

CHECKLIST FOR MINING PLAN AND MINE CLOSURE PLAN

	Parameters	Details	Obser
1	DETAILS OF THE BLOCK		
a.	Name of Coal / Lignite Block	Manoharpur and Dip Side Manoharpur Coal blocks	
b.	Name of the Coalfield/ Coal belt	Ib-Valley Coalfield	
c.	Particulars of adjacent blocks: North, South, East, West	North : Meenakshi & Meenakshi- B coal block, separated by Garia Nalla South: Dulunga coal block, East: Incrop line, Non coal area West: Unblocked area towards Dip side of Manoharpur coal block	
d.	Topo sheet No with latitude and longitude	Vesting Order	Mining Plan & Mine Closure Plan
	Topo sheet No		Toposheet No, F44 R13 & F44 R9
	Latitudes (N):	21° 55'52.168" N – 21° 58' 16.871" N	21° 55'52.168" N – 21° 58' 16.871" N
	Longitude (E):	83° 44'41.287" E - 83° 47'42.750" E	83° 44'41.287" E - 83° 47'42.750" E
e.	Location of the Block District / State	Village: Manoharpur Taluka: Hemgiri District: Sundargarh , State: Odisha.	
f.	CMPDIL Certificate of the project boundary of the	Obtained. Attached as ANNEXURE 2 & PLATE NO 2	
g.	Type of the Project (Operating / under Implementation)	Under Implementation	
2	DETAILS OF THE PRESENT PROPOSAL		
a.	BASE DATE OF MINING	September 2019 (cost base: June 2019)	
b.	Scope of The mining plan	To develop the coal block for extraction of coal seam, with major thrust on maintaining and restoring environment and conservation of energy resources	
3	ALLOTTEE COMPANY DETAILS		
a.	Name the Mine Allottee	Odisha Coal And Power Limited, Zone-A, Ground Floor, Fortune Tower, Chandrasekharapur, Bhubaneswar-751023, Odisha, India Coal	
b.	Status of the Applicant Company	Govt. Company of State of Odisha.	
c.	Details of allotment/ vesting order	Allotment order no 103/25/2015/NA dated 31 st August 2015 by Govt. of India, Ministry of coal, O/o the nominated Authority & it's corrigendum	

d.	Name and address of the applicant	Regd Office Odisha Coal and Power Limited, Zone-A, Ground Floor, Fortune Tower, Chandrasekharpur, Bhubaneswar-751023, Odisha, India	Principal Place of Business Village: Manoharpur Taluka: Hemgiri District: Sundargarh State: Odisha.	
e.	Relationship between the applicant and allottee company	Same		
	Parameters	Details		
f.	Name and address of RQP with registration No	Sanjay Kumar Bhar Chief Manager, Central Mine Planning & Design Institute Limited, Plot No E4(Near Gandhi Park), At: Samantapuri, Bhubaneswar 34011/(22)/2005-CPAM dated-02.12.2010		
g.	Name of the Previous allottee of the Block	Odisha Power Generation Corporation Limited, Zone-C, Seventh Floor, Fortune Tower, Chandrasekharpur, Bhubaneswar-751023, Odisha, India		
4	Details of the Previous approval of Mining plan			
a.	Date of Approval	17 th April 2018, No. 34011-4-2017-CPAM 11 th December 2013, No.13016/28/2012-CA-I 11 th August, 2008, No.13016/26/2008-CA-I		
b.	Conditions, if any	Following conditions were there in the Mining Plan (Rev-II) approved in 17 April 2018: Condition: The mining company shall submit the land acquisition status of the land acquired outside the geological block area. Compliance: submitted. Condition: The mining company shall take all necessary precautions regarding safety of mine working, persons deployed therein. Compliance: Agreed. Details in chapter-VI Condition: Mining Company shall ensure that all the mining operation should be carried out within the lease area granted by State Government only. Compliance: Agreed Condition: The cost of abandonment for carrying out the closure activities envisaged in the Mine closure plan is indicative; the actual cost for carrying out the activities at the time of final closure may be higher. The actual cost of abandonment will have to be borne by the project proponent for carrying out the closure activities. Compliance: Agreed Condition: Mining Lease of this block shall not encroach into any other coal block. Compliance: Agreed. Certificate from CMPDI enclosed as Enclosure-15 Condition: The approval of the Mining Plan is without prejudice to the requirement of approvals from competent/ prescribed authority under the relevant rules/ regulations/ etc. Compliance: Agreed Condition: This may be revoked if a legal cause of action is brought against the allocate in the light of legal proceedings including judgement of court or result of lawful investigation by the authority empowered in the behalf. Compliance: Agreed		

c.	Scheduled year of start of production	2019-20																																																	
d.	Proposed year of achieving the targeted production	2022-23																																																	
e.	Date of actual commencement of mining operations, if operations already started	Mining Operations started on 1 st November 2018. Scheduled production start date is 2019-20.																																																	
f.	Likely date of mining operations, if operations not yet started & reasons for non- commencement of operations	As per Latest Approved Mining Plan, the Operations should start in the year 2018-19 & same has been started. Schedule coal production will be in 2019-20 as per approved mining plan																																																	
g.	Planned production and actual levels achieved in last 3 years (Coal in Mte, OB in MM3, SR in M3/te)	<table><tr><td></td><td></td><td colspan="2">Planned</td><td colspan="3">Actual Coal Production "Mte"</td><td></td></tr><tr><td></td><td>calendar year</td><td>Coal</td><td>OB</td><td>OC</td><td>Total "Mte"</td><td>OB "MM3"</td><td>SR</td></tr><tr><td>Y-1</td><td>2015-16</td><td>nil</td><td></td><td>nil</td><td></td><td></td><td></td></tr><tr><td>Y-2</td><td>2016-17</td><td>nil</td><td></td><td>nil</td><td></td><td></td><td></td></tr><tr><td>Y-3</td><td>2017-18</td><td>nil</td><td></td><td>nil</td><td></td><td></td><td></td></tr><tr><td></td><td>Total</td><td></td><td></td><td></td><td></td><td></td><td></td></tr></table>			Planned		Actual Coal Production "Mte"					calendar year	Coal	OB	OC	Total "Mte"	OB "MM3"	SR	Y-1	2015-16	nil		nil				Y-2	2016-17	nil		nil				Y-3	2017-18	nil		nil					Total							
		Planned		Actual Coal Production "Mte"																																															
	calendar year	Coal	OB	OC	Total "Mte"	OB "MM3"	SR																																												
Y-1	2015-16	nil		nil																																															
Y-2	2016-17	nil		nil																																															
Y-3	2017-18	nil		nil																																															
	Total																																																		
h.	Reasons for difference between the planned and actual production levels	2019-20 is the scheduled start of production as per latest approved Mining Plan(Rev-II), April 2018																																																	

5 Details of changes in the new mining plan compared to earlier approval

		Previous Mining Plan	Current Mining Plan
a.	Lease area "Ha"	1064.402 Ha (652.885 Ha within block+411.517 Ha outside block)	1781.591 Ha (1337.885 Ha within block+ 443.706 Ha outside block) As per revenue record
b.	Project Area "Ha"	1100.325 Ha (652.885 Ha within block+324.367 Ha outside block & 122.45 Ha for dispatch system)	1848.379 Ha (1337.885 Ha within block+510.494 Ha outside block including 66.788 Ha for Colony & others)
c.	Life of the Project	23 Years+1 year of construction	44 Years as on 01.04.2019. (balance life) (Mine has been started as on 01.11.2018 and construction year has been completed)
d.	Min & Max Depth of working	Minimum Depth:8m Maximum Depth :214m	Minimum Depth:8m Maximum Depth :410m
e.	Geological Block "Ha"	651Ha (As per Manoharpur Coal Block GR)	1339Ha (As per Integrated GR-Manoharpur and Dipside of Manoharpur)

Job No.780051

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MP (including MCP) of Manoharpur & Dipside Manoharpur Coal Mine - (Rev-III)

संजय कुमार भर्
मुख्य प्रबंधक (उत्खनन)
सी. एम. पी. डी. आई., ब्ले. सं.-7
Ref. No. 34011/(22)2005-CPAM dt.02.12.2010

हिटलर सिंह / HITLAR SINGH
अवर सचिव / Under Secretary
कोयला मंत्रालय / Ministry of Coal
भारत सरकार / Govt. of India
प्रधान मंत्रालय, शिमला
नई दिल्ली / New Delhi

(उत्खनन) कार्यालय नमूना
१- ११ ११ ११ ११ ११ ११
0105.51.10.00 MARG-2005(SS)/1704 dt. 10/11

f.	Production Target	8 MTPA	16 MTPA	
g.	Seams Available "As per GR"	Number of seams -2 Lajkura (6 sections) Rampur(5 sections) Total horizons -11	Number of seams -14 Lajkura (7 sections including combinations) Rampur (5 sections including combinations) Parkhani(1 section) 11 no Local seams Total horizons -24	
h.	Seams not considered for Mining with	Nil	NIL	
i.	Net Geological Reserve "Mt"	188.07 Mt	978.47 Mt (in total geological block)	
j.	Blocked Reserve "Mt"	22.00 Mt	314.23 Mt	
k.	Mining Reserve "Mt"	166.07 Mt	664.239 Mt	
l.	Extractable Reserves	155.91 Mt	636.309 Mt	
m.	% of Extraction/	83 %	65 %	
n.	Reserve Depleted (till the	Nil	Nil	
o.	Balance Extractable	155.91 Mt	636.309 Mt	
p.	Average Grade	average GCV around G14	G14 (Major grade varies from G12-G15)	
q.	OB in MM3	432.11 Mcum	1747.41 Mcum	
r.	Stripping	2.84 cum/t	2.75 cum/t	
s.	Mining Technology	10-12cum hydraulic shovel/backhoe with 100T dumper in top overburden & thick parting 5-7cum hydraulic shovel/ backhoe with 60T dumper in thin to moderately thick parting 3800mm surface miner + 6-7cum Front end loader + 60T dumper for coal.	10-12cum hydraulic shovel/backhoe with 100T dumper in top overburden & thick parting 5-7cum hydraulic shovel/ backhoe with 60T dumper in thin to moderately thick parting 3800mm surface miner + 5-7cum Front end loader + 60T dumper for coal. Smaller Sized Excavation Equipment may be used additionally during Mine Development and for thin partings during the later years	

हिटलर सिंह / HITLAR SINGH
अवर सचिव / Under Secretary
कोयला मंत्रालय / Ministry of Coal
भारत सरकार / Govt. of India
शास्त्री भवन (Shastri Bhawan)
नई दिल्ली / New Delhi


हिटलर सिंह / HITLAR SINGH
अवर सचिव / Under Secretary
कोयला मंत्रालय / Ministry of Coal
भारत सरकार / Govt. of India
शास्त्री भवन / Shastri Bhawan
नई दिल्ली / New Delhi

संजय कुमार भर

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MP (including MCO of Madanapur & Doodh-Manoharpur Coal Mine - Ray-II)

सी. एम. पी. डी. आर्ट्स, क्षेत्र सं

Ref. No. 34011/2212005-CPAM dt.02.12.2005

॥ श्री गणेशाय नमः ॥
 (पञ्चमः) अथवा अथ
 ॥ श्री गणेशाय नमः ॥
 ॥ श्री गणेशाय नमः ॥

W.	Reasons for Revision	
		<p>1. As per the Efficiency Parameter of Allotment Agreement (Schedule -E) of Manoharpur and Dip side of Manoharpur, Mining Plan has to be submitted within the six months of the preparation of the Geological Report of Dip Side of Manoharpur Coal Block. The initial Integrated Geological Report (IGR) (Draft) was submitted in November 2017 by CMPDI. The Prospecting Report/GR of Dip side Manoharpur was submitted by CMPDI on 19-01-2018. However, after incorporating some corrections/ modifications, the final Integrated Geological Report (IGR) of Manoharpur and Dip-side Manoharpur coal blocks was re-submitted by CMPDI on 16-02-2018 and has been used for preparation of this Mining Plan & Mine Closure Plan (Rev-III) for Manoharpur & Dip-side Manoharpur coal blocks.</p> <p>2. As per the Observation No 19 of the Technical Members of the Standing Committee on the presentation held in the MoC, New Delhi on 30/08/2017 for the approval of Mining Plan & Mine Closure Plan (Rev-II) of Manoharpur Coal Block that Revised Mining Plan is to be submitted within six months of the preparation of the Integrated Geological Report for the blocks comprising Manoharpur and Dip Side of Manoharpur Coal Block. As the final IGR was received on 16/02/2018 and OPGC coal requirement was limited to 30 years @8MTPA, Mining Plan was initially prepared accordingly considering Manoharpur and part Dip Side of Manoharpur Coal Block as advised by OCPL, so the Mining Plan was accordingly prepared and submitted to MoC in July 2018, the same was discussed in August 2018 by the technical members of the Standing Committee. Based on the observations of the Committee, MoC asked to revise the mining plan covering the entire Manoharpur & Dipside Manoharpur Coal Blocks.</p> <p>So the Mining Plan was accordingly prepared and resubmitted to MoC in December 2018, the same was discussed before the technical members of the Standing Committee again in February 2019. Based on the observations of the Committee, MoC asked to resubmit the mining plan with rated capacity of the mine matching with requirement of coal for linked EUPs (i.e. 4X660 MW=2640MW power plants) and in line with the terms and conditions of the Vesting/ Allotment agreement..</p> <p>3. The existing Approved MP & MCP-Rev-II is effectively meeting the coal requirements of OPGC Power Plant's units 3 & 4 effectively for 19 years only, this Mining Plan(Rev-III) has been prepared to include entire allotted coal bearing area of Manoharpur & it's dipside block as advised by the technical members of the Standing Committee. The mine life will be around 44 years with capacity of 16 Mty matching with requirement of coal for linked EUPs (i.e. 4X660 MW=2640MW power plants).</p> <p>4. The Geological Report (GR) of Manoharpur Coal Block was prepared by Department of Geology, Government of Odisha in JUNE-1998 and resource estimation was done on UHV basis in that report. The Integrated Geological Report (IGR) of Manoharpur & Dipside of Manoharpur Coal Mine Project was prepared by CMPDI and submitted on 16.02.2018. In this report, as per the current MoC guidelines, calculation of coal reserve and correlation of coal seams have been done on GCV basis. This has resulted into increase in coal tonnage and change in overburden volume.</p> <p>5. The earlier approved Garia Nalla diversion route is found to be lying on Coal bearing area as per new IGR. Hence the proposed Nala diversion has been revised & shifted to non coal bearing area. This has resulted in modification of Surface Master plan.</p> <p>6. Quarry boundary has been extended further towards south west upto final allotted block boundary of dipside block resulting into change in excavation area and lease area.</p> <p>7. Seam splits for Lajkura and Rampur seam, identified in the present IGR also varies from earlier geological report. In addition to these major seams; 10 no of local seams and Parkhani seam have been identified in Manoharpur and it's dipside block. All these result into change in coal reserve, overburden volume and stripping ratio.</p> <p>8. Production programme & built up has been modified as per enhanced capacity of 16 Mty.</p> <p>9. Requirement of internal & external dumping has been changed due to variation in overburden quantity & increased volume of overburden. Hence, Overburden dump area and quantity has been changed.</p> <p>10. Project area and accordingly Surface Layout Plan has been changed considering relocation of some of the infrastructure & increase in OB dump area.</p> <p>11. Change in mine closure cost due to change in project area & mine life.</p>

Job No.780051 संजय कुमार भार G-2

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MP (including MC) of Manoharpur & Dip side Manoharpur Coal Mine (Rev-III)

सौ. एम. पी. डी. आई., क्षेत्र. सं.-7

Ref. No. 34011/(22)2005-CPAM dt.02.12.2010

हिटलर सिंह / HITLAR SINGH
अवर सचिव / Under Secretary
कोयला मंत्रालय / Ministry of Coal
भारत सरकार / Govt. of India
शास्त्री भवन / Shastri Bhawan
नई दिल्ली / New Delhi

महोदय / महोदय

(फाइल) कक्ष / फाइल

से. सं. / से. सं.

16.08.2019-2005/CPAM/02.12.2010



6	END USE OF COAL/LIGNITE						
a.	End Use of Coal/Lignite as per approval by the Competent Authority	4X 660MW coal fired thermal power plant of OPGC					
b.	Norms adopted for calculating ROM quantity requirement based in the allotment order						
		Clinker "MTPA"	Power Plant "KW"		Blast Furnace "MTPA"		
	Capacity of the End Use Plant			4X660			
	Capacity of the Project "MTPA"			16			
	Raw Coal availability from this project "MTPA"			16			
	Washed coal availability "MTPA"			Nil			
	Reject "MTPA"			Nil			
	Station Heat Rate "K Cal/ Kwhr"			2200			
	Avg Calorific Value of Coal " Kcal/Kg"			3200			
	Raw Coal						
	Washed Coal						
	Rejects						
	Specific Consumption "Kg/Kwhr"			0.69			
	Consumption Norms "Kg/Tonne"						
	Plant Load Factor/ Capacity Utilisation			90%			
	Coal Requirement "MTPA"			16			
	Total Requirement for the "End Use Plant"			16			
	Coal from this project "MTPA"	16					
	Lingages/ E-auction from CIL "MTPA"	3.271 (Bridge Linkage)- Extended upto 2023					
	Other block of the Company "MTPA"	Nil					
	Total availability "MTPA"	16					
	c.	Percentage of end use requirement to be met from this mine	100%				

(Signature)

Job No.780051

संजय कुमार भार

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MP (Including MCP) of Manoharpur & Diside Manoharpur Coal Mine (Rev-III)

सी. एम. पी. डी. आई., ब्ल. सं.-7

Ref. No. 34011/(22)2005-CPAM dL02.12.2010

(Signature)
हिटलर सिंह / HITLAR SINGH
अवर सचिव / Under Secretary
कोयला मंत्रालय / Ministry of Coal
भारत सरकार / Govt. of India
शास्त्री भवन / Shastri Bhawan
नई दिल्ली / New Delhi

उपनिर्देशक, कोयला मंत्रालय
ए-म.स.ड. ई.म.स.ड. डि.म.स.ड. डि.
0105.57.50.10 0105.57.50.10 0105.57.50.10

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	Final decision in this regard shall be taken after feeding coal to power plant and analyzing quality of ROM coal. Coal washing is proposed in future keeping in view the maximum presence of low grade coal with high ash. The Proposed location of washery is marked on the Surface Master Plan Nature of Beneficiation: HM Cyclone process. Tentative Recovery Rate: 80%		
e.	Proposed Use of Rejects/Middling's	Not Applicable		
f.	Distance of End use plant from the pit head of the project in	47 Km		
g.	Mode of Coal Transport	Through dedicated Rail Line and MGR system		
7 EXPLORATION AND GEOLOGY				
a.	Geological Block Area "Ha"	13.39 sq km /1339 Ha as per IGR		
b.	Status of Exploration of the block	Manoharpur & Dipside of Manoharpur Block is fully explored , GR is available and prepared by CMPDI		
c.	Area covered by 'detailed' exploration	13.39 sq km		
d.	Whether entire lease area has been covered	Yes		
e.	No. of boreholes drilled within the block	Agency	Meterage	No. of BHs
		G.S.I	1588.85	5
		CMPDI	200.65	2
		DGO	8224.50	74
		OCPL	28545	92
		TOTAL	38559	173
f.	Whether any further exploration/study is required or suggested and time frame in which it is to be completed	No  हिटलर सिंह / HITLAR SINGH अवर सचिव / Under Secretary कोयला विभाग / Ministry of Coal भारत सरकार / Govt. of India शास्त्री भवन / Shastri Bhawan नई दिल्ली / New Delhi		

हिंदलर सिंह / HITLAR SINGH
अवर सचिव / Under Secretary
कोयला विभाग / Ministry of Coal
भारत सरकार / Govt. of India
शास्त्री भवन (Shastri Bhawan)
नई दिल्ली / New Delhi

g.	Overall borehole density within the block (no./ sq. km) approx	13	
h.	No of Seams available as per GR	Number of seams -14 (3 major seams namely Lajkura , Rampur , Parkhani & 11 no Local seams) Coal section/ horizons -24 Rampur seam thickness -8 to 17m with 3 splits(within mine area) Lajkura seam thickness 30 to 42m with 5 splits(within mine area)	
i.	Seams not considered for Mining with Reasons	All seams are considered	
j.	Dip of the Seam	6°-7°	

Seam wise Thickness and Depth with Reserve assessment(reserve in Mt)											
	Thickness	Depth	Net Geological Reserve	BLOCKED COAL (in Mt)				Mineable Reserve	Mining Loss	Extractable Reserve	Depletion
	Range	Range	(in Mt)	Barrier	slope/batter	uneco-chemical	Total blocked	(in Mt)	(in Mt)	(in Mt)	(in Mt)
LOCAL 10	0.3 - 1.9	7.7 - 170.24	5.672	0.091	0.673		0.764	4.908	0.691	4.417	-
LOCAL 9	0.6 - 0.9	12.71 - 195.43	0.322				0.000	0.322	0.011	0.311	-
PARKHANI	4.6 - 5.7	54.09 - 196.74	48.921	0.366	7.525		8.111	40.810	2.447	38.363	-
LAI TOP (3+2)	10.2 - 11.0	154.89 - 199.05	10.795	1.328	7.643		8.971	1.814	0.055	1.759	-
LAI TOP 1	10.3 - 11.5	167.08 - 210.43	10.796	1.276	8.123		9.399	1.357	0.139	1.258	-
LAI TOP COMB	15.2 - 19.0	8.64 - 263.91	198.381	2.700	28.881		31.581	166.800	5.005	161.795	-
LOCAL 8	0.4 - 1.4	12.32 - 298.17	5.363	0.545	2.199		2.744	2.619	0.262	2.357	-
LOCAL 7	0.4 - 2.0	12.64 - 307.47	9.980	0.063	2.623		3.286	6.694	0.672	6.022	-
LAI MID	6.6 - 10.2	12.32 - 335.13	125.927	3.931	27.510		31.441	94.405	2.835	91.651	-
LOCAL 6	0.6 - 1.9	12.16 - 374.25	15.375	0.431	5.322		5.753	9.622	0.961	8.661	-
LAI BOT 2	4.2 - 6.3	9.38 - 390	38.328	0.536	8.215		8.751	29.577	1.482	28.095	-
LAI BOT 1	2.0 - 5.1	14.48 - 338.11	26.803	0.371	5.050		5.421	21.382	0.642	20.740	-
LAI BOT (2+3)	10.1 - 12.7	10.99 - 368.77	113.221	5.076	33.505		38.581	74.640	2.759	72.401	-
LOCAL 5	0.5 - 1.6	8.34 - 403.73	11.244	0.639	5.571		6.210	5.034	0.505	4.529	-
LOCAL 4	0.4 - 1.0	10.75 - 406.61	2.599	0.052	0.679		0.731	1.868	0.187	1.681	-
LOCAL 3	0.1 - 1.4	8.09 - 418.31	4.373	0.254	1.654		1.908	2.405	0.248	2.217	-
LOCAL 3A	0.1 - 1.3	7.91 - 429.6	7.642	0.249	3.103		3.350	4.292	0.429	3.863	-
RAMPUR 3	1.7 - 4.1	3.55 - 453.57	44.988	1.799	9.993		11.790	33.198	1.994	31.204	-
RAMPUR 2	0.3 - 1.4	34.52 - 141.66	0.267		0.000		0.000	0.267	0.026	0.241	-
RAMPUR 1	2.6 - 6.7	36.53 - 146.04	3.222		0.003		0.003	3.219	0.162	3.057	-
RAMPUR (2+1)	6.1 - 13.6	6.35 - 459.32	166.129	5.827	43.363		49.190	116.939	3.506	113.433	-
RAMPUR COMB	28.5 - 22.9	274.34 - 429.49	52.632	3.981	40.868		44.724	7.908	0.236	7.672	-
LOCAL 2	1.2 - 4.6	19.5 - 476.82	46.030	2.927	21.174		24.101	21.929	2.192	19.737	-
LOCAL 1	1.0 - 4.1	93.9 - 459.91	20.470	1.878	15.543		17.421	12.049	1.204	10.845	-
TOTAL			978.470	35.020	279.211		314.231	664.239	27.930	636.309	-
• Coal blocked in dip side slope can be extracted if the mine is allowed to advance it's dip side boundary further beyond the dip side block boundary.											
I.	Average GCV			G7-G17 Major GCV Band : G12-G15 (2800-4000)							
m.	Gross Geological Reserve of the block "Mte"			1087.173 Mt							
n.	Net Geological Reserve of the block "Mte"			978.47 Mt (in Manoharpur & dip side block as per GR)							

o.	Minable Reserve of the block "Mte"	664.239 Mt
p.	Blocked Reserve "Mte"	314.231 Mt in quarry slope & barrier Mining loss: 27.930 Mt
q.	Corresponding extractable reserve of the block "Mte"	636.309 Mt
r.	Percentage of Extraction	65 %
s.	Reserve already depleted (Base date of Mining Plan)	Nil
t.	Balance Reserve (As on Base Date)	636.309 Mt
8	MINING	
a.	Existing method of mining if the mine is under operation	OB removal has started by opencast mining method
b.	Proposed method of mining with justification on suitability of method of mining	Proposed method of Mining –Opencast mining (overburden removal by shovel-dumper & coal extraction by surface miner, Front end loader and dumper) The proposed mining block represents presence of moderately flat multiple coal seams with intermediate varying parting. Moderately thick to thin seams occur at shallow to moderate depth in wide area having power grade coal reserve. So this will make the project most viable by adopting opencast mining method.
c.	Coal production capacity proposed "Mtpa"	16 MTPA
d.	Justification for optimisation Coal production capacity	Optimum production matching with the coal requirement of the linked EUP (4x660 MW)
e.	Calendar year from which the production will start	2019-2020
f.	Year of Achieving rated production	2025-2026


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g. Coal production Plan "MT"

Year		Coal Production		OB Mcum	SR (cum/t)
		UG	OC		
Cons	2018-19			1.83	
YEAR-1	2019-20		2.50	5.27	2.11
YEAR-2	2020-21		4.00	10.05	2.51
YEAR-3	2021-22		6.00	15.49	2.58
YEAR-4	2022-23		8.00	20.10	2.51
YEAR-5	2023-24		10.00	24.71	2.47
YEAR-6	2024-25		13.00	27.66	2.13
YEAR-7	2025-26		16.00	32.27	2.02
YEAR-8	2026-27		16.00	33.93	2.12
YEAR-9	2027-28		16.00	33.93	2.12
YEAR-10	2028-29		16.00	33.93	2.12
YEAR-11	2029-30		16.00	35.22	2.20
YEAR-12	2030-31		16.00	33.56	2.10
YEAR-13	2031-32		16.00	36.88	2.31
YEAR-14	2032-33		16.00	36.88	2.31
YEAR-15	2033-34		16.00	39.83	2.49
YEAR-16	2034-35		16.00	39.83	2.49
YEAR-17	2035-36		16.00	39.83	2.49
YEAR-18	2036-37		16.00	39.83	2.49
YEAR-19	2037-38		16.00	42.78	2.67
YEAR-20	2038-39		16.00	47.39	2.96
YEAR-21	2039-40		16.00	47.39	2.96
YEAR-22	2040-41		16.00	47.39	2.96
YEAR-23	2041-42		16.00	47.39	2.96
YEAR-24	2042-43		16.00	53.29	3.33
YEAR-25	2043-44		16.00	56.24	3.51
YEAR-26	2044-45		16.00	56.24	3.52
YEAR-27	2045-46		16.00	56.24	3.51
YEAR-28	2046-47		16.00	56.24	3.52
YEAR-29	2047-48		16.00	56.24	3.52
YEAR-30	2048-49		16.00	56.24	3.52
YEAR-31	2049-50		16.00	56.24	3.52
YEAR-32	2050-51		16.00	56.24	3.52
YEAR-33	2051-52		16.00	54.58	3.41
YEAR-34	2052-53		16.00	44.07	2.75
YEAR-35	2053-54		16.00	44.07	2.75
YEAR-36	2054-55		16.00	41.12	2.57
YEAR-37	2055-56		16.00	41.12	2.57

Year		Coal Production		OB Mcum	SR (cum/t)
		UG	OC		
YEAR -38	2056-57		16.00	41.12	2.57
YEAR -39	2057-58		16.00	41.12	2.57
YEAR -40	2058-59		16.00	41.12	2.57
YEAR -41	2059-60		16.00	41.12	2.57
YEAR -42	2060-61		16.00	41.06	2.57
YEAR -43	2061-62		12.00	34.29	2.86
YEAR -44	2062-63		4.81	6.04	1.26
TOTAL			636.31	1747.41	2.75


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h.	Peak/Rated Capacity		
	- By OC	16 MTPA	
	- By UG	NIL	
	- Overall	16 MTPA	
i.	Life of the mine :		
	- By OC	44 Years (Balance Life)	
	- By UG	NIL	
	- Overall	44 Years as on 01.04.2019. (Mine has been started as on 01.11.2018 and construction has been completed)	
j.	Whether the proposed external OB dump site is coal/ lignite bearing: If so, whether coal/lignite below waste disposal area is extractable.	External Dumping is in Non Coal bearing area, OB dumping is proposed in the area beyond incrop of the coal seams. So the area proposed for dumping is non coal bearing area as per available geological data	
k.	Whether negative Proving for coal / lignite in the proposed site for OB dump/ infrastructure has been done.	OB dumping is proposed towards rise side of incrop of coal seams as per available geological data. Metamorphics are exposed in the area.	
l.	Whether the mining operations to be carried out through departmental equipment/ MDO/ outsourcing.	Mining Operator (MO)	
m.	Operations that are proposed to be outsourced	Mining , CHP operations & maintenance, pumping, Reclamation etc.	
n.	Proposed configuration of HEMM for OC (Coal & OB) & Major Equipment for UG.	10-12cum hydraulic shovel/backhoe with 100T dumper in top overburden & thick parting 5-7cum hydraulic shovel/ backhoe with 60T dumper in thin to moderately thick parting 3800mm surface miner + 5-7 cum Front end loader + 60T dumper for coal	
o.	Mode of entry for underground mines (shaft, incline, adit,):	Not Applicable	
p.	Results of any investigation carried out for scientific mining, conservation of minerals and protection of environment; future proposals.	i. Geotechnical study is completed by IIT, Mumbai. ii. Washability studies on borehole core samples was carried out by CIMFR, Dhanabad iii. Leachability study is completed by CIMFR, Dhanabad iv. Slope stability study for pit and OB dump has done by CIMFR.	

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संजय कुमार भर

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MP (including MCP) of Manoharpur & Dopeide Manoharpur Coal Mine (Rev-III)

सी. एम. पी. डी. आई., क्षे. सं.-7

Ref. No. 34011/(22)2005-CPAM dt.02.12.2010

एम. एम. एस. (एम.एस.)
अवर सचिव / Under Secretary
कायदा मंत्रालय / Ministry of Coal
भारत सरकार / Govt. of India
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<p>9</p> <p>IMPORTANT SAFETY ASPECTS – Major Risks and uncertainties to the project viz. Proximity to river, adjacent working, geo-mining disturbances, slope stability and remedial measures suggested.</p> <p>It should also include proposed overall slope of the quarry and OB dump, dump height, strata control, fire and spontaneous heating, gas monitoring, disaster management, danger from inrush of water etc</p>	<ol style="list-style-type: none"> 1. Inundation from nala & surface run off . (An earthen embankment is planned along the bank of Garia Nalla with a height of 3m above HFL). 2. Failure of slope in the opencast mine 3. Failure of slope in the overburden dump 4. Fly Rock and vibrations due to Blasting 5. Surface fire, 6. Road Accidents 7. Danger due to storage of explosives 8. Training 9. Medical Aid 10. Natural calamities such as Storm, Earthquake etc. <p>Bench height: 10-12m (for 10-12 cum Hyd shovel) Bench height: 8-10m (for 6-7 cum Hyd shovel) Working bench width: 22-34m Working angle: 70° with horizontal for shovel and 60-65° with horizontal for surface miner</p> <p>Dump angle: 37° for individual 30m tier 26-28° for overall slope</p>	
<p>10</p> <p>Status of Lease</p>		
<p>a.</p> <p>Status of Lease</p>	<p>Lease executed for block area of Manoharpur and Mining Lease application filed for the Dip-Side of Manoharpur Coal block</p>	
<p>b.</p> <p>Existing Lease Area "Ha"</p>	<p>652.885Ha executed within Manoharpur coal block area</p>	

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MP (including MCL) of Mancharpur & Dindori Wapoharpur Coal Mine (Rev-III)

सी. एम. पी. डी. आर्., क्ष. स.-7

Ref. No. 34011/(22)2005-CPAM dt.02.12.2010

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(1) (2) (3) (4) (5) (6) (7) (8) (9) (10) (11) (12) (13) (14) (15) (16) (17) (18) (19) (20) (21) (22) (23) (24) (25) (26) (27) (28) (29) (30) (31) (32) (33) (34) (35) (36) (37) (38) (39) (40) (41) (42) (43) (44) (45) (46) (47) (48) (49) (50) (51) (52) (53) (54) (55) (56) (57) (58) (59) (60) (61) (62) (63) (64) (65) (66) (67) (68) (69) (70) (71) (72) (73) (74) (75) (76) (77) (78) (79) (80) (81) (82) (83) (84) (85) (86) (87) (88) (89) (90) (91) (92) (93) (94) (95) (96) (97) (98) (99) (100)

c.	Period for which Mining Lease has been granted/is to be renewed/ is to be applied for.	30 years from the date of execution
d.	Date of expiry of earlier Mining Lease, if any	Not Applicable
e.	Whether the lease boundary/ required boundary is same as demarcated by CMPDI/ SCCL/ NLC for delineating block/sub-block	Mine excavation boundary is within allotted block demarcated by CMPDI
f.	Lease Area (applied/ required) as per the Mining Plan under consideration (Ha)	1781.591 Ha (1337.885 Ha within block+ 443.706 Ha outside block)
g.	Whether the applied lease area falls within the allotted block	Yes
i.	Area (Ha) of lease which falls outside the block/sub-block delineated by CMPDI/SCCL/NLC.	Outside block area is 443.706 Ha (non coal bearing & unblocked) for infrastructure, OB dump
j.	Details of outside area:	
	<input checked="" type="checkbox"/> Whether forms part of any other coal block <input checked="" type="checkbox"/>	No
	<input checked="" type="checkbox"/> Whether it contains any coal/lignite reserves <input checked="" type="checkbox"/>	No
	- Purpose for which it is required, e.g. roads/ OB dumps/ service buildings/ colony/ safety zone/ others (specify) <input checked="" type="checkbox"/>	OB Dump, Infrastructure, CHP, MGR etc
k.	Whether some part(s) of the allotted block has not been applied for mining lease.	Mining Lease executed for the Manoharpur Coal Block. Mining Lease application has been filed for the Dip Side of Manoharpur Coal Block.
	- Total area in Ha of such part(s).	Nil
	- Total reserves in such part(s). (Mt)	Nil
	- Brief reasoning for leaving such part(s)	Not Applicable
11	ENVIRONMENTAL MANANGEMENT	<p>हिटलर सिंह / HITLAR SINGH अवर सचिव / Under Secretary कोयला मंत्रालय / Ministry of Coal भारत सरकार / Govt. of India शास्त्री, गान्धी / Shastri, Gandhi नई दिल्ली / New Delhi</p>

a.	Land use pattern in Ha Pre Mining , During Mining and Post Closure Land Use and Post Closure Management of the Land should be provided in the following table													
Pre Mining Land Use 'Ha'			Type	Land Use (During Mining)	Land Use (End of Life)	Land Use (Post Closure)								
						Agricultural Land	Plantation	Water body	Public/ Company Use	Water Harvesting	Dismantled	Forest Land (Returned)	Undisturbed Land	Total
Tenancy	Agricultural	531.127	Excavation Area	1234.44										
	Township	18.47	Backfilled Area		854.40	426.514	52.5	41.781			609.205			1130.00
	Grazing		Excavated Void		380.04	104.44								104.44
	Water Bodies		Top soil Dump	10.84	10.84	10.84								10.84
	Road		External Dump	269.510	269.510	269.51								269.51
	Community		Safety Zone/ Rationisation	16.00	16.00	16.00								16.00
	Inhabitated		Road Diversion											
	Village		Diversion/below river/nala/ canal	5.36	5.36		5.36							5.36
Govt. Non Forest	Agricultural		Road & Infrastructure Area	155.166	155.166	107.727		47.439						155.166
	Township		Garland Drains	6.77	6.77		6.77							6.77
	Grazing	67.221	Embankment	16.85	16.85	13.0		3.85						16.85
	Road		Green Belt	50.0	50.0	50.0								50.0
	Water Bodies	29.989	Water Reservoir near pit/ water body	8.56	8.56		8.56							8.56
	Other	582.928	UG Entry											
Forest	Reserve		Colony	66.788	66.788	20.234		37.115			9.439			66.788
	Protected	189.637	Resettlement											
	C-J-B-I	429.007	Undisturbed/ Mining Right for UG	8.095	8.095							8.095		8.095
Free Hold			Others											
Total		1848.379		1848.379	1848.379	1018.265	73.19	130.185			618.644	8.095		1848.379

b.	Surface features over the block area	The PMGSY road running through the block is diverted and opened for public use Part of Garia nala flowing through the block is proposed for diversion. No surface structure of social/ archeological importance is present over the mining area. Manoharpur, Ghumudasan, Kathfali & Parmanadpur village will be relocated.	
c.	No. of villages/Houses to be shifted	Nine villages, initially Four villages are to be shifted completely / 615 houses (Manoharpur: 244, Ghumudasan: 181, Parmanandpur:63, Kathafali:127).	
d.	Population to be affected by the project	1854	
e.	Monitoring schedules for different environmental components after the commencement of mining and other related activities.	Air Quality	Two days in a month at each station (once in a fortnight).
		Water & effluent quality	Once in a month for each station (for drinking water quality), once in a fortnight (for 4 parameters) and once in a year (23 parameters) (for effluent quality)
		Ground water level monitoring	4 times in a year (i.e. April/May, August, November & January)
		Noise level	Once in a day-time and once in a night-time in fortnight from each station.
		Study of Flora and Fauna	As & when required
		Soil Quality	As & when required
12	PROGRESSIVE & FINAL MINE CLOSURE PLAN		
12.1	Parameters of Mining Plan vis-a-vis Mine Closure plan (When only Mine Closure Plan is being placed for approval details of approved mining plan must be provided)		
		Approved Mining Plan	Revised Mining Plan & Mine Closure Plan
a.	Lease area "Ha"		1781.591Ha (1337.885 Ha within block+ 443.706 Ha outside block)
b.	Project Area "Ha"		1848.379 Ha



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Job No.780051 संजय कुमार भार

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MP (including MCF) of Manoharpur & Dipside Manoharpur Coal Mine (Rev-III)
सी. एम. पी. डी. आई., क्ष. स.-7

Ref. No. 34011/(22)2005-CPAM dt.02.12.2010

महानगर प्रमुख
(MUNICIPALITY) कार्यलय प्रमुख
ए. व. सी. रोड, डि. डि. डि. डि.
0705 51 50 50/0403-0001(55)/1704C. DM. Jharkhand

c.	Life of the Project in Years		44 Years as on 01.04.2019. (Mine has been started as on 01.11.2018 and construction year has been completed)
d.	Minimum and Maximum Depth of working "m"		Minimum Depth:8m Maximum Depth :410m
e.	Geological Block "Ha"		1339 Ha as per IGR (Manoharpur and DipSide of Manharpur)
f.	Production Target "MTPA"		16 MTPA
g.	Seams Available "as per GR"		Number of seams -14 (3 major seam & 11 local seams) No of horizon/sections: 24 Parkhani (1 section) Lajkura (7 sections Including Combinations) Rampur(5 sections Including Combinations) Local seam (11 no)
h.	Seams not considered for mining with reasons		Nil
i.	Geological Reserve "Mte"		978.47 Mt (in Manoharpur& dipside block as per GR)
j.	Blocked Reserve "Mte"		314.231 Mt
k.	Minable Reserve "Mte"		664.239 Mt
l.	Extractable Reserves " Mte"		636.309 Mt
m.	% of recovery		65 %
	Reserve Depleted (till base date) in Mt		Nil
	Balance Extractable Reserve in Mt		636.309 Mt
	Avg. Grade		G12-G15
n.	OB MM3		1747.41 Mcum
o.	SR MM3/te		2.75 cum/t

Lm

संजय कुमार भार

मुख्य प्रबंधक (उत्खनन)

Job No. 780951 सौ. एम. पी. डी. आई., खे. सं.-7 Checklist, Page - 18

Ref. No. 34011/(22)2005-CPAMD dt. 02.12.2010

MP (including MCP) of Manoharpur & Dipside Manoharpur Coal Mine (Rev-III)


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शास्त्री भवन / Shastri Bhawan
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उप सचिव (उत्खनन)

(फैलर) कोयला विभाग

ए. सी. ई., एम. पी. डी. आई. सं. 7

0705 ST SO, 20 MAR 2005 (SS) 1704C ON 369

p.	Mining Technology		10-12 cum hydraulic shovel/backhoe with 100T dumper in top overburden & thick parting 5-7 cum hydraulic shovel/ backhoe with 60T dumper in thin to moderately thick parting. 3800mm surface miner + 6-7 cum Front end loader + 60T dumper for coal. Smaller sized equipments may be used during the initial Mine Development Phase & removal of thinner seams & in-seam band/parting.
q.	Coal Beneficiation envisaged		Beneficiation requirement not considered in this proposal, however final decision in this regard shall be taken after feeding coal to power plant and analyzing quality of ROM coal.
r.	Handling of Rejects		Not applicable
s.	Land use pattern "Ha"		
	Excavation Area		1234.44 Ha
	Top Soil Dump		10.84 Ha
	External Dump		269.510 Ha
	Safety Zone		16 Ha
	nala diversion		5.36 Ha
	Road & Infrastructure area		155.166Ha(incl 86.527 Ha for despatch system)
	Garland drain		6.77 Ha
	Embankment		16.85 Ha
	Green Belt		50 Ha
	Water body		8.56 Ha
	Undisturbed area		8.095 Ha
	Total Lease area		1781.591 Ha
	Colony for Owner, MO and others		66.788 Ha
	Total Project area		1848.379 Ha

L. M.


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12.2

Statutory Obligations

1. Mining Lease

The Mining Lease for the Manoharpur Coal Block was applied to the State Government & after scrutiny it has been recommended to Central Government for prior approval. Previous approval has been granted by the Ministry of Coal, Government of India on 28th July 2016. Department of Steel & Mines, Govt. Of Odisha has issued the terms & conditions of the Mining Lease which were duly accepted by the OCPL. Department of Steel & Mines, Government of Odisha has issued the Grant Order and after that the Mining Lease agreement has been executed and registered with Collector, Sundargarh District on 17th May 2017.

As per the Schedule –E, Efficiency Parameter of Allotment Agreement dated 30/03/2015 of Manoharpur and Dip side of Manoharpur, Mining Lease has to be filed within the three months of the preparation of the Geological Report of Dip Side of Manoharpur Coal Block. The Initially Geological Report (GR) was submitted in November 2017 by CMPDI. The Prospecting Report/GR of Dip side Manoharpur was submitted by CMPDI on 19-01-2018 and application Mining Lease for the DipSide of Manoharpur Coal block was filed on 6th Feb 2018.

2. Forest Clearances

The Central Government has accorded Stage II clearance over 276.655 Ha forest land (including 76.19 Ha deemed forest as per dictionary meaning) in coal mine area to the earlier allottee OPGC by letter no F.NO 8-63/2011-FC dated 20.08.2014 and the MoEF&CC (FC division) has transferred the same to the OCPL on 30th November 2015. Another 57.078Ha forest land which was earlier diverted by OPGC for pit head infrastructures under the head MGR vide MoEF&CC letter no; F.No. 8-93/2012-FC dated 19.01.2015 has been transferred in favour of OCPL . A fresh proposal for diversion of additional 15.701Ha forest land is under process. Application for the additional Forest Area lying on the Dip side of the Manoharpur will be applied after approval of this MP & MCP(Rev-III).

3. Environment Clearance

Ministry of Environment & Forest & Climate Change (MoEF& CC), Government of India had issued Terms of Reference (ToR) and accordingly the Environment Impact Assessment/Environment Management Plan (EIA/EMP) Report was submitted to Central Government. Environment Appraisal Committee (EAC), GoI has recommended the proposal for granting Environment Clearance. Environment Clearance for the Manoharpur Block was accorded to the OPGC vide letter no J-11015/139/2008-IA.II(M), earlier allottee. Same has been transferred to OCPL on 30th December 2015.

4. Consent to Establish

Application for Consent to Establish the Coal Mine has been submitted to Odisha State Pollution Control Board and the same is accorded.

5. Water allocation & permits

Approval from Central Ground Water Authority has been obtained for drawl of 950 cum/day ground water for use in the mine and an application to draw 558 cum/day water from Hirakud

Reservoir has been submitted to Department of Water Resources, Govt. of Odisha. Dept of WR, GoO allocated 5.55 cusec of water from Hirakud reservoir vide its letter no. 8695/WR dated 12-04-2016.

6. Road Diversion

There is a public road passing through the coal block area which requires diversion. The application has been filed to the State Govt. for diversion & it's is approved by the state government. Construction of the diverted road completed and opened for public use..

7. Nalla Diversion

Application has been received by State Water Resources Department for diversion of Garia nalla passing through coal mine area. Nalla Diversion permission transferred and vested in favour of OCPL vide Deptt. of WR letter no. 8693/WR dated 12-04-2016. MO will take up the nalla diversion work. As a small portion of the approved diversion is falling within the Coal bearing Area, fresh application will be submitted to the Concerned authorities for the modified Diversion route

8. Power Connectivity

For Mine construction power at 33KV has been planned commensurately approval has been obtained from WESCO for supply of 33 KV to Manoharpur coal mine. This requires construction & erection of overhead HT line and electrical substation. The work has already been awarded and construction work is at completion stage. The permanent power supply for mine operation shall be at 33 KV from the switchyard of NTPC's Darlipali STPP. Approval for drawl of 15 MVA load at 33 KV for this purpose has been obtained from GRIDCO & MoP, GoI.

9. Explosive Magazine

Permission from Chief Controller of Explosives has been obtained for construction of magazine. Drawing & design of Magazine are approved & obtained in-principle clearance received from PESO towards construction of magazine for storage, handling and consumption of explosives on 20.01.2016. Land has been acquired by OCPL and its construction completed and permission has been obtained from PESO.

10. DGMS permission

Mine Opening Permission from Director General of Mines Safety (DGMS) is obtained for starting mining operation in the coal mines as per the provision of Coal Mines Regulation, 2017.

11. Coal Controller's permission

For opening of a coal mine, permission from Coal Controller, Ministry of Coal, is required broadly based on the above clearances & permits. The process for obtaining the permission will be initiated shortly.

12. Escrow Account:

Escrow Account has been opened with the Union Bank of India. First instalment of Mine Closure Cost has been deposited. Agreement executed with the Coal Controller, Ministry of

12.3 WASTE MANAGEMENT (figure in Mcum)

YEAR	OB removal (cumulative)			External Dump ,embankment Top soil storage & green belt(Cum)		Internal Dump/ Backfilling (Cumulative)	
	Top Soil	OB	Total	OB	Top Soil	OB	Top Soil
Yr-1	0.13	6.97	7.10	6.97	0.13		
Yr-2	0.31	16.84	17.15	11.53	0.31	5.31	
Yr-3	0.44	32.20	32.64	15.04	0.44	17.16	
Yr-4	0.57	52.17	52.74	18.69	0.57	33.48	
Yr-5	0.72	76.73	77.45	22.31	0.72	54.42	
Yr-6	0.89	104.22	105.11	25.80	0.89	78.42	
Yr-7	1.06	136.32	137.38	29.63	1.06	106.69	
Yr-8	1.22	170.09	171.31	33.52	1.17	136.57	0.05
Yr-9	1.35	203.89	205.24	38.07	1.20	165.82	0.15
Yr-10	1.46	237.71	239.17	44.08	1.19	193.63	0.27
Yr-11	1.56	272.83	274.39	52.02	1.25	220.81	0.31
Yr-12	1.65	306.30	307.95	59.97	1.30	246.33	0.35
Yr-13	1.74	343.09	344.83	67.92	1.35	275.17	0.39
Yr-14	1.84	379.87	381.71	71.86	1.41	308.01	0.43
Yr-15	1.93	419.61	421.54	75.81	1.46	343.80	0.47
Yr-16	2.02	459.35	461.37	79.77	1.50	379.58	0.52
Yr-17	2.12	499.08	501.20	83.72	1.55	415.36	0.57
Yr-18	2.21	538.82	541.03	87.68	1.59	451.14	0.62
Yr-19	2.31	581.50	583.81	91.63	1.64	489.87	0.67
Yr-20	2.41	628.79	631.20	91.63	1.68	537.20	0.73
Yr-21	2.51	676.08	678.59	91.63	1.72	584.53	0.79
Yr-22	2.61	723.37	725.98	91.63	1.76	631.86	0.85
Yr-23	2.71	770.66	773.37	91.63	1.80	679.19	0.91
Yr-24	2.80	823.86	826.66	101.60	1.83	722.42	0.97
Yr-25	2.88	880.02	882.90	111.58	1.85	768.60	1.03
Yr-26	2.96	936.18	939.14	121.57	1.86	814.77	1.10
Yr-27	3.05	992.33	995.38	131.55	1.88	860.94	1.17
Yr-28	3.12	1048.50	1051.62	141.55	1.88	907.11	1.24
Yr-29	3.20	1104.66	1107.86	151.54	1.89	953.28	1.31
Yr-30	3.28	1160.82	1164.10	159.30	1.90	1001.68	1.38
Yr-31	3.36	1216.98	1220.34	165.91	1.89	1050.95	1.47
Yr-32	3.43	1273.15	1276.58	165.99	1.87	1107.10	1.56
Yr-33	3.51	1327.65	1331.16	166.06	1.86	1161.59	1.65
Yr-34	3.53	1371.70	1375.23	166.13	1.79	1205.57	1.74
Yr-35	3.55	1415.75	1419.30	166.20	1.72	1249.55	1.83
Yr-36	3.57	1456.85	1460.42	166.27	1.65	1290.58	1.92
Yr-37	3.59	1497.95	1501.54	166.34	1.58	1331.61	2.01
Yr-38	3.61	1539.05	1542.66	166.41	1.51	1372.64	2.10
Yr-39	3.63	1580.15	1583.78	166.48	1.44	1413.67	2.19
Yr-40	3.65	1621.25	1624.90	166.55	1.37	1454.70	2.28
Yr-41	3.67	1662.35	1666.02	166.62	1.30	1495.73	2.37
Yr-42	3.70	1703.38	1707.08	166.68	1.24	1536.70	2.46
Yr-43	3.70	1737.67	1741.37	166.77	1.15	1570.90	2.55
Yr-44	3.70	1743.71	1747.41	166.86	1.06	1576.85	2.64

		Parameters				Details				Observation
Biological and technical reclamation of mined out land										
12.4		Stage/ Year(Producti on year)	Land Degraded				Technically Reclaimed Area			
			Excav	Dump (Extn + Top Soil)	Infra/ others	Total	Backfill	Dump (Extn + Top Soil)	Others	Total
Yr-1		19-20	75.500	38.370	32.000	145.870				
Yr-3		21-22	140.500	44.400	250.000	434.900	32.585	34.330	20.000	86.915
Yr-5		23-24	213.179	104.840	325.494	643.513	54.439	76.640	40.000	171.079
Yr-10		28-29	494.627	172.850	325.494	992.971	222.040	124.250	70.000	416.290
Yr-15		33-34	618.000	240.850	325.494	1184.344	321.765	171.850	88.000	581.615
Yr-20		38-39	745.000	280.350	325.494	1350.844	331.100	199.500	88.000	618.600
Yr-25		43-44	961.140	280.350	325.494	1566.984	430.825	199.500	88.000	718.325
Yr-30		48-49	1125.000	280.350	325.494	1730.844	462.700	239.920	88.000	790.620
Yr-35		53-54	1188.000	280.350	325.494	1793.844	562.425	280.350	88.000	930.775
Yr-40		58-59	1230.460	280.350	325.494	1836.304	662.150	280.350	88.000	1030.500
Yr-44		62-63	1234.440	280.350	325.494	1840.284	854.400	280.350	88.000	1222.750
Post Closure										
Yr-47		65-66	1234.440	280.350	325.494	1840.284	1130.00	280.350	429.934	1840.284
Biological Reclamation (Cumulative in "Ha")										
Year/Stage		Biologically Reclaimed Area					Un Disturbed	Total		
		Agr icul ture	Plantat ion	Water Body/v oid	Forest land (Retur n)	Public/co mpany Use				Total
Yr-1		19-20						1702.509	1848.379	
Yr-3		21-22		11.0				11.0	1413.479	1848.379
Yr-5		23-24		30.0				30.0	1204.866	1848.379
Yr-10		28-29		140.0				140.0	855.408	1848.379
Yr-15		33-34		240.0				240.0	664.035	1848.379
Yr-20		38-39		300.0				300.0	497.535	1848.379
Yr-25		43-44		502.8				502.8	281.395	1848.379
Yr-30		48-49		650.3				650.3	117.535	1848.379
Yr-35		53-54		730.4				730.4	54.535	1848.379
Yr-40		58-59		764.4				764.4	12.075	1848.379
Yr-44		62-63		855.9				855.9	8.095	1848.379
Post Closure										
Yr-47		65-66		1018.265	73.19	618.644	130.185	1840.284	8.095	1848.379

12.5	<p>Water Quality management : (Existing water bodies available in the lease hold area; Measures to be taken for protection of the same including control of erosion, sedimentation, siltation, water treatment, diversion of water course if any; Measures for protection of Contamination of ground water from leaching etc; Quality of surface water bodies and measures proposed to meet the water quality; Report of hydrological study of the area ; Water Balance Chart etc)</p>	<p>Garia Nalla having seasonal presence flows through northern & south-eastern corner of the property. Part of Garia nalla flowing through the block is proposed for straightening and diversion.</p> <p>Details in chapter of environmental management (Chapter-X of Revised MP & MCP).</p>																																																																																																				
12.6	<p>Top Soil Management – (Including Action plan for Top Soil management)</p> <table><tr><th rowspan="2">Year/ Stage</th><th rowspan="2">Top Soil Removal "MM3"</th><th colspan="4">Top Soil Used</th><th rowspan="2">Total utilised ts</th><th rowspan="2">Temp. TS storage</th></tr><tr><th>Embankment</th><th>Spreading over the</th><th>Spreading over the ob dump area</th><th>Using for Green Belt area</th></tr><tr><td>Yr-1</td><td>0.13</td><td></td><td></td><td></td><td>0.03</td><td>0.03</td><td>0.10</td></tr><tr><td>Yr-3</td><td>0.44</td><td></td><td></td><td></td><td>0.03</td><td>0.03</td><td>0.41</td></tr><tr><td>Yr-5</td><td>0.72</td><td>0.01</td><td></td><td>0.01</td><td>0.04</td><td>0.06</td><td>0.66</td></tr><tr><td>Yr-10</td><td>1.46</td><td>0.01</td><td>0.27</td><td>0.14</td><td>0.04</td><td>0.46</td><td>1.00</td></tr><tr><td>Yr-15</td><td>1.93</td><td>0.01</td><td>0.47</td><td>0.30</td><td>0.04</td><td>0.82</td><td>1.11</td></tr><tr><td>Yr-20</td><td>2.41</td><td>0.01</td><td>0.73</td><td>0.58</td><td>0.04</td><td>1.36</td><td>1.05</td></tr><tr><td>Yr-25</td><td>2.88</td><td>0.01</td><td>1.03</td><td>0.58</td><td>0.04</td><td>1.66</td><td>1.22</td></tr><tr><td>Yr-30</td><td>3.28</td><td>0.01</td><td>1.38</td><td>0.65</td><td>0.04</td><td>2.08</td><td>1.20</td></tr><tr><td>Yr-35</td><td>3.55</td><td>0.01</td><td>1.83</td><td>1.01</td><td>0.04</td><td>2.89</td><td>0.66</td></tr><tr><td>Yr-40</td><td>3.65</td><td>0.01</td><td>2.28</td><td>1.01</td><td>0.04</td><td>3.34</td><td>0.31</td></tr><tr><td>Yr-44</td><td>3.70</td><td>0.01</td><td>2.64</td><td>1.01</td><td>0.04</td><td>3.70</td><td>0.00</td></tr></table>		Year/ Stage	Top Soil Removal "MM3"	Top Soil Used				Total utilised ts	Temp. TS storage	Embankment	Spreading over the	Spreading over the ob dump area	Using for Green Belt area	Yr-1	0.13				0.03	0.03	0.10	Yr-3	0.44				0.03	0.03	0.41	Yr-5	0.72	0.01		0.01	0.04	0.06	0.66	Yr-10	1.46	0.01	0.27	0.14	0.04	0.46	1.00	Yr-15	1.93	0.01	0.47	0.30	0.04	0.82	1.11	Yr-20	2.41	0.01	0.73	0.58	0.04	1.36	1.05	Yr-25	2.88	0.01	1.03	0.58	0.04	1.66	1.22	Yr-30	3.28	0.01	1.38	0.65	0.04	2.08	1.20	Yr-35	3.55	0.01	1.83	1.01	0.04	2.89	0.66	Yr-40	3.65	0.01	2.28	1.01	0.04	3.34	0.31	Yr-44	3.70	0.01	2.64	1.01	0.04	3.70	0.00
Year/ Stage	Top Soil Removal "MM3"	Top Soil Used				Total utilised ts	Temp. TS storage																																																																																															
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Yr-1	0.13				0.03	0.03	0.10																																																																																															
Yr-3	0.44				0.03	0.03	0.41																																																																																															
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Yr-44	3.70	0.01	2.64	1.01	0.04	3.70	0.00																																																																																															
12.7	<p>Coal beneficiation and management of Coal Rejects, proposal regarding future maintenance and dismantling of structures, slurry pond and rejects</p>	<p>Beneficiation requirement not considered in this proposal, however final decision in this regard shall be taken after feeding coal to power plant and analyzing quality of ROM coal.</p>																																																																																																				

12.8	Infrastructure to be retained and to be dismantled and measures to be taken for their physical stability and maintenance for the retained infrastructure facilities;	all the infrastructure will be dismantled after exhaustion of mine operation. Detailed given in Chapter -XI (para 11.18 & 11.19 of Mine closure chapter) of the revised mining plan & mine closure plan	
12.9	Decommissioning of mining equipment and their possible post mining use	Equipment will be decommissioned only after exhaustion of mining operation during mine closure period. Detailed given in Chapter -XI (para 11.18 & 11.19 of Mine closure chapter) of the revised mining plan & mine closure plan	
12.10	Safety measures to be implemented to prevent access to surface opening for underground working, excavation etc (fencing to be carried out by barbed wires	All the safety measures during progressive closure will be followed as per statutory rules. when the mine is closed all the appropriate safety measures will be adopted which are detailed in Chapter -XI (para 11.21 of Mine closure chapter) of this revised mining plan & mine closure plan(Rev-III).	
12.11	Economic Repercussions of closure of mine - Manpower retrenchment, compensation to be given, socio-economic repercussions and remedial measures consequent to closure	details are given in Chapter -XI (para 11.22 of Mine closure chapter) of this revised mining plan & mine closure plan(Rev-III).	
12.12	Time scheduling for abandonment with bar chart for the life of the project plus 3 years	Enclosed in 11.28 para of Chapter-XI (Mine closure chapter) of this revised mining plan & mine closure plan (Rev-III).	


हिटलर सिंह / HITLAR SINGH
अवर सचिव / Under Secretary
कोयला मंत्रालय / Ministry of Coal
भारत सरकार / Govt. of India
शास्त्री भवन / Shastri Bhawan
नई दिल्ली / New Delhi

12.13	Cost of Activities to be taken up for closure of the mine				
	Head	Unit	Quantity	Rate Rs/Unit	Amount "Rs Cr"
	Water quality management (DRINKING)	No	36	9295	2.09
	Water quality management (SURFACE)	No	8	9551	0.70
	Water quality management (EFFULENT)	No	48	2387	0.80
Progressive Closure	Air quality management	No	96	37592	25.02
	Waste management	M Cum	219		
	Barbed wire fencing around dump	m	9750	800	0.78
	Barbed wire fencing around the Pit	m	15336	800	1.23
	Filling of Void – Remanding of Crown Dump	MM ³			
	Top Soil Management	MM ³	3.70	50	18.50
	Technical & Biological Reclamation of Mined out of land and OB Dump	Ha	1636.0	625000	109.13
	Plantation over virgin area including green belt	Ha	88.0	320000	2.82
	Manpower Cost and supervision	No	7	130416.67	6.26
	Toe wall around the dump	m	9750	8500	8.29
	Garland drain	m	11179	7250	11.12
	Garland Drain around the dump	m	9750	7250	7.07
	Any other activity				
	Dismantling of Workshop, CHP, Store	Sqm	150000	650	22.85
	Rehabilitation of the dismantling Facilities	Sqm	LS		2.285
Dismantling of Infrastructure & Disposal/Rehabilita	Dismantling of pumps and pipes/ other facilities		LS		2.34
	Dismantling of UG equipment				
	Rearranging water pipeline to dump top park/ agriculture land		LS		0.47
	Dismantling of Power lines	m	3000	150	0.105
	Barbed wire fencing around dump	m	9750	800	
Safety and Security	Barbed wire fencing around the pit	m	15336	800	
	Concrete wall with Masonary Pillars around the pit	m	15336	8100	29.10
	Security air shaft and installation of borewell pump	LS	0.00		
	Securing of incline	LS	0.00		
	Concrete wall fencing around the water body	m	5000	7000	8.20
	Toe wall around the dump	m	9750	8500	
	Garland drain	m	9750	8300	
	Garland drain around the dump	m	9750	8300	
	Drainage channel from the main Ob dump	m			
Technical & Biological Reclamation of Mined Out of Land and OB Dump	Filling of void	MM ³			
	Top Soil management	MM ³	0.25	50	2.93
	OB rehandling for backfilling	MM ³			
	Terracing, blanketing with soil and vegetation of External OB dump	Ha	LS		46.83
	Peripheral road	m	15336	3100	11.13
	Gate, View points with cemented steps	No	1	240000	0.05
	Expenditure on development of Agricultural land	Ha	LS		11.71
	Landscaping and plantation	Ha	256	500000	29.50

हिटलर सिंह / HITLAR SINGH
अवर सचिव / Under Secretary
कोयला मंत्रालय / Ministry of Coal
भारत सरकार / Govt. of India
शास्त्री भवन / Shastri Bhawan
नई दिल्ली / New Delhi

श्री रामकृष्ण


(उपसह) अध्यक्ष

ए-१६, १६, १६, १६, १६, १६

DATE 17.09.2010

	Post Closure Management & Supervision	Power Cost				
		Post Mining water quality management (DRINKING)	No	24	9295	0.16
		Post Mining water quality management (EFFLUENT)	No	24	2387	0.05
		Water quality management (TOTAL)				
		Post Mining air quality management		72	37592	1.90
		Subsidence monitoring for 5 years				
		Waste management	MM ³			
	Others	Manpower Cost & supervision	No	21	4840000	71.44
		Enterpreunership development (vocational/skill development training for sustainable income of affected people	No	618	0.01	11.61
		Golden Handshake / Retrenchment benefits to employees of OC	No	100	0.48	28.50
		Onetime financial grant to societies / institutions /organisations which is dependent upon the project	No	LS		25.00
		Provide jobs in other mines of the company (PAFs)	No			
	Total	Continuation of other services like running of school etc	No	1	500000	44.81
					544.76	

12.14	Amount to be deposited in Escrow account as a security against the mine activities to be carried out for the closure of the mine				
	WPI as on August 09	Aug-09			129.60
	WPI as on base date "Base Date for the Mining Plan / Mine Closure Plan" (base year 2011-12) (linking factor of 1.561)	March-18			121.5
	Escalation rate of closure cost				1.46344
	Rate of compounding of Annual Closure Cost				5.00 %
		UG		OC	
	Base Rate of Closure Cost "Rs. Lakh. /Ha."				6.00
	Closure Cost "Rs. Lakh./Ha"				8.7806
	Project Area				1848.379
	Amount to be deposited into Escrow Account "Rs. in Crs."				162.299
	Amount already deposited into Escrow Account "Rs. in Crs"				3.71
	Net Amount to be deposited into Escrow Account "Rs. in Crs."				158.5877
	Balance Life of the project "in Yrs"				44
	Annual Closure Cost "Rs in Lakhs"				360.4266
	Total balance amount to be deposited in escrow account over mine life "Rs. in Crs."				544.76

13	Responsibility of Mine owner	Ref. para 11.26 of Chapter -XI of Revised Mining plan & Mine Closure Plan (Rev-III).		
14	Provision of Mine Closure	Ref. para 11.27 of Chapter -XI of Revised Mining plan & Mine Closure Plan (Rev-III).		
15	ANNEXURES			
I.	Copy of allotment order / vesting order	Mandatory	Enclosed at ANNEXURE-1 in revised MP & MCP	
II.	Certificate of CMPDIL that the project boundary considered for the Mining Plan is in coherence with the block boundary vested with the allottee.	Mandatory	Enclosed at ANNEXURE-2 in revised MP & MCP <div style="text-align: center;">  हिटलर सिंह / HITLAR SINGH उप सचिव / Under Secretary कोयला मंत्रालय / Ministry of Coal भारत सरकार / Govt. of India शास्त्री भवन / Shastri Bhawan नई दिल्ली / New Delhi </div>	


Job No.780051

संजय कुमार भर Checklist, Page - 28

MP (including MCP) of Manoharpur Coal Mine (Rev-III)

सि. एम. पी. डी. आई., क्षेत्र-7
Ref. No. 34011/(22)2005-CPAM d1.02.12.2010

मह. राज्यक. प्रमुख
(उपसचिव) कोयला मंत्रालय
ए-३६, ६, ईस्ट बिल्डिंग, नई दिल्ली
011-23383300-20051231/17094.001.100

	Parameters	Details	
III.	Approvals of Mine Closure plan from the Board of the company	Mandatory	Enclosed as Annexure- 3 in revised MP & MCP
IV.	Copy of earlier approved of mining plan.	Mandatory	Enclosed as Annexure- 4 in revised MP & MCP
V.	Copy of MOC's letter granting recognition to RQP for preparation of Mining Plan.	Mandatory	Enclosed at Annexure- 5 in revised MP & MCP
VI.	Letter of authorization by the Block allottee for formation of Mining Plan & Mine Closure Plan by the RQP.	MP & MCP	Enclosed as Annexure- 6 in revised MP & MCP
VII.	Certificate of acceptance of the RQP to formulate the Mining Plan & Mine Closure Plan on behalf of the project proponent	MP & MCP	Enclosed as Annexure- 7 in revised MP & MCP
VIII.	A certificate by the RQP that he has been duly authorized by the mining company to prepare Mining Plan & MCP on their behalf and that he has a valid recognition from MOC under MCR, 1960 to prepare the Mining Plan and that provisions of all relevant rules and regulations made there under have been observed in the preparation of mining plan.	MP & MCP	Enclosed as Annexure- 8 in revised MP & MCP
IX.	The Mining Plan / Mine Closure Plan has been prepared considering the guidelines pertaining to mining plan/ mine closure plan issued by MoC, GoI & wherever specific permission will be required the applicant will approach the concerned authorities.	MP & MCP	Enclosed as Annexure-9 in revised MP & MCP  हिटलर सिंह / HITLAR SINGH अवर सचिव / Under Secretary कोयला मंत्रालय / Ministry of Coal भारत सरकार / Govt. of India शास्त्री भवन / Shastri Bhawan नई दिल्ली / New Delhi

X.	Confirmation from RQP that he has verified the block area with the relevant plans supplied by CMPDI/SCCL/NLC and area covered by the mining plan does not encroach on any other coal lignite block.	MP	Enclosed as Annexure- 10 in revised MP & MCP	
XI.	Certificate from empowered representative of / or Block allottee/ applicant that the mine will be developed as per the approval of the mining plan from Ministry of Coal and all other approvals, as required will be obtained from relevant authorities	MP	Enclosed as Annexure- 11 in revised MP & MCP	
XII.	Copy of the document to establish that the geologist report has been duly purchased from CMPDI, GSI/ MECL as the case may be.	MP	Enclosed as Annexure- 12 in revised MP & MCP	
XIII.	Certificate of RQP that the project boundary considered for the Mining Closure Plan has been verified by RQP. It is in coherence with the block boundary of vesting order and approved mining plan and no discrepancy has been found.	MP & MCP	NA	
XIV.	Certificate that the Mine Plan & Mine Closure Plan have been prepared in line with the approved Mining Plan and the mine parameters considered for formulation of mine closure plan is exactly the same, which has been approved in the Mining Plan.	MP & MCP	NA	

Checklist, Page - 30

0051 संजय कुमार भार Check
g MCP) of मनुष्य प्रशासन विभाग, पुराना मुहल्ला, पुराना कोट म...
सी. एम. पी. डी. आई., क्षेत्र-7
Ref. No. 34011/(22)2005-CPAM dt. 02.12.2010

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XV	Certificate from empowered representative of / or Block allottee/ applicant that he mine that the reclamation & rehabilitation work shall be carried out in accordance with the approved mine closure plan and any modification /amendments which may be made in the mine Closure Plan by Ministry of Coal, from time to time.	MP & MCP	Enclosed as Annexure-13 in revised MP & MCP
XVI	Documents in support of Mining Lease, in case the lease has already been granted.	MP & MCP	Enclosed as Annexure-14 in revised MP & MCP
XVII	Letter of intent from representative of State Government for the area included in the project which is outside the block allocated by vesting order to the project proponent	MP & MCP	Enclosed as Annexure-15 in revised MP & MCP
XVIII	Hydrological study carried out if any.	MP & MCP	Enclosed as Annexure-16 in revised MP & MCP
XIX	Environment Clearance to previous allottee & Transfer to current allottee	MP & MCP	Enclosed as Annexure-17 in revised MP & MCP
XX	Stage – III FC diversion approval from MoEF & CC to the previous allottee & Transfer to current allottee	MP & MCP	Enclosed as Annexure-18 in revised MP & MCP
XXI	Other document	MP & MCP	Enclosed as different Annexure mentioned in Revised MP & MCP
16	LIST OF PLANS		
I	Location plan	MP & MCP	Enclosed as PLATE NO 1A & 1B of Revised MP & MCP

हिटलर सिंह / HITLAR SINGH
अवर सचिव / Under Secretary
कोयला मंत्रालय / Ministry of Coal
भारत सरकार / Govt. of India
शास्त्री भवन / Shastri Bhawan
नई दिल्ली / New Delhi

II	Reference no. of plan of block boundary issued by CMPDI/ SCCL/ NLC (A copy of the Plan also to be annexed)	MP	Enclosed as Annexure-2 & PLATE NO 2 (in full size) of Revised MP &MCP	
III	Plan in scale of not less than 1: 10000 showing approved block boundary vis-à-vis proposed/existing mining lease & Mine boundary superimposed over it in distinct colour.	MP & MCP	Enclosed as PLATE NO 3 of Revised MP &MCP	
IV	Geological plan showing all the boreholes drilled and proposed to be drilled showing allotted block boundary and required lease area	MP & MCP	Enclosed as PLATE NO 4 of Revised MP &MCP	
V	Graphic Litholog	MP & MCP	Enclosed as PLATE NO 5 of Revised MP &MCP	
VI	Surface Plan showing drainage system, Contour , at minimum 3m interval, location of BH	MP & MCP	Enclosed as PLATE NO 6 of Revised MP &MCP	
VII	Conceptual plan showing infrastructure facilities including colony, boundary of mining area, mine entries, roads including road diversion alignment etc	MP & MCP	Enclosed as PLATE NO 7 of MP &MCP (Revision-III)	
VIII	Land use plan showing Govt, forest and Tenancy land	MP & MCP	Enclosed as PLATE NO 8 of MP &MCP (Revision-III)	
IX	Floor contour plan and seam folio plan, iso- grade plan	MP & MCP	Enclosed as PLATE NO 9 to PLATE NO 29 of MP &MCP (Revision-III)	
X	X-section showing coal/Lignite seams	MP & MCP	Enclosed as PLATE NO 30 of MP &MCP (Revision-III)	

XI	Plan showing existing and proposed surface layout	MP & MCP	Enclosed as PLATE NO 31 of MP & MCP (Revision-III)	
XII	Post mining land use plan	MP & MCP	Enclosed as PLATE NO 32 of MP & MCP (Revision-III)	
XIII	Progressive mine closure plan/ stage plan indicating stages at 1st,3rd,5th, 10th,15 th ,20th and 30th year (showing area, volume, dump height etc for OC and seam-wise layout projects and ventilation system in UG)	MP & MCP	Enclosed as PLATE NO 33 to PLATE NO 39 of MP & MCP (Revision-III)	
XIV	Reclamation plan	MP & MCP	Enclosed as PLATE NO 40 of Revised MP & MCP	
OPENCAST MINES				
XV	Plan showing total coal thickness and overburden thickness and stripping ratio	OC	Enclosed as PLATE NO 42 of Revised MP & MCP	
XVI	Final stage quarry plan showing haul road alignment	OC	Enclosed as PLATE NO 41 of Revised MP & MCP	
UNGRAOUND MINES				
XVII	Plan showing mode and location of entries and surface layouts	U G	NA	
XVIII	Layout of the panel for each system Longwall, Bord & Pillar, road header should be given)	U G	NA	
XIX	Layout of pillar extraction	U G	NA	
XX	Support system	U G	NA	
XXI	Haulage and transport system	U G	NA	

[Signature]

संजय कुमार भर

मुख्य प्रबंधक (उत्खनन)

सी. एम. पी. डी. आई. सी. ए.

Ref. No. 34011/(22)2005-CPAM 01.12.2010

Job No.780051

MP (including MCP) of Manoharpur & Dipside Manoharpur Coal Mine (Rev-III)

[Signature]

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अवर सचिव / Under Secretary
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