. In case of any delay from SCCL side, extension without penalty will be given.
- 15.17. The successful tenderer shall maintain all the requisite records properly, connected to the washing activity for inspection by SCCL authorities / Government agencies concerned with respect to the details of raw coal, washed / clean coal, coal rejects, handpicked shale / stones, etc.,
- 15.18. **Material Balance:** It is the responsibility of the successful tenderer to deliver all the generated products in the coal washery like (i) washed coal (ii) Rejects (iii) Slurry & (iv) Stone/ shale, including waste material both handpicked and generated during washing and accounting them on monthly basis with respect to the quantity of raw coal delivered by SCCL.
- 16.0. **Quantity Schedules and connected details:**
- 16.1. Minimum plant capacity should be for = 4.00MTPA
- 16.2. The minimum guaranteed quantity of raw coal to be offered by SCCL per year (ASQ) = **3.32 MTPA.**
- 16.3. The minimum quantity likely to be delivered by SCCL per day is **9000T (Ranging from 8500T-9500T)** for washing purpose. However this is likely to change depending on the mutually agreed monthly schedules
- 16.4. The agency shall make a provision to stock raw coal at least for one day capacity for continuous operation of the plant. The lifting of the stock is in the scope of the agency.
- 16.5. The monthly & quarterly scheduled raw coal quantities (MSQ & Q.S.Q.) shall be mutually finalized at the beginning of every operational year.
- 16.6 **Maintenance of records:** The records that to be maintained and signed by both parties on every day are as here under.
- (i) Raw coal : Opening stock, Coal Supplied & Closing stock.

- (ii) Stones : Qty. segregated and transported to the stone yard that day.  
 (iii) Raw coal qty. treated as offered on a day = Opening stock+ coal supplied – (ii).  
 (iv) Raw coal Qty. treated as washed on that day = (iii) – Closing stock.  
 (v) Clean coal : Qty. of clean coal generated and transported by the washing agency to clean coal yard on that day. This clean qty. after applying Total Moisture correction will be treated as clean coal yield of that day.  
 (vi) Rejects : Rejects generated and transported by the washing agency to the Rejects yard on that day.  
 (vii) Slurry : The slurry should be delivered at the identified slurry yard through weighment as soon it was caked & dried.

**17.0. Performance guarantee with respect to Quality, Quantity & Technology:**

The following clauses shall be applicable with regard to performance guarantee with respect to Quality, Quantity & Technology.

- 17.1. SCCL shall supply raw coal from JVR OCP, Sathupalli, KGM Area, (or) any other mine at its discretion as per the specifications given in the following table. The successful tenderer shall deliver the clean coal yield percentages as mentioned in column "G", corresponding to the raw coal quality.

**TABLE-A of 17.1.**

Raw Coal Quality	Clean Coal quality							Total rejects (i.e. Shale & Slurry)
	Total Moist. %	Standard Moist. %	Ash %	GCV Kcal/kg	Grade	Theoretical yield @ 100% efficiency	Practical yield @ 97% efficiency	
A	B	B	C	D	E	F	G	H
Weighted Average Ash: 47% (Range is 40% to 52%).	≤ 11.00	6.10	28.00	4977	G8	41.00	39.77	60.23
Standard Moisture: 5%. (Range 4.50 to 6%)	≤ 11.00	6.03	29.00	4893	G9	44.50	43.17	56.84
Total moisture: 11% (Range 8 to 12%)	≤ 11.00	5.96	30.00	4810	G9	49.00	47.53	52.47
Size 0 to 250mm	≤ 11.00	5.88	31.00	4726	G9	53.00	51.41	48.59
	≤ 11.00	5.80	32.00	4644	G9	57.00	55.29	44.71
	≤ 11.00	5.73	33.00	4560	G10	61.00	59.17	40.83
	≤ 11.00	5.65	34.00	4478	G10	64.00	62.08	37.92
	≤ 11.00	5.57	35.00	4400	G10	67.00	64.99	35.01

- Note:**
- (i) For every 1% increase / decrease of Average ash of raw coal on the specified average ash of 47%, the yield will be decreased / increased by 2.10% to the corresponding yields given in the table as computed on monthly basis.
  - (ii) SCCL shall specify the maximum allowable ash% in the clean coal to be delivered. The washing agency shall deliver clean coal with corresponding yield to the desired ash as per the above table A.
  - (iii) The basis for the above yields is the washability study conducted by SCCL. SCCL has got associated with M/s. CMPDIL & M/s. CIMFR, in its previous washability studies for the coals of MNG, SRP & BPA Areas and acquired sufficient knowledge in conducting the coal washability tests.

in a week shall be utilized for plant maintenance during the weekly holiday declared in the area.

**18.4. Permissible Total moisture:**

- i) A maximum of 11% in washed coal. Beyond that, if noticed, pro-rata weight correction shall be applicable.
- ii) Same procedure of pro-rata weight correction is applicable for raw coal also if the total moisture exceeds 11%.
- iii) The calculation of Total Moisture shall be on day wise and accounted cumulatively for a period of a month.

**18.5. Delivery Mechanism:** The raw coal shall be delivered by SCCL by Tippers/though belt at the raw coal either at receiving point of the washery or at the stock yard. The firm shall ensure that the tippers/conveyor belt supplying raw coal do not stop for want of unloading coal.

**18.6. Quality evaluation mechanism:** The raw coal delivered by SCCL, and the receipts from the washery like, (i) clean coal (ii) rejects and (iii) Slurry shall be subjected to joint sampling and joint analysis, on day wise basis cumulative for a month for accounting purpose. The quality assessment shall be done following the broader guidelines of IS 436 with respect to sampling and IS 1350 for analysis of all the products.

**18.7.0. Delivery arrangements to be made by the washery agency:**

18.7.1. The handpicked Stone is to be delivered day wise, separately. The washing agency has to transport the handpicked stones through Weigh Bridge to the stone yard designated by SCCL within a distance of around 1 Km.

18.7.2. The washing agency has to transport the rejects through Weigh Bridge to the site designated by SCCL within a distance of around 1 Km.

18.7.3. The washed coal shall be transported to the designated clean coal yard by the washing agency. The clean coal shall be stocked in the yard in day wise lots, till the results of the coal samples are finalized. SCCL shall provide sufficient area to facilitate stocking of clean coal in day wise lots and shall be lifted as it is on first in first out basis on confirmation of the quality as per order terms and conditions, without necessitating any rehandling by the agency except for the purpose of rewash. The agency shall ensure that the clean coal lots don't get mixed with each other or contaminated with any other rejects or foreign material. After finalization of the clean coal quality, SCCL will make its own arrangements for lifting and transporting of the clean coal through weighbridge established by washing agency and account the clean coal yield.

In case if any major changes in the clean coal evacuation system becomes necessary during the contract period the same shall be reviewed and revised with the mutual consent of both the parties.

18.7.4. The Slurry from the cleaning ponds should be separated and caked by the coal washery for delivering the same to the SCCL on accumulation basis and the washing agency has to transport the same through weighbridge to designated yard provided by SCCL within a distance of around 1 kms.

18.7.5. The successful tenderer is responsible for the security of coal supplied to the coal washery by SCCL and should account for the total quantity of coal on month wise basis.

18.8. The operational activities of the Coal de-shaling plant/coal washery should not cause any inconvenience to SCCL's functioning in any manner including delivery schedules of the clean coal.

**18.9. Recourse in case of adulteration / pilferage / Malpractice:**

The successful tenderer should not indulge in any adulteration / pilferage / malpractice during handling of Raw coal / Clean coal / washery rejects. If found involved in such activities, SCCL reserves the right to...

20.2. **Weigh bridges:**

6 nos. of 60 tonnes electronic lorry weigh bridges shall be installed and maintained by the successful tenderer in the washery plant compound. Weigh Bridges shall be loaded with ERP-SAP package. The calibration and stamping of weigh bridges shall be carried out by SCCL in the presence of the successful tenderer or its representative, in every three months or when ever required. The day to day operations of the weigh bridges shall be carried out by SCCL manpower only. The weighment of raw coal, washed / clean coal, washery rejects including handpicked shale/ stone and slurry would be weighed on the above weigh bridges and the weighment recorded above would be final and binding on both SCCL and the successful tenderer. The successful tenderer can engage his manpower to witness the weighment.

20.3. **Fill up material for ramp construction:**

SCCL can provide the OB dump material from nearest OCP without any charges cost for preparation of ramps, roads etc. for the purpose of washery use. However the successful bidder has to make their own arrangement for transport of OB from the source upto washery site.

20.4. **Transport of other washery products from the Coal washery:-**

The other washery products like washing rejects, slurry are to be transported through weighbridge by the washing agency to the respective yards identified by SCCL at a distance of one Kilometer. The handpicked stone also to be transported through weighbridge by the washing agency to the identified yard.

20.5. **Sampling of raw coal and clean coal:**

Two nos. of Auto Sampling Systems (ASS) are to be installed by the washing agency on Conveyors belts for collection of (a) raw coal samples (i.e. after crushing to <50mm) and (b) clean coal samples, respectively. In case of failure of Auto Sampling Systems, the sample of both raw & washed coal shall be collected jointly by SCCL and the washery operator as per BIS Standards at pre fixed sites/points on the conveyor belts.

20.6. **Accommodation and provision for site office:**

The successful tenderer shall make arrangements for the office and residential accommodation to their employees on their own and SCCL shall not have any liability on this account.

21.0. **STATUTORY RULES:**

The successful tenderer shall

- 21.1. follow all statutory rules, regulations, applicable laws etc, and statutory requirement related to government licenses, workmen compensation, working hours of the workmen, EPF, insurance etc., including minimum wage act, for their personnel/works.
- 21.2. follow rules, if any, imposed by local/state/ central authorities should also be complied with by the coal deshaling plant/coal washery agency including the safety laws as per factories act at their cost.
- 21.3. Indemnify the company (SCCL) from any liability befalling on SCCL due to any commission/omission by himself or by his representative or by his employee or by any third party in execution of contract. if the company(SCCL) is made liable for such claims by the court or authority, the same should be reimbursed to the company (SCCL) by the coal deshaling plant/coal washery agency , as if the company ( SCCL) has paid on their behalf.
- 21.4. take requisite permissions under factories act. During the course of execution of the work, if any accident occurs whether major or minor, the successful tenderer(s) or his supervisory staff should inform the same immediately without any delay to the washery in-charge/General Manager concerned to take steps in accordance with the factories act and