



**ANDHRA PRADESH MINERAL DEVELOPMENT CORPORATION LTD.
(APMDC)**

***MINING PLAN (Including MINE CLOSURE PLAN)
FOR SULIYARI COAL MINE (5.0 MTPA)***

***SINGRAULI COALFIELD (MAIN BASIN), VILLAGE: AAMDAND, AMRAIKOH, BELWAR,
DONGRI, JHELERI, MAJHOLIPATH, SEERSWAH, TALUKA: WAIDHAN,
DISTRICT: SINGRAULI, STATE: MADHYA PRADESH***

BLOCK AREA/ ML AREA : 1298 Ha, PROJECT AREA : 1303 Ha

VOLUME - I (TEXT & ANNEXURE)

Allotment Order No : F.No 103/10/2016/NA dated 29.09.2016

Base Date: 01. 04. 2019

***(Submission: April 2019 under MCR 1960, Rule 22, with Compliance of
Observations of Technical Members of Standing Committee issued vide
CPAM-34011/14/2017-CPAM Dt. 23.05.2019)***

PREPARED BY



Rajesh Kumar Chopra

Recognised Qualified Person

Registration No.: 34012(03)/2014-CPAM

Valid upto : 28.05.2025

Geology, Mining & Mineral Beneficiation Division

MECON Limited, Ranchi - 834002

Jharkhand

Phone No. : 09771474987 0651 – 2483649, 2483645

E-MAIL : rkchopra.mining@gmail.com

mining@meconlimited.co.in



**MINING PLAN (Including MINE CLOSURE PLAN)
OF SULIYARI COAL MINE (1298 Ha.)
APPLICANT: ANDHRA PRADESH MINERAL DEVELOPMENT
CORPORATION LIMITED**



**VOLUME – I
(TEXT & ANNEXURE)
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Place : Ranchi

Date :13.06.2019

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ANANDA KUMAR MANDAL
अवर सचिव / Under Secretary
कोयला मंत्रालय / Ministry of Coal
भारत सरकार / Govt. of India
शास्त्री भवन / Shastri Bhawan
नई दिल्ली / New Delhi

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Signature :
Name : Rajesh Kumar Chopra
(Recognised Qualified Person)
Registration No.: 34012(03)/2014-CPAM
Valid upto : 28.05.2025



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SHANDE KUMAR MANDAL
Under Secretary
Ministry of Coal
Government of India
Shastri Bhawan
New Delhi

Recognised Qualified Person
Signature: Rajesh Kumar Chopra
Name: Rajesh Kumar Chopra
(Recognised Qualified Person)
Reg. No. 34012 (Recd. 2019-2025)
Valid upto : 28.05.2025

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Recognised Qualified Person
Rajesh Kumar Chopra
Page 3
Reg. No-34012 (03) / 2014-CPAM
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ANANDA KUMAR MANDAL
Under Secretary
कोयला मंत्रालय / Ministry of Coal
भारत सरकार / Govt. of India
शास्त्री भवन / Shastri Bhawan
नई दिल्ली / New Delhi



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LIST OF VOLUMES

NO. OF VOLUMES : 02

Content of Volumes

- Volume - I : Mining Plan (Including Mine Closure Plan)
(Text & Annexure)**
- Volume - II : Mining Plan (Including Mine Closure Plan)
(Drawings)**

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ANANDA KUMAR MANDAL
अध्वर सचिव / Under Secretary
कोयला मंत्रालय / Ministry of Coal
भारत सरकार / Govt. of India
शास्त्री भवन / Shastri Bhawan
नई दिल्ली / New Delhi

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Recognised Qualified Person
Rajesh Kumar Chopra
Reg. No-34012(03) / 2014-CPAM
Valid Upto-28.05.2025

Signature :

Name : Rajesh Kumar Chopra
(Recognised Qualified Person)

Registration No.: 34012(03)/2014-CPAM
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Place : Ranchi

Date : 13.06.2019

Recognised Qualified Person
Rajesh Kumar Chopra
(Recognised Qualified Person)
Reg. No-34012 (03) Page 54
Valid upto-28.05.2025

Signature :
Name : Rajesh Kumar Chopra
(Recognised Qualified Person)
Registration No.: 34012(03)/2014-CPAM
Valid upto : 28.05.2025

आनन्द कुमार मण्डल
ANANDA KUMAR MANDAL
अवर सचिव / Under Secretary
कोयला मंत्रालय / Ministry of Coal
भारत सरकार / Govt. of India
शास्त्री भवन / Shastri Bhawan
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ANANDA KUMAR MANDAL
अवर सचिव / Under Secretary
कोयला मंत्रालय / Ministry of Coal
भारत सरकार / Govt. of India
शास्त्री भववन / Shastri Bhawan
नई दिल्ली / New Delhi

Place : Ranchi

Date : 13.06.2019

Recognised Qualified Person
Rajesh Kumar Chopra
Signature: _____
Name: Rajesh Kumar Chopra
(Recognised Qualified Person)
Reg. No. 34012(03)/2014-CPAM
Valid upto: 28.05.2025

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Registration No.: 34012(03)/2014-CPAM
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List of Annexure

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Certificate of CMPDIL that the project boundary considered for the Mining Plan (Including Mine Closure Plan) is in coherence with the block boundary vested with the allottee	Annexure II
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Place : Ranchi

Date : 13.06.2019

Signature :

Name : Rajesh Kumar Chopra

Recognised Qualified Person (Recognised Qualified Person)

Rajesh Kumar Chopra

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Valid Upto-28.05.2025

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ANAND KUMAR MANDAL
अवर सचिव / Under Secretary
कोयला मंत्रालय / Ministry of Coal
भारत सरकार / Govt. of India
शास्त्री भवन / Shastri Bhawan
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CORPORATION LIMITED**



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Place : Ranchi

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ANAND KUMAR MANDAL
Under Secretary
Ministry of Coal
Govt. of India
Shastri Bhawan
New Delhi

Signature : Rajesh Kumar Chopra
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(Recognised Qualified Person)
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CORPORATION LIMITED**



List of Abbreviations

Abbrn.	Description	Abbrn.	Description
ACGIH	American Conference of Government all Industrial Hygienists	Mcum	Million Cubic Meter
APMDC	Andhra Pradesh Mineral Development Corporation	MDO	Mine Developer cum Operator
AMP	Approved Mining Plan	MECL	Mineral Exploration Corporation Limited
BHs/bhs	Boreholes	MGD	Million Gallon per Day
BOD	Biological Oxygen Demand	MoC	Ministry of Coal
CHP	Coal Handling Plant	MoEF&CC	Ministry of Environment and Forest for Climate Change
CMPDI	Central Mine Planning and Design Institute	MSL	Mean Sea Level
CMR	Coal Mine Regulation	Mt	Million Tonne
CPCB	Central Pollution Control Board	Mtpa/MTPA	Million Tonnes per Annum
CT	Current Transformer	Mty	Million Tonnes per Year
dB	Decibel	MVA	Mega Volt Ampere
DGMS	Directorate General of Mine safety	OB	Overburden
E&M	Electrical & Mechanical	OBR	Overburden Removal
e.o.t/E.O.T	Electric Overhead Travelling	OC	Opencast
Env.	Environment	OCP	Opencast Project
GCV	Gross Calorific Value	PAF	Project Affected Family
GSI	Geological Survey of India	PDF	Project Displaced Family
Ha/ha	Hectare	ROM	Run off Mine
HEMM	Heavy earthmoving Machinery	RPM	Respiratory Particulate Matter
HPSV	High Pressure Sodium Vapour	SME	Site Mixed Emulsion
ISO	Indian Standard Organisation	SPM	Suspended Particulate Matter
Kcal	Kilo Calorie	Tph	Tonnes per hour
Kg	Kilogram	TSS	Total Suspended Solid
Km	Kilometer	UHV	Useful Heat Value
Kv	Kilo Volt	VM	Volatile Matter
KWH	Kilo Watt Hour	VCB	Vacuum Circuit Breaker
m ²	Square meter	VM	Volatile Mater
MCR	Mineral Concession Rule	WPI	Wholesale Price Index

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ANANDA KUMAR MANDAL
Under Secretary
कोयला मंत्रालय / Ministry of Coal
भारत सरकार / Govt. of India
शास्त्री भवन / Shastri Bhawan
नई दिल्ली / New Delhi

Compliance of Observations of Technical Members of Standing Committee of Ministry of Coal on Mining Plan (Including Mine Closure Plan of Suliari Coal Mines of APMDC Limited received vide Letter no. .CPAM-34011/14/2017-CPAM dated 23.05.2019

Sl. No.	Ref. Para	Observations of Technical Members of Standing Committee of Ministry of Coal	Compliance
1	Cover Page	Name of the mining pan should be Mining Plan (including mine closure plan) of Suliari Coal Mine instead of Mining Plan (revision- 0) including Mine Closure Plan of Suliari Coal Mine.	Cover Page and all other references to it has now been changed as suggested.
2	Plate	KML file of the block area, proposed ML area and project area should be shown/attached.	KML file of the block area, proposed ML area and project area is shown in plate 3A and soft copy attached with the document.
3	CL 1 (e)	The binding co-ordinates considered in the mining plan is different from the binding co-ordinates envisaged in the vesting order. Binding Co-ordinates of the Mining plan has to be in line with the Vesting order. This needs to be reconciled.	In the Certified Map (Refer Plate 2),CMPDI has certified the binding co-ordinates in Modified Everest System which are same as of Vesting Order, along with the equivalent coordinates in WGS- 84 system. Now the coordinates have been mentioned in both the systems and incorporated in para 1 (d) of Checklist and para. 3.1(d) of Chapter III.
4	Annexure - II and Plate -II	The plan on which CMPDIL certificate has been obtained should geo-reference coordinates of the lease area, block boundary over the conceptual plan submitted with the proposed mining plan depicting excavation area, OB dumps, infrastructure etc. This needs to be corrected.	In the CMPDIL certified plan, lease area, surface and floor limits of final stage quarry plan, excavation area, infrastructure have been shown. As entire OB has been planned to be backfilled in the final stage and no external waste dump will exist in the lease area, OB dumps have not been shown.
5	CL 7(c), Plate no 2 & 3	Out of the total block area of 12.98 sq. km, detail exploration in 8.32 sq. km of area has been completed. Detail exploration of balance 4.65 sq. km is proposed to be completed in 1 years i.e. by 2020-21, however the excavation area proposed at CL para 11 (a) is 11.71 sq.km. this needs to be reconciled.	The GR (Salient Features, para 19) states, "19. Recommendations: Out of 105.388 million tonnes of reserves, estimated for opencast proposition about 15.150 million tonnes (14.37%) of reserves are actually under Forest Cover. Similarly, out of 9.861 million



आनन्द कुमार मण्डल
 ANANDA KUMAR MANDAL
 अवर सचिव / Under Secretary
 कोयला मंत्रालय / Ministry of Coal
 भारत सरकार / Govt. of India
 शास्त्री भवन / Shastrī Bhawan
 नई दिल्ली / New Delhi

Signature :
 Name : Rajesh Kumar Chopra
 Recognised Qualified (Recognised Qualified Person)
 Registration No.: 34012(03)/2014-CPAM
 Rajesh Kumar Chopra Valid upto: 28.05.2025
 Reg. No-34012 (03) / 2014-CPAM
 Valid Upto-28.05.2025

Place : Ranchi

Date :13.06.2019

Compliance of Observations of Technical Members of Standing Committee of Ministry of Coal on Mining Plan (Including Mine Closure Plan of Suliyari Coal Mines of APMDC Limited received vide Letter no. .CPAM-34011/14/2017-CPAM dated 23.05.2019

Sl. No.	Ref. Para	Observations of Technical Members of Standing Committee of Ministry of Coal	Compliance
		<p>Further, whether the proposed mining plan considers the extractable reserves of the unexplored area as well, as because the proposed mining lease area shown at plate – No 3 and Plate no -2 depicts entire block area, this needs to be deliberated.</p>	<p>tonnes of coal reserves estimated for underground proposition, about 0.367 million tonnes (3.72%) are under forest cover.</p> <p>Although, these reserves are grouped under 'Proved' category for all practical purposes, it may be considered as "Indicated" category reserves, till the data gap is filled by drilling few boreholes. It is therefore recommended to drill few more boreholes (say, 5 to 6 boreholes) in the forest cover to re-categorised the reserves of the forest cover to 'Proved' category."</p> <p>Para 1.01.05 of GR States: "1.01.05 Consequent upon the agreement, MECL mobilized its resources in Suliyari-Belwar Coal block & has commenced the drilling campaign on dated 17.05.2010 by deploying three drill units. The exploration activities in the area were concluded on dated 23.06.2011. The entire investigation involves 18938.50 m of drilling in 128 'MS' series boreholes in an area of 10.74 Sq Km. About six to seven proposed boreholes within reserved Forest area have not been drilled in want of Forest Permission which covers about 2.24 Sq Km area in the southwestern part of the block."</p> <p>As such only 2.24 sq.km area has not been drilled, and the earlier given figure of 4.65 sq.km has been</p>

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 आनन्द कुमार मण्डल
 ANANDA KUMAR MANDAL
 अवर सचिव / Under Secretary
 कोयला मंत्रालय / Ministry of Coal
 भारत सरकार / Govt. of India
 शाहीबाग, नई दिल्ली / Shahi Bagh
 New Delhi

Recognised Qualified Person
 Signature: 
 Name : Rajesh Kumar Chopra
 (Recognised Qualified Person)
 Reg. No-34012 (03) / 2014-CPAM
 Registration No.: 34012(03)/2014-CPAM
 Valid upto : 28.05.2025

Place : Ranchi

Date : 13.06.2019

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Sl. No.	Ref. Para	Observations of Technical Members of Standing Committee of Ministry of Coal	Compliance
6	CL 7 (h & i)	The mining plan envisages extractable reserve up to VII Bottom seam only, while seams below VII Bottom seam have attained workable thickness. Liquidation of these seams namely Local II, VI, V etc. have been ruled out due to less thickness and high stripping ratio. Is there any plan to liquidate coal reserves of these seams in future? Whether any study on workability	corrected at para 7(f) of checklist and para 4.2.1 & 4.2.3 of Chapter IV. The drilling of 8 Nos. of additional boreholes has been included in future exploration program. Above reserves under Forest Land are also included in the Mining Plan. (it is to be noted that reserve figures in GR are for 0.9m thickness and above, whereas, this mining Plan also mentions that of 0.5m thickness and above) Surrounding these unexplored patches in reserve forest land, there are numerous peripheral boreholes, and the farthest distance from the nearest borehole is not more than 450 m. The above have been incorporated in para 7(c), 7(f) of Checklist, Plate no 3 and para 4.2.1 & 4.2.3 of Chapter IV. Underlying Seam Local II Top, Local II Bottom, Seam IV, Seam III and Seam II have maximum thickness of 0.75, 0.43, 0.77, 0.58 and 0.3 m respectively and prima facie ruled out for mining. Seam Local I has attained its maximum thickness of 1m only in one borehole and is not workable. Seam Local II, though it has a maximum thickness of

आनन्द कुमार मण्डल
ANANDA KUMAR MANDAL
अवर सचिव / Under Secretary
कोयला मंत्रालय / Ministry of Coal
भारत सरकार / Govt. of India
शास्त्री भवन / Shastri Bhawan
नई दिल्ली / New Delhi

Signature : 
Recognised Qualified Person (Recognised Qualified Person)
Rajesh Kumar Chopra (Registration No.: 34012(03)/2014-CPAM
Reg. No-34012 (03) / 2014 Valid upto : 28.05.2025

Place : Ranchi

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Compliance of Observations of Technical Members of Standing Committee of Ministry of Coal on Mining Plan (Including Mine Closure Plan of Suliyari Coal Mines of APMDC Limited received vide Letter no. .CPAM-34011/14/2017-CPAM dated 23.05.2019

Sl. No.	Ref. Para	Observations of Technical Members of Standing Committee of Ministry of Coal	Compliance
		and financial viability of these seams have been done? If so, the same should be attached.	1.97 m, in 70% of the area it is less than 1 m, and prima facie ruled out for mining. Seam VI which lies about 10-30m below Seam VII Bottom has a thickness range of 0.7 m to 1.83 m. Its workability has been examined for opencasting in the areas where its thickness is more than 1m. An Iso-parting plan also showing seam thickness has been prepared and given vide plate No. 19A. It could be seen that the more than 1 m thickness of this seam occurs in small isolated patches with overlying partings of 15 to 25 m and hence excluded from opencast.
7	CL8(g), Sum5.0 (d) & Para 5.8.2	Starting date of coal production as per CMDPA signed under CMSP/MMDR needs to be mentioned. Further, the life of the mine of the mine as per this mining plan is 23 years (including 1 years of construction period). As such instead of indicating Construction years as C1 it should be year-1 and accordingly the	As per GR, the total reserves of morethan 1.5 m thickness of underlying seams are only 0.39 Mt. The seams are thin. However, a study will be conducted for mineability of these seams by underground method, if found feasible a revised mining plan will be submitted for their extraction after the exhaustion of OC reserves. Same has been given at para 7(h) & 7(i) of Checklist and para 4.7 of chapter IV. As per the Allotment Agreement dated 23.08.2016 (Schedule D-Efficiency Parameters), the time limit for Grant of opening permission is 44 months in case of Forest land, from the date of Allotment Order dated 29.09.2016; i.e. by 28.05.2020.

आनन्द कुमार मण्डल
ANANDA KUMAR MANDAL
अवर सचिव / Under Secretary
कोयला मंत्रालय / Ministry of Coal
भारत सरकार / Government of India
शांति भवन / Shanti Bhawan
नई दिल्ली / New Delhi

Place : Ranchi

Date :13.06.2019

Signature: 
Name : Rajesh Kumar Chopra
(Recognised Qualified Person)
Reg. No-34012 (03)/2014-CPAM
Registration No.: 34012(03)/2014-CPAM
Valid upto : 28.05.2025
Page 13 Valid Upto 28.05.2025

Compliance of Observations of Technical Members of Standing Committee of Ministry of Coal on Mining Plan (Including Mine Closure Plan of Suliyari Coal Mines of APMDC Limited received vide Letter no. .CPAM-34011/14/2017-CPAM dated 23.05.2019

Sl. No.	Ref. Para	Observations of Technical Members of Standing Committee of Ministry of Coal	Compliance
		life should be modified from year 1 to year 23.	The mine is to be opened thereafter and at least 90% of the annual scheduled production/ rated capacity as per approved Mining Planis to be achieved in case of opencast mine.
			This is the first Mining Plan for Suliyari Coal Mine, and start of production has been envisaged during the year 2020-21, and the year of achieving targeted production of 5.0 MTPA during the year 2021-22.
			The above has been incorporated in Para 1.14 of Chapter 1.
			Construction year C1 indicated earlier has been changed to 1 st year in the para 8(g) of Checklist, para 5.0(d) of Summarised data and para 5.8.2 of Chapter V.
8	CL 7 (k)	UNFC based classification of Coal resources should also be furnished in the para under reference.	UNFC classification of coal resources has been given at para 7(k) of Checklist and para 4.9.1 of Chapter IV.
9	CL 6 (g)	As per the vesting order the mine has been vested for sale of coal. What is the likely mode of transport from the pit head to consumer locationsisit more than 500 km? if distance of end use consumers are more than 500 km, the reason for non-provisioning of coal beneficiation arrangements in compliance of MoEF&CC circular needs to be explained.	The MOEF notification (02.01.2014) is applicable to thermal power plants and for Coal ash content exceeding thirty four percent on quarterly average basis. While the sale of coal will be for all sectors and consumers, for thermal power plants, too; as the ash content of Suliyari Coal is around 25 % (G7), it will be outside the purview of this MOEF Notification.


आनन्द कुमार मण्डल
ANANDA KUMAR MANDAL
 अवर सचिव / Under Secretary
 कोयला मंत्रालय / Ministry of Coal
 भारत सरकार / Government of India
 शांति भवन / Shaanti Bhawan
 नई दिल्ली / New Delhi

Place : Ranchi
 Date : 13.06.2019
 Signature : **Rajesh Kumar Chopra**
 (Recognised Qualified Person)
Rajesh Kumar Chopra
 Registration No.: 34012(03)/2014-CPAM
 Reg. No-34012 (03) / 2014-CPAM
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 Page 14

Compliance of Observations of Technical Members of Standing Committee of Ministry of Coal on Mining Plan (Including Mine Closure Plan of Suliyari Coal Mines of APMDC Limited received vide Letter no. .CPAM-34011/14/2017-CPAM dated 23.05.2019

Sl. No.	Ref. Para	Observations of Technical Members of Standing Committee of Ministry of Coal	Compliance
10	CL 8 e	The production from the mine is envisaged to be started from 2020-21, the starting year of production in line with CMDPA signed under CMSP/MMDR should also be envisaged.	As per the Allotment Agreement dated 23.08.2016 (Schedule D-Efficiency Parameters), the time limit for Grant of opening permission is 44 months in case of Forest land, from the date of Allotment Order dated 29.09.2016; i.e. by 28.05.2020. The mine is to be opened thereafter and at least 90% of the annual scheduled production/ rated capacity as per approved Mining Plan is to be achieved in case of opencast mine. This is the first Mining Plan for Suliyari Coal Mine, and start of production has been envisaged during the year 2020-21, and the year of achieving targeted production of 5.0 MTPA during the year 2021-22. Construction year C1 indicated earlier has been changed to 1 st year in the para 8(g) of Checklist, para 5.0(d) of Summarised data, para 1.14 of chapter I and para 5.8.2 of Chapter V.
11		Sl. No. 11 is omitted in observations.	Sl. No. 11 is omitted in observations.

आनन्द कुमार गुप्ता
ANANDA KUMAR MANDAL
अवर सचिव / Under Secretary
कोयला मंत्रालय / Ministry of Coal
भारत सरकार / Govt. of India
शास्त्री भवन / Shastri Bhawan
नई दिल्ली / New Delhi



Recognised Qualified Person
Rajesh Kumar Chopra
Reg. No-34012 (03) / 2014-CPAM
Valid Upto-28.05.2025

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Name : Rajesh Kumar Chopra
(Recognised Qualified Person)
Registration No.: 34012(03)/2014-CPAM
Valid upto : 28.05.2025

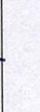
Place : Ranchi

Date :13.06.2019

Compliance of Observations of Technical Members of Standing Committee of Ministry of Coal on Mining Plan (Including Mine Closure Plan of Suliwari Coal Mines of APMDC Limited received vide Letter no. CPAM-34011/14/2017-CPAM dated 23.05.2019

Sl. No.	Ref. Para	Observations of Technical Members of Standing Committee of Ministry of Coal	Compliance
12	CL 10 (j)	The project area and lease area as proposed Checklist para 5 (a) and 5 (b) is 1298 Ha, while some additional land (Not quantified) outside the block is envisaged for Township, road diversion, etc. This area may not come under Mining lease area but the same should come under project area. Has this area been accounted in the project area? If not, the project area should be reconciled, as because post closure of the mine restoration of the same will come into picture. A letter of intent issued by the State Govt for the area under reference needs to be attached.	The road diversion has been planned within the Block /ML area. The above has been incorporated in Para 3.9.2(4) of Chapter 3. A 5 Ha area for township which will not be the part of ML and away from the mine has now been added into project area, and escrow amount has been accordingly modified. The above has been incorporated in Para 3.7 of Chapter 3.
13	Sum 1 (b)	The Registered addresses of the Block allottee at para under reference is different from the addresses mentioned at Vesting/ Allotment order. This needs to be reconciled.	Address changed subsequent to Vesting Order. Nominated Authority has been informed about change of Registered address vide letter no. APMDC/MJA/COAL/2019-20/378 dated 13.06.2019, ref Annexure- XXI
14		Calendar programme of excavation can be further optimized during initial years and proposed population of equipment for the last 4-5 years of operation may be realoked.	Calendar programme has been further optimized by changing OBR. The population of equipment which was earlier estimated till 15 years only has now also been estimated for 16 th year onward (i.e. till end of life) also. The above has been incorporated in Chapter 5.
15		Infrastructures have been proposed in the dip side of the block. While studying the stage plans, it seems that the infrastructure will have been removed when	During end years, infrastructures will be shifted over the reclaimed land over backfilled area. As such no additional land is envisaged.


 आनन्द कुमार मण्डल
 ANANDA KUMAR MANDAL
 अवर सचिव / Under Secretary
 कोयला मंत्रालय / Ministry of Coal
 भारत सरकार / Govt. of India
 शास्त्री भवन / Shastri Bhawan
 नई दिल्ली / New Delhi

Recognised Qualified Person
 Signature : 
 Name : Rajesh Kumar Chopra
 (Recognised Qualified Person)
 Reg. No-34012 (03) / 2014
 Registration No.: 34012(03)/2014-CPAM
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Compliance of Observations of Technical Members of Standing Committee of Ministry of Coal on Mining Plan (Including Mine Closure Plan of Suliyari Coal Mines of APMDC Limited received vide Letter no. .CPAM-34011/14/2017-CPAM dated 23.05.2019

Sl. No.	Ref. Para	Observations of Technical Members of Standing Committee of Ministry of Coal	Compliance
16		<p>the mine reaches the location of the infrastructure. It is not clear from the mining plan whether the infrastructure will be relocated or not. Since, it will not be possible for the mine to run without any infrastructure, the relocation site of the temporary infrastructure must be provided and the land required for such relocation must be included in the land requirement for the project.</p> <p>The entire insitu OB quantity of 783.28 Mcum has been accommodated internally by dumping upto a RL of 500 (average 50m above the Surface). The project has a stripping ratio of 7.29 cum/te. This seems to be infeasible and should be re-examined. Moreover stage-wise OB accommodation also seems to be infeasible.</p>	<p>The above has been incorporated in Para 8.7 of Chapter 8.</p> <p>The dump plans have been reexamined, and all stage plans have been slightly modified to maximize internal dumping. Further, backfilling has now been started earlier, i.e. from 4th year.</p> <p>Suliyari quarry has a typical structure. As we move from dip to rises side, there are a series of down throw faults, which creates additional space for backfilling. Further, transport routes have been planned to allow abutting of backfills with batters on both sides of strike to maximize internal dumping. Thus accommodating the entire volume. The volume calculations have been verified through Minex. However, in actual operation, the dump profile may undergo a slight variation to suit the local site conditions. There is enough space available on top, to raise a temporary bench in case of exigencies. As such no quantity will go outside, the project/ ML area.</p>


 आनन्द कुमार हुंसवा
 ANANDA KUMAR MANDAL
 अवर सचिव / Under Secretary
 कोयला मंत्रालय / Ministry of Coal
 भारत सरकार / Govt. of India
 शास्त्री भवन / Shastri Bhawan
 नई दिल्ली / New Delhi

Recognised Qualified Person
 Rajesh Kumar Chopra
 Reg. No-34012 (03) / 2014-CPAM
 Valid Upto-28.05.2025
 Signature : 
 Name : Rajesh Kumar Chopra
 (Recognised Qualified Person)
 Registration No.: 34012(03)/2014-CPAM
 Valid upto : 28.05.2025

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Sl. No.	Ref. Para	Observations of Technical Members of Standing Committee of Ministry of Coal	Compliance
17		<p>Hurdul nala is proposed to be diverted over the backfilled area in the south side through PCC lined channel. From safety point of view, it should be diverted along the block boundary and at a safe distance from pit boundary. Further, proposed route of the Nala diversion needs to be shown on the submitted plans</p>	<p>The diversion alignment of Hurdul nala along the block boundary was examined and was prima facie Ruled out on account of following considerations;</p> <p>Diversion along southern boundary: There are 3 hills on the southern boundary with top RLs of 560m, 495m, and 495 m respectively whereas Bed of Nala at stating point is about 455mRL. Excavating through this hill is not feasible to a depth of more than 100 m. Further such diversion channel would have required a surface width + safety barrier of about 150 m causing blocking of coal reserves. Moreover diversion length would have increased from 8 km as proposed now to about 10km.</p> <p>Diversion along Northern boundary: Northern side, too, have continuous high grounds of RL more than 490 m, this alignment is also impractical and would have resulted in loss of coal in surface width + safety barrier a barrier of about 150 m. And would have created a bottleneck of crossing Nala throughout the mine life. Further, in both the above alternatives, the volume of rock to be excavated will be more than 50 Mcum, for which there is no space, for its disposal. The above matter has now also been incorporated in Chapter 19</p>

Recd. by Rajesh Kumar Chopra

Signature: Rajesh Kumar Chopra

Reg. No-34012 (03) / 2014-AM: Rajesh Kumar Chopra

Valid upto-28.05.2025 (Recognised Qualified Person)

Registration No.: 34012(03)/2014-CPAM
Valid upto : 28.05.2025

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ANANDA KUMAR MANDAL
अवर सचिव / Under Secretary
कोयला मंत्रालय / Ministry of Coal
भारत सरकार / Govt. of India
शास्त्री भवन / Shastri Bhawan
नई दिल्ली / New Delhi

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Sl. No.	Ref. Para	Observations of Technical Members of Standing Committee of Ministry of Coal	Compliance
18		The mining plan proposes mode of despatch of coal through truck loading silos and outbound transportation through trucks. Alternate environment friendly mode of transportation such as Rail should be considered.	Suliyari Coal Mine has been allotted to M/s APMDC for Sale of Coal, therefore selling of coal has been envisaged at pit head. Coal will be loaded into trucks of long term buyers and will be transported into these tarpaulin covered trucks upto nearest Bargwan railway siding located at a distance of approx. 25 km from the coal block or will be transported to the end-use plant of the buyers depending upon distance of end-use plant of buyers from the mines. The above matter has now also been incorporated in para 7.9 of Chapter 7.


 आनन्द कुमार मण्डल
 ANANDA KUMAR MANDAL
 अवर सचिव / Under Secretary
 कोयला मंत्रालय / Ministry of Coal
 भारत सरकार / Govt. of India
 शांति भवन / Shanti Bhawan
 नई दिल्ली / New Delhi

Recognised Qualified Person
 Rajesh Kumar Chopra
 Reg. No-34012 (03) / 2014-CPAM
 Valid Upto-28.05.2025



Signature :
 Name : Rajesh Kumar Chopra
 (Recognised Qualified Person)
 Registration No.: 34012(03)/2014-CPAM
 Valid upto : 28.05.2025

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Date : 13.06.2019



**CHECKLIST FOR MINING PLAN
(Including MINE CLOSURE PLAN)
OF SULIYARI COAL MINE (1298 Ha.)
APPLICANT: ANDHRA PRADESH MINERAL
DEVELOPMENT CORPORATION LIMITED**



CHECKLIST FOR MINING PLAN (INCLUDING MINE CLOSURE PLAN)

Sl. No.	Parameters	Details	Observations										
1.	Details of the Block												
a.	Name of Coal /LigniteBlock	Suliyari Coal Mine											
b.	Name of the Coalfield/Coal belt	Singrauli Coalfield (Main Basin)											
c.	Particulars of adjacent blocks: North, South, East, West	<table border="1"> <thead> <tr> <th>Direction</th> <th>Block Boundary</th> </tr> </thead> <tbody> <tr> <td>North</td> <td>Dhirauli Coal Block</td> </tr> <tr> <td>South</td> <td>Sindrawal Coal Block</td> </tr> <tr> <td>East</td> <td>Dhirauli Coal Block</td> </tr> <tr> <td>West</td> <td>Dongrital-II Coal Block</td> </tr> </tbody> </table>	Direction	Block Boundary	North	Dhirauli Coal Block	South	Sindrawal Coal Block	East	Dhirauli Coal Block	West	Dongrital-II Coal Block	
Direction	Block Boundary												
North	Dhirauli Coal Block												
South	Sindrawal Coal Block												
East	Dhirauli Coal Block												
West	Dongrital-II Coal Block												
d.	Toposheet No with latitude and longitude	<u>Vesting Order</u>	<u>Mining Plan & Mine Closure Plan (CMPDI certification dt.27.07.2018)</u>										
	- Toposheet No	Survey of India Toposheet no. 64I/5	Survey of India Toposheet no. 64I/5										
	- Latitudes(N):	23 ⁰ 55'28"N to 23 ⁰ 58'15"N	<u>In Modified Everest System</u> 23 ⁰ 55'28"N to 23 ⁰ 58'15"N <u>In WGS-84 System</u> 23 ⁰ 55'29.919"N to 23 ⁰ 58'16.950"N										
	- Longitude(E):	82 ⁰ 18'52"E to 82 ⁰ 20'58"E	<u>In Modified Everest System</u> 82 ⁰ 18'52"E to 82 ⁰ 20'58"E <u>In WGS-84 System</u> 82 ⁰ 18'45.141"E to 82 ⁰ 20'51.126"E										
e.	Location of the Block : District/State	District : Singrauli State : Madhya Pradesh											
f.	CMPDIL Certificate of the project boundary of the Mining	Project boundary of the Mining Plan certified by CMPDIL vide letter no.											

Place : Ranchi

Date :13.06.2019

Page 20

Signature :

Name : Rajesh Kumar Chopra
(Recognised Qualified Person)

Registration No.: 34012(03)/2014

Valid upto : 28.05.2025

Recognised Qualified Person
Rajesh Kumar Chopra
No-34012 (03) / 2014-CPAM
Upto-28.05.2025

[Handwritten Signature]

आनन्द कुमार मण्डल
ANANDA KUMAR MANDAL
अवर सचिव / Under Secretary
कोयला मंत्रालय / Ministry of Coal
सरकार / Govt. of India
शास्त्री भवन / Shastri Bhawan
नई दिल्ली / New Delhi

	CHECKLIST FOR MINING PLAN (Including MINE CLOSURE PLAN) OF SULIYARI COAL MINE (1298 Ha.) APPLICANT: ANDHRA PRADESH MINERAL DEVELOPMENT CORPORATION LIMITED	
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Sl. No.	Parameters	Details	Observations				
	Plan	CMPDI/BD/C/886A/E-62713/26 dated 27.07.2018 is enclosed as annexure –II					
g.	Type of the Project (Operating/ under implementation)	Under implementation					
2.	Details of Present Proposal						
a.	Base Date of Mining Plan/Mine Closure Plan	01.04.2019					
b.	Scope of the Mining Plan	Present document is a Mining Plan (including MCP) of Suliyari Coal Mine submitted for approval under Rule 22 of Mineral Concession Rule 1960 for obtaining mining lease for opening an opencast coal mine of 5.0 million tonne annual capacity.					
3.	Allottee Company Details						
a.	Name of Mine Allottee	Andhra Pradesh Mineral Development Corporation Limited					
b.	Status of the Applicant Company	State Government Undertaking of Andhra Pradesh					
c.	Details of Allotment/Vesting Order	Vesting Order no. F. No 103/10/2016/NA dated 29 th September 2016 Purpose : Sale of Coal					
d.	Name & Address of the applicant	<table border="1"> <thead> <tr> <th>Registered Office</th> <th>Principal Place of Business</th> </tr> </thead> <tbody> <tr> <td>294 / 1D, Tadigadapa to Enikepadu 100 Ft. Road, Kanuru Village, Penamaluru Mandal, Vijayawada - 521137</td> <td>294 / 1D, Tadigadapa to Enikepadu 100 Ft. Road, Kanuru Village, Penamaluru Mandal, Vijayawada - 521137</td> </tr> </tbody> </table>	Registered Office	Principal Place of Business	294 / 1D, Tadigadapa to Enikepadu 100 Ft. Road, Kanuru Village, Penamaluru Mandal, Vijayawada - 521137	294 / 1D, Tadigadapa to Enikepadu 100 Ft. Road, Kanuru Village, Penamaluru Mandal, Vijayawada - 521137	
Registered Office	Principal Place of Business						
294 / 1D, Tadigadapa to Enikepadu 100 Ft. Road, Kanuru Village, Penamaluru Mandal, Vijayawada - 521137	294 / 1D, Tadigadapa to Enikepadu 100 Ft. Road, Kanuru Village, Penamaluru Mandal, Vijayawada - 521137						
	- District	Vijayawada	Vijayawada				
	- State	Andhra Pradesh	Andhra Pradesh				
	- Pin Code	521137	521137				
	- Phone	+919490167231, 0866 -2429999	+919490167231, 0866 -2429999				

Place : Ranchi

Date : 13.06.2019


ANANDA KUMAR MANDAL
 Under Secretary
 Ministry of Coal
 Govt. of India
 Shastri Bhawan
 New Delhi

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Signature :

Name : Rajesh Kumar Chopra
 (Recognised Qualified Person)

Registration No.: 54012 (CPAM)

Valid upto : 28.05.2025

Recognised Qualified Person
Rajesh Kumar Chopra
 No. 12 (03) / 2014-CPAM
 Valid Upto-28.05.2025



**CHECKLIST FOR MINING PLAN
(Including MINE CLOSURE PLAN)
OF SULIYARI COAL MINE (1298 Ha.)
APPLICANT: ANDHRA PRADESH MINERAL
DEVELOPMENT CORPORATION LIMITED**



Sl. No.	Parameters	Details		Observations
	- Fax	0866 -2429977	0866 -2429977	
	- Gram	Kanuru	Kanuru	
	- Telex	-	-	
	- e-mail	coalsuliyari@gmail.com		
e.	Relationship between and allottee company	Applicant and allottee company are same		
f.	Name and address of RQP with registration No			
	- Name of RQP	Rajesh Kumar Chopra		
	- Address	Rajesh Kumar Chopra Geology, Mining & Mineral Beneficiation Division, MECON Limited, Ranchi, P.O.- Doranda, Ranchi - 834002, Jharkhand		
	- Phone	09771474987 0651 – 2483649, 2483645		
	- Fax	0651 - 2482189, 2482214		
	- e-mail	rkchopra.mining@gmail.com, mining@meconlimited.co.in		
	- Telex	-		
	- Registration No.	34012(03)/2014-CPAM		
	- Date of grant / renewal	29.05.2015		
	- Valid upto	28.05.2025		
g.	Name of the Previous allottee of the Block	Andhra Pradesh Mineral Development Corporation Limited (APMDC is also the current Allottee)		
4.	Details of the Previous Approval of Mining Plan			
a.	Approval Letter no. and Date	Not Applicable. Present document is the 1 st Mining Plan.		
b.	Conditions, if any	Not Applicable		
c.	Scheduled year of start of production	Not Applicable		
d.	Proposed year of achieving the targeted production level	Not Applicable		
e.	Date of actual commencement of Mining Operations, if operations already started	Not applicable.		
f.	Likely date of Mining Operations, if operations not yet started	Not Applicable		

Place : Ranchi

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Signature :

Name : Rajesh Kumar Chopra
(Recognised Qualified Person)

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Valid upto : 28.05.2025

Recognised Qualified Person
Rajesh Kumar Chopra

34012(03)/2014-CPAM
Valid upto: 28.05.2025

8/1/2019
RANJESH KUMAR MANDAL
Under Secretary / Under Secretary
कोयला मंत्रालय / Ministry of Coal
भारत सरकार / Govt. of India
शास्त्री भवन / Shastri Bhawan
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**CHECKLIST FOR MINING PLAN
(Including MINE CLOSURE PLAN)
OF SULIYARI COAL MINE (1298 Ha.)
APPLICANT: ANDHRA PRADESH MINERAL
DEVELOPMENT CORPORATION LIMITED**



Sl. No.	Parameters	Details		Observations
	& reasons for non-commencement of operations			
g.	Planned production and actual levels achieved in last 3 years (Coal in Mte, OBinMm ³ , SR in m ³ /te)	Not Applicable		
h.	Reasons for difference between the planned and actual production levels	Not Applicable		
5.	Details of Changes in the new mining plan compared to earlier approval			
		Previous Mining Plan	Current Mining Plan	
a.	Lease Area, Ha	Not Applicable	1298 Ha	
b.	Project Area, Ha	Not Applicable	1303 Ha	
c.	Life of the Project, Years	Not Applicable	23 Years	
d.	Minimum Depth of Working, m Maximum Depth of working. m	Not Applicable	10 m 240 m	
e.	Geological Block, Ha	Not Applicable	1298 Ha	
f.	Production Target, Mtpa	Not Applicable	Rated : 5.0 Mtpa	
g.	Seams available "as per GR"	Not Applicable	As per GR 23 coal seams i.e Seam R-II, R-I, VIII, Local III, VII Top, VII Middle (Upper) VII Middle Lower (Top), VII Middle Lower (Bottom), VII Middle Lower, VII Middle Merged, VII Bottom (Upper), VII Bottom (Lower), VII Bottom, Local II (Top), Local II (Bottom), Local II, VI, Local I, V ,IV, III, II & I are available.	


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Place : Ranchi

Date : 13.06.2019

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Recognised Qualified Person
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 Name: Rajesh Kumar Chopra
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 Registration No.: 34012(03)/2014-CPAM
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**CHECKLIST FOR MINING PLAN
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Sl. No.	Parameters	Details	Observations
h.	Seams not considered for mining with reasons	Not Applicable	<p>Underlying Seam Local II Top, Local II Bottom, Seam IV, Seam III and Seam II have maximum thickness of 0.75, 0.43, 0.77, 0.58 and 0.3 m respectively and prima facie ruled out for mining. Seam Local I has attained its maximum thickness of 1m only in one borehole and is not workable.</p> <p>Seam Local II, though it has a maximum thickness of 1.97 m, in 70% of the area it is less than 1 m, and prima facie ruled out for mining. Seam VI which lies about 10-30m below Seam VII Bottom has a thickness range of 0.7 m to 1.83 m. Its workability has been examined for opencasting in</p>

Place : Ranchi

Date : 13.06.2019

ANAND KUMAR
अनंद कुमार / Under Secretary
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भारत सरकार / Govt. of India
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Recognised Qualified Person
Signature: Rajesh Kumar Chopra
Name: Rajesh Kumar Chopra
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Reg. No: 34012(03)/2014-CPAM
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**CHECKLIST FOR MINING PLAN
(Including MINE CLOSURE PLAN)
OF SULIYARI COAL MINE (1298 Ha.)
APPLICANT: ANDHRA PRADESH MINERAL
DEVELOPMENT CORPORATION LIMITED**



Sl. No.	Parameters	Details	Observations
		<p>the areas where its thickness is more than 1m. An Iso-parting plan also showing seam thickness has been prepared and given vide plate No. 19A. It could be seen that the more than 1 m thickness of this seam occurs in small isolated patches with overlying partings of 15 to 25 m and hence excluded from opencast.</p> <p>As per GR, the total reserves of more than 1.5 m thickness of underlying seams are only 0.39 Mt. The seams are thin. However, a study will be conducted for mineability of these seams by underground method, if found feasible a revised mining plan will be submitted for their extraction</p>	


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Place : Ranchi

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Recognised Qualified Person
Name: Rajesh Kumar Chopra
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**CHECKLIST FOR MINING PLAN
(Including MINE CLOSURE PLAN)
OF SULIYARI COAL MINE (1298 Ha.)
APPLICANT: ANDHRA PRADESH MINERAL
DEVELOPMENT CORPORATION LIMITED**



Sl. No.	Parameters	Details		Observations	
			after the exhaustion of OC reserves.		
i.	Geological Reserve, Mt	Not Applicable	142.36 Mt upto seam I		
UNFC Classification of Resource					
	UNFC Category	"111"	"321"	"341"	Total
	Resource/Reserve, Mt	107.43	5.65	29.28	142.36
J.	Blocked Reserve, Mt	Not Applicable		29.28Mt	
k.	Mineable Reserve, Mt	Not Applicable		113.08 Mt upto seam VII Bottom	
l.	Extractable Reserve, Mt	Not Applicable		107.43 Mt upto seam VII Bottom	
m.	% of extraction/recovery	Not Applicable		86.71% w.r.t. 123.89 Mt Geological reserve upto seam VII Bottom considered for opencast mining	
n.	Reserve Depleted (Till the base date), Mt	Not Applicable		Nil	
o.	Balance Extractable Reserve, Mt	Not Applicable		107.43 Mt	
p.	Average Grade	Not Applicable		G7	
q.	OB in Mm ³	Not Applicable		783.28 Mm ³	
r.	Stripping Ratio, m ³ /t	Not Applicable		7.29m ³ /t	
s.	Mining Technology	Not Applicable		Mechanised opencast using shovel dumper combination for Overburden and Surface miner, loader dumper for Coal Extraction	
t.	Coal beneficiation Envisaged	No		No	
u.	Handling of Rejects	Washery Reject : Not Applicable		Washery Reject : Not Applicable	
v.	Land Use Pattern, Ha				
1	Excavation Area	Not Applicable		1171.896	

Place : Ranchi

Date : 13.06.2019

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Recognised Qualified Person
Rajesh Kumar Chopra
Reg. No-34012 (03) / 2014-CPAM
Valid Upto-28.05.2025

आनन्द कुमार मण्डल
ANANDA KUMAR MANDAL
अवर सचिव / Under Secretary
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**CHECKLIST FOR MINING PLAN
(Including MINE CLOSURE PLAN)
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APPLICANT: ANDHRA PRADESH MINERAL
DEVELOPMENT CORPORATION LIMITED**



Sl. No.	Parameters	Details		Observations
2	Top Soil Dump	Not Applicable	No separate Area, to be put as temporary dump over coal bearing areas to be excavated, and to be rehandled.	
3	External Dump	Not Applicable	No separate Area, to be put as temporary dump over coal bearing areas to be excavated, and to be rehandled.	
4	Other Use (Road Diversion)	Not Applicable	4.439	
5	Infrastructure area	Not Applicable	19.327	
6	Green Belt	Not Applicable	-	
7	Safety Zone incl. embankment	Not Applicable	78.864	
8	Nalla Diversion		23.474	
9	Undisturbed Area	Not Applicable	Nil	
	Total Block Area/ML Area	Not Applicable	1298 Ha	
	Tenancy Land (Private)	Not Applicable	5 Ha	
	Total Project Area	Not Applicable	1303 Ha	
w.	Reason for Revision	Not Applicable. Present document is the 1 st Mining Plan.		
6.	End-use of Coal/Lignite			
a.	End-use of Coal/Lignite as per the approval by the Competent Authority	Sale of Coal		
b.	Norms adopted for calculating ROM quantity requirement based in the allotment order	Not Applicable. As per allotment order Suliyari Coal Mine has been allotted to M/s APMDC for sale of coal.		
		Clinker, MTPA	Power Plant, MTPA	Blast Furnace, MTPA
Capacity of the End-use Plant		Not Applicable as the Suliyari Coal Mine has been allotted to APMDC for Sale of Coal		

- Place : Ranchi

Date : 13.06.2019

ANANDA KUMAR MANDAL
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 अवर सचिव / Ministry of Coal
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 भारत सरकार / Shastri Bhawan
 शास्त्री भवन / New Delhi
 नई दिल्ली / New Delhi

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Signature
 Name: **Rajesh Kumar Chopra**
 (Recognised Qualified Person)
 Registration No. 34012(03)/2014-CPAM
 Valid upto 28.05.2025
 Reg. No. 34012(03)/2014-CPAM
 Valid Upto 28.05.2025



**CHECKLIST FOR MINING PLAN
(Including MINE CLOSURE PLAN)
OF SULIYARI COAL MINE (1298 Ha.)
APPLICANT: ANDHRA PRADESH MINERAL
DEVELOPMENT CORPORATION LIMITED**



Sl. No.	Parameters	Details	Observations
	Capacity of The Project, Mtpa	5.0 Mtpa	
	Raw Coal Availability from the Project, Mtpa	5.0 Mtpa	
	Washed Coal Availability , Mtpa	Not Applicable	
	Rejects, Mtpa	Not Applicable	
	Station Unit Heat Rate, kCal/kwh	Not Applicable	
	Average Calorific Value of Coal, kcal/kg		
	Raw Coal	5333 Kcal/kg	
	Washed Coal	Not Applicable	
	Rejects	Not Applicable	
	Consumption Norm, tonnes/MW	Not Applicable	
	Plant Load Factor	Not Applicable	
	Coal Requirement, Mtpa	Not Applicable	
	Total Coal Requirement for End-use Plant, Mtpa	Not Applicable	
	Source of Coal requirement	Suliyari Coal Mine	
	Coal from this project, Mtpa	5.0 Mtpa	
	Linkage/e-Auction from CIL, Mtpa	Not Applicable	
	Other Block of Company, Mtpa	Not Applicable	
c.	Percentage of end-use requirement to be met from this mine	Not Applicable. End use is the sale of coal	
d.	If washing/beneficiation of the coal/lignite is planned to be conducted on site or adjacent to the extraction area briefly describe the nature of the beneficiation and recovery rate, consumption of water etc.	Not Applicable. Washing of coal has not been envisaged for Suliyari Coal Mine	
e.	Proposed Use of Rejects/Middling's	Not Applicable. Washing of coal has not been envisaged for Suliyari Coal Mine therefore middlings/rejects will not be generated.	
f.	Distance of End use Plant from the pithead of the project in "km"	Not applicable. The block has been allotted to APMDC for sale of coal.	
g.	Mode of Coal Transport	Suliyari Coal Mine has been allotted to M/s APMDC for Sale of Coal , therefore selling of coal has been envisaged at pit head. Coal will be loaded into trucks of	

Place : Ranchi

Date : 13.06.2019

Signature :

Name : Rajesh Kumar Chopra

(Recognised Qualified Person)

Registration No.: 34012(03)/2014-CPAM

Valid upto : 28.05.2025

Recognised Qualified Person
Rajesh Kumar Chopra
Reg. No-34012 (03) / 2014-CPAM
Valid Upto-28.05.2025

आनन्द कुमार मण्डल
ANANDA KUMAR MANDAL
अवर सचिव / Under Secretary
कोयला मंत्रालय / Ministry of Coal
भारत सरकार / Govt. of India
शास्त्री भवन / Shastri Bhawan
नई दिल्ली / New Delhi

THE UNIVERSITY OF CHICAGO
DEPARTMENT OF CHEMISTRY
5780 SOUTH CAMPUS DRIVE
CHICAGO, ILLINOIS 60637

NAME

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PHONE

CITY

STATE

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**CHECKLIST FOR MINING PLAN
(Including MINE CLOSURE PLAN)
OF SULIYARI COAL MINE (1298 Ha.)
APPLICANT: ANDHRA PRADESH MINERAL
DEVELOPMENT CORPORATION LIMITED**



Sl. No.	Parameters	Details	Observations											
		long term buyers and will be transported into these tarpaulin covered trucks upto nearest Bargwan railway siding located at a distance of approx. 25 km from the coal block or will be transported to the end-use plant of the buyers depending upon distance of end-use plant of buyers from the mines. Automatic In Motion Truck loading system have been envisaged at pithead for loading of coal into trucks of external buyers.												
7	Exploration and Geology													
a.	Geological Block Area "Ha"	1298 Ha												
b.	Status of exploration in the Block	Detailed exploration carried out in non forest area.												
c.	Area covered by Detailed exploration within the block (sq. km)	10.74 Sq. km												
d.	Whether entire area has been covered by detailed exploration	No												
e.	No. of boreholes drilled within the block	136 Nos.												
f.	Whether any further exploration/study is required or suggested and timeframe in which it is to be completed	Yes. Detailed exploration in 2.24 sq. km area is required. Year-wise proposed exploration plan is given below. <table border="1"> <thead> <tr> <th rowspan="2">Year</th> <th colspan="2">Proposed Exploration</th> </tr> <tr> <th>No. of Boreholes</th> <th>Meterage</th> </tr> </thead> <tbody> <tr> <td>1st Year (FY 2020-21)</td> <td>8</td> <td>800</td> </tr> <tr> <td>Total</td> <td>8</td> <td>800</td> </tr> </tbody> </table>	Year	Proposed Exploration		No. of Boreholes	Meterage	1 st Year (FY 2020-21)	8	800	Total	8	800	
Year	Proposed Exploration													
	No. of Boreholes	Meterage												
1 st Year (FY 2020-21)	8	800												
Total	8	800												
g.	Overall borehole density within the block (no./ sq. km)	10.48 Boreholes/sq. Km												
h.	No. of seams available as per GR	As per GR 23 coal seams i.e Seam R-II, R-I, VIII, Local III, VII Top, VII Middle (Upper) VII Middle Lower (Top), VII Middle Lower (Bottom), VII Middle Lower, VII Middle												

Place : Ranchi

Date :13.06.2019

Signature Person
 Name : Rajesh Kumar Chopra
 (Recognised Qualified Person)
 Reg. No-34012
 Registration No.: 34012(03)/2014-CPAM
 Valid Upto-28.05.2025

आनन्द कुमार शर्मा
 ANANDA KUMAR SHARMA
 सचिव / Under Secretary
 कोयला मंत्रालय / Ministry of Coal
 भारत सरकार / Govt. of India
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(Including MINE CLOSURE PLAN)
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APPLICANT: ANDHRA PRADESH MINERAL
DEVELOPMENT CORPORATION LIMITED**



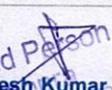
Sl. No.	Parameters	Details	Observations
		Merged, VII Bottom (Upper), VII Bottom (Lower), VII Bottom, Local II (Top), Local II (Bottom), Local II, VI, Local I, V, IV, III, II & I are available.	
i.	Seams not considered for mining with reason	<p>10 Nos. of seams i.e. seams Local II (Top), Local II (Bottom), Local II, VI, Local I, V, IV, III, II & I have not been considered for mining due to less thickness and high stripping ratio due to higher depth. Underlying Seam Local II Top, Local II Bottom, Seam IV, Seam III and Seam II have maximum thickness of 0.75, 0.43, 0.77, 0.58 and 0.3 m respectively and prima facie ruled out for mining.</p> <p>Seam Local I has attained its maximum thickness of 1m only in one borehole and is not workable.</p> <p>Seam Local II, though it has a maximum thickness of 1.97 m, in 70% of the area it is less than 1 m, and prima facie ruled out for mining.</p> <p>Seam VI which lies about 10-30m below Seam VII Bottom has a thickness range of 0.7 m to 1.83 m. Its workability has been examined for opencasting in the areas where its thickness is more than 1m. An Iso-parting plan also showing seam thickness has been prepared and given vide plate No. 19A. It could be seen that the more than 1 m thickness of this seam occurs in small isolated patches with overlying partings of 15 to 25 m and hence excluded from opencast.</p> <p>As per GR, the total reserves of more</p>	


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ANANDA KUMAR MANDAL
अवर सचिव / Under Secretary
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शास्त्री भवन / Shastri Bhawan
नई दिल्ली / New Delhi

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Signature: 
Name: Rajesh Kumar Chopra
(Recognised Qualified Person)

Registration No.: 34012103/2014-CPAM
Valid upto: 28.05.2025

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**CHECKLIST FOR MINING PLAN
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DEVELOPMENT CORPORATION LIMITED**



Sl. No.	Parameters	Details	Observations
		than 1.5 m thickness of underlying seams are only 0.39 Mt. The seams are thin. However, a study will be conducted for mineability of these seams by underground method, if found feasible a revised mining plan will be submitted for their extraction after the exhaustion of OC reserves.	
j.	Dip of the Seam	1 ⁰ to 5 ⁰	
k.	Seam-wise-Thickness and Depth with Reserve assessment		
	Seam-wise-thickness and depth with reserve assessment is given in table 1.1 at the end of checklist		
l.	Average GCV	5333 kcal/kg	
m.	Gross Geological reserve of the Block, Mt	142.36 Mt upto Seam I	
n.	Net Geological reserve of the Block, Mt	142.36 Mt upto Seam I	
o.	Mineable Reserve, Mt	113.08 Mt upto VII Bottom Seam	
p.	Blocked Reserve, Mt	29.28 Mt upto Seam I	
q.	Corresponding extractable reserve of the block	107.43 Mt upto VII Bottom Seam	
r.	% of Extraction	86.71 % w.r.t. Geological Reserve of 123.89 Mt upto seam VII Bottom considered for mining	
s.	Reserve already depleted (as on 01.04.2018)	Not Applicable. It is a virgin mine	
t.	Balance Reserve (As on 01.04.2018)	107.43 Mt	
8	Mining		
a.	Existing method of mining, if mine is under operation	Not Applicable. It is a virgin mine	
b.	Proposed method of mining with justification of suitability of mining method	<p>Proposed Method : Mechanised Opencast Method</p> <p>Mechanised opencast using shovel dumper combination for Overburden and Surface miner for Coal Extraction</p> <p>Justification: Selection of mining method has been</p>	

Place : Ranchi

Date : 13.06.2019

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आनन्द कुमार मण्डल
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Sl. No.	Parameters	Details	Observations
		<p>carried out based on the geo-mining condition, site condition, target capacity and optimisation of mining operations. Opencast mining method has been proposed for Suliyari Coal Mine due to following reasons.</p> <ul style="list-style-type: none"> • Occurrence of all the seams at workable stripping ratios • Higher recovery % by opencast method • Flexibility in operation • Comparatively safer method. • Flatter gradient (1⁰ -5⁰) suitable for surface Miner 	
c.	Coal production capacity proposed, Mt	Rated Capacity : 5.0Mt	
d.	Justification for optimisation of Coal Production Capacity	<p>Coal production capacity has been fixed to 5.0 Mt based on following considerations.</p> <ol style="list-style-type: none"> 1. Extractable reserve of 107.43 Mt which will sustain production for 22 years with 23 years of mine life based on proposed production leading to optimum utilisation of fixed assets. 2. Geo-mining Characteristics, like seam deposition, depth, available strike length etc. 3. Considering market demand in nearby areas. 	
e.	Calendar year from which production will start	FY 2020-21	
f.	Year of achieving rated production	FY 2021-22	
g.	Coal Production Plan, Mt		
	<p align="center">  आनन्द कुमार मण्डल ANANDA KUMAR MANDAL Under Secretary कार्यालय / Ministry of Coal भारतीय भूखनन / Shastri Bhawan शास्त्री भवन / Shastri Bhawan नई दिल्ली / New Delhi </p>		

Place : Ranchi

Date : 13.06.2019

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Signature : 
 Name : Rajesh Kumar Chopra
 (Recognised Qualified Person)
 Registration No. 34012(93)/2014-CPAM
 Valid upto : 28.05.2025
 Valid upto : 28.05.2025