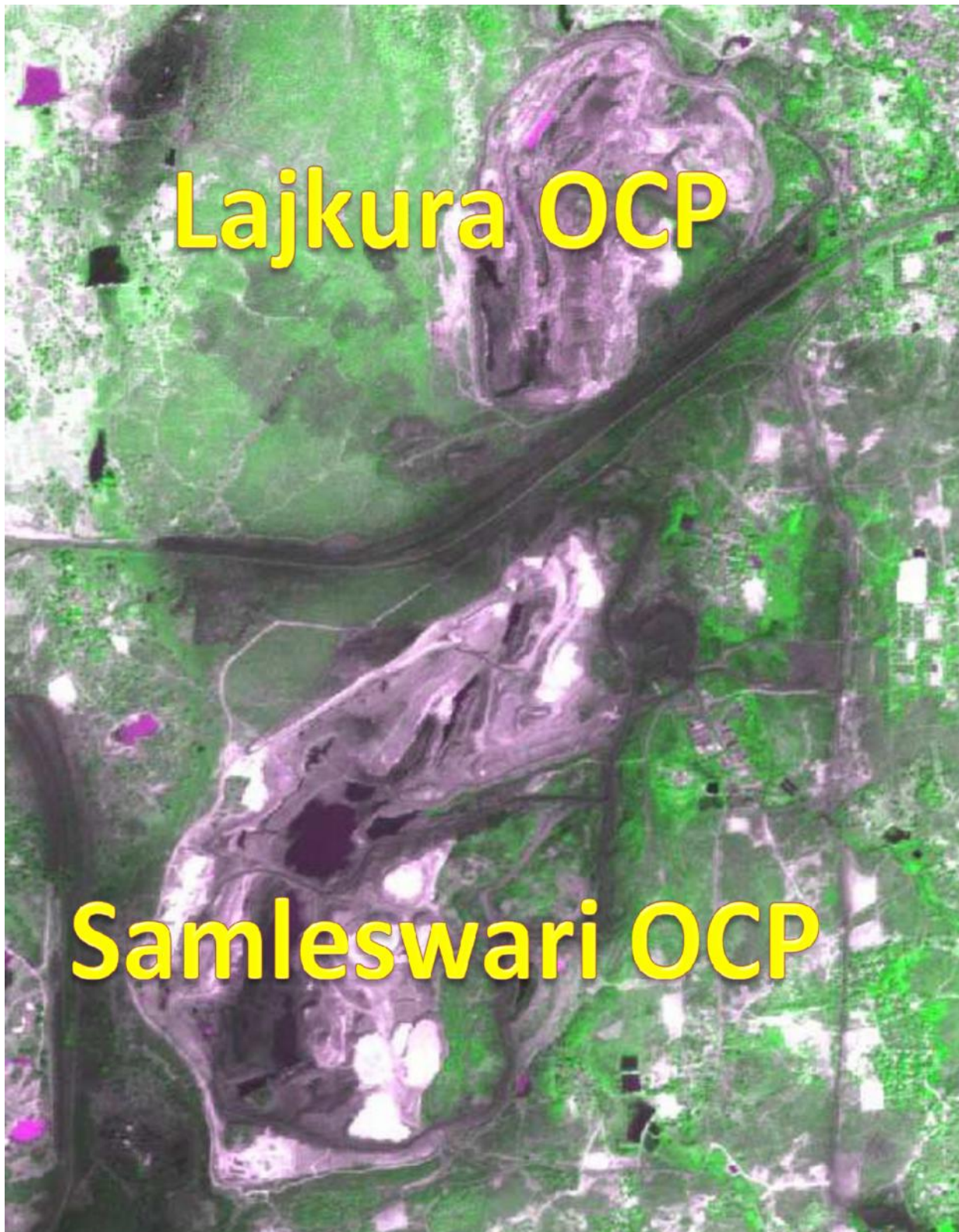


Land Restoration/Reclamation Monitoring of more than 5 million cu.m (Coal+OB) Capacity Opencast Coal Mines of Mahanadi Coalfields Limited based on Satellite Data.





Mahanadi
Coalfields
Limited
(A Subsidiary of Coal India Limited)
A Mini Ratna Company

OFFICE OF THE CHIEF MANAGER(MINING)/ PROJECT OFFICER Lajkura
Opencast Project, IB Valley Area, Brajrajnagar, Dist- Jharsuguda, Odisha-768230 , Ph no
06645-242095

Ref.No. MCL/IBVA /PO (LOCP)/Env/13-14/

Date- 25-11-2013

To,
The Chief Conservator of Forest
Ministry of Environment and Forest,
Regional Office, Eastern Region,
A-3, Chandrashekharpur, Bhubaneswar- 751023

BY REGD. POST

Sub-Submission of Half Yearly Compliance report of “Environmental clearance Condition” in respect of Lajkura OCP (2.5 Mty Peak 3 Mty) from April-13 to September-13.

Dear Sir,

Enclosed please find herewith ‘Half Yearly Compliance report’ along with form I, II & III and abstract of the ‘monitoring report’ of Air, Water, Noise & Effluent quality in respect of Lajkura Open Cast Project (3.0 Mty Peak) for the period from **APRIL-13 to SEPTEMBER-13.**

This is for your kind perusal & necessary action.

Thanking You,

Yours Faithfully,

- sd-

On 25/11/2013

**PROJECT OFFICER
LAJKURA OCP**

Copy to:

1. Director .E I.A.; Monitoring Cell, Ministry of Environment and Forest,.
Paryavaran Bhawan, C.G.O. Complex , New Delhi-110003 **BY REGD. POST**
2. Chairman, State Pollution Control Board Odisha, Paribesh BHawan
Nilakanthanagar, Unit-VIII, Bhubaneswar - 751012
Bhubaneswar. **BY REGD. POST**
3. Regional Officer, State Pollution Control Board Odisha, Shivom Colony,
NH-6, Near Income Tax Office, Ainthapali, P.O.-Budharaja,
Dist.- Sambalpur. **BY REGD. POST**

Distributions to :-

1. General Manager, Ib Valley Area
2. General Manager(Env.), MCL, HQ, Burla, Sambalpur.
3. Area Environment Officer, Ib Valley Area.
4. Office file.

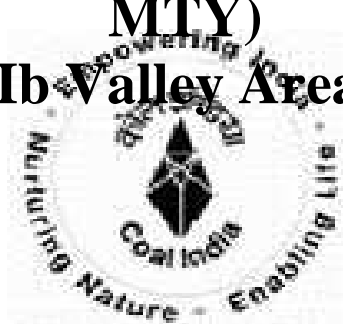
HALF- YEARLY PROGRESS

REPORT OF COMPLIANCE

WITH ENVIRONMENTAL CLEARANCE CONDITIONS

**(APRIL 2013 TO SEPTEMBER
2013) Lajkura OCP Expn.(2.5**

**MTY)
Ib Valley Area**



Mahanadi Coal Fields Limited

(A subsidiary of Coal India limited)

MCL - A Mini Ratna Company

**HALF – YEARLY
REPORT OF
COMPLIANCE WITH
ENVIRONMENTAL CLEARANCE CONDITIONS
(HALF YEARLY ENDING MARCH 2013)**

Name of the project: Lajkura OCP Expn. (2.5 Mty normative and peak 3MTY), IB VALLEY AREA MCL

No. & Date of MOEF clearance letter No:J-11015/423/2008-1A-11(M) dated :- 12.3.2013

Condition No.	(A) Specific conditions	Compliance Status
(i)	The proponent shall not operate in the forest area without Forestry Clearance	The project is presently working within the existing ML area of 252.29 ha within 1 MTPA production capacity and there is no forest land.
(ii)	The expansion of the production shall be from 1MT to 3MT within the same Mining Lease area.	The mine is strictly running in accordance with the environment clearance conditions of MOEF.
(iii)	The proponent shall obtain FC for 156.67 ha of forest land which falls within the expanded area of mining	Application of Stage -1 FC is under consideration at Nodal CCF,office of PCCF Bhubaneshwar.
(iv)	A 30 meter width should be provided to green belt.	Appropriate action will be taken.
(v)	Social audit should also be done through an Institute of repute and details of the report be submitted to Ministry	Action has been taken and the report will be submitted very shortly.
(vi)	A plan be made urgently for mechanized loading of railway wagon at the railway siding to reduce dust generation from loading by pay loader.	Proposal has been initiated to install water sprinkler all along & across the siding to wet the coal before loading it to railway wagons by mechanical means. Presently dust suppression as well as wetting of coal is being done by the mobile water tanker.
(vii)	Full EC with forest land could be granted once the stage –I Forest Clearance is obtained.	After approval of stage-1 FC request will be made for release of full FC with forest land.
(viii)	Topsoil, if any, created during the balance life of the mine, shall be stacked properly with proper slope at earmarked site(s) and shall not be kept active and shall be used within a year of its generation for mine reclamation and development of green belt.	Complied.
(ix)	OB generated during the balance life of the mine shall be simultaneously backfilled into the decoaled quarry area. No new external OB dumps shall be created for the OB generated in the balance life of mine.	OB generated in the mine is simultaneously backfilled into the decoaled quarry area to filling the void.

(x)	Monitoring and management of existing reclaimed dumpsites of an area of 326.00 ha shall continue until the vegetation becomes self-sustaining. Compliances status shall be submitted to the ministry of Environment & Forests and its Regional office located at submitted Bhubaneswar on yearly basis.	The existing OBR dumps is not attended the full and final height as per PR. However in the areas planted previously,vegetation has already become self –sustainable.
(xi)	Catch drains and siltation ponds of appropriate size shall be constructed to arrest silt and sediment flows from soil, OB and mineral dumps. The water so collected shall be utilized for watering the mine area, roads, green belt development etc. The drains shall be regularly desilted and maintained properly.	Complied
(xii)	Garland drains (size, gradient and length) and sump capacity shall be designed keeping 50% safety margin over and above the peak sudden rainfall and maximum discharge in the area of adjoining the mine site. Sump capacity should also provide adequate retention period to allow proper settling of silt material.	Complied
(xiii)	Dimension of the retaining wall at the toe of the dumps and OB benches within the mine to check run-off and siltation shall be based on the rainfall data.	Provided as per mining Regulation.
(xiv)	Crusher at the CHP shall be operated with high efficiency bag filters, water sprinkling system shall be provided to check fugitive emissions from crushing operations, conveyer system, haulage road, transfer point etc.	The water spraying system as well as enclosures along crushing and transfer points and along conveyor belts, has already been provided to check fugitive emission from crushing operation, conveyor system, haulage roads, transfer points, etc.
(xv)	Drills shall be wet operated. Roads shall be metal topped and mechanical sweepers shall be regularly deployed to clear the dust off the main approach and mineral transportation roads. Water sprinkling (fixed and mist type, mobile) shall be regularly done along the main haul roads.	All drills are equipped with dust collector and wet drilling arrangement. All haul roads and mineral transportation roads are kept wet to control dust with the help of Mobile water tanker.
(xvi)	At the post mining stage, an area of 575.57 ha shall be afforested which includes 60.44 ha for green belt area, 189.13 ha for outside dump, 326.00 ha for inside dump by planting native species in consultation with the local DFO/ Agriculture Department. The density of the trees shall be around 2500 plants per ha.	The a forestation programme at the post mining stage is incorporated in the mine plan of the project and project is going on as per plan. Out of total Dump Area 33.3 ha External dump has been planted with 66600 nos. of plants and 27.03 ha internal dump has been biologically reclaimed till date with 54064 nos. of plants. .Internal dumping is continuing until final height as per PR is reached.

(xvii)	A Progressive mine Closure Plan shall be implemented and OB generated shall be simultaneously backfilled in an area of 326.00 ha so as to backfill and reclaim 27.03ha of decoaled quarry area and stabilized with plantation.	Implemented
(xviii)	No fly ash shall be dumped into decoaled void without feasibility studies on long-term impacts on the aquifers and life system and without prior approval of the Ministry.	Complied
(xix)	Regular monitoring of ground water level and quality shall be carried out by establishing the network of existing wells and construction of new piezometers. The monitoring for quantity shall be done four times a year in pre- monsoon (May), monsoon (August), post monsoon (November) and winter (January) seasons and for quality in May. Data thus collected shall be submitted to the Ministry of Environment and Forests and to the Central Board quarterly within one month of monitoring.	The monitoring of hydrology of the area and water quality is being done by the CMPDI, Ranchi every month. The summary of the report is enclosed.
(xx)	The company shall put up artificial groundwater recharge measures for augmentation of groundwater resource. The project authorities shall meet water requirement of nearby village(s) in case the village wells go dry due to dewatering of mine.	Complied. The existing mine sumps and sedimentation pond are good measures for ground water recharge. Also drinking water is arranged to meet water requirement of nearby village(s) under CSR of company.
(xxi)	Sewage treatment plant shall be installed in the existing colony. ETP shall also be provided for workshop and CHP wastewater.	The proposal for construction of STP by outsource is in final stage. ETP is existing and in well working condition.
(xxii)	Besides carrying out regular periodic health checkup of their workers, 10% of the workers identified from workforce engaged in active mining operations shall be subjected to health checkup for occupational disease and hearing impairment, if any, through an agency within the district/State and the result reported to this Ministry and to DGMS.	The periodic health check-up of all employee is being done at company hospital as per the rules enacted in mine. The company hospital also providing health services to surrounding villages under CSR of the company. (Enclosure –B)
(xxiii)	For monitoring land use pattern and for post mining land use, a time series of land use maps, based on satellite imagery (on the scale of 1:5000) of the core zone and buffer zone, from the start of the project until the end of mine life shall be prepared once in 3 years (for anyone particular season which is consistent in the time series), and the report submitted to MOEF and its Regional office at Bhubaneswar.	The work is in progress .

(xxiv)	A detailed Final Mine Closure Plan along with details of Corpus Fund shall be submitted to the Ministry of Environment & Forests within 6 months of grant of this letter for approval, in case expansion in ML area is not implemented.	N A.
(xxv)	R&R of existing project has been completed. In the expansion project, Brajarajnagar unit 1, two villages namely Chhauliberna village (near Chingriguda siding), Chhauliberna village (Baghachhapa nallah side) consisting of additional 96 families require R&R would be 263 for the total 3.00 MTPA. 228 Project affected persons have been provided employment. R&R of expansion project likely to be completed by 2016-17. R&R policy of Govt. of Odisha would be followed. Expenditure incurred and works executed at present rehabilitation colony Madhuban Nagar is Rs.20, 97,414 Lakh. R&R norms shall be not less than of the national R&R Policy.	Rehabilitation has been done as per the Govt. Of Orissa package and as per the CIL R&R Policy.
(xxvi)	<p>Corporate Environment Responsibility:</p> <ul style="list-style-type: none"> a) The company shall have a well laid down Environment Policy approved by the Board of Directors. b) The Environment Policy shall prescribe for standard operating process/procedures to bring into focus any infringement Order of the company to deal with environmental or forest norms/conditions. c) The hierarchical system or Administrative Order of the company to deal with environmental issues and for ensuring compliance with environmental clearance conditions shall be furnished. d) To have proper checks and balances, the company shall have a well laid down system of reporting of non-compliances/violations of environmental norms to the Board of Directors of the company and/or shareholders or stakeholders at large. 	Will be taken at HQ level.

Condi on no.	General conditions	
(i)	No change in technology and scope of working shall be made without prior approval of the Ministry of Environment and Forests.	Complied
(ii)	No change in the calendar plan including quantum of mineral coal and waste being produced shall be made.	Complied
(iii)	Four ambient air quality monitoring station shall be established in the core 9zone as well in the buffer zone for monitoring PM ₁₀ , PM _{2.5} SO ₂ , and NO _x . Location of the stations shall be decided based on the meteorological data, topographical features and environmentally and ecologically sensitive targets in consultation with the State Pollution Control Board. Monitoring of heavy metals such as Hg, As, Ni, Cd, Cr, in particulates shall be carried out at least once in six month.	Complied
(iv)	Data on ambient air quality (PM ₁₀ , PM _{2.5} SO ₂ , and NO _x and heavy metals such as Hg, As, Ni, Cr, etc.) and other monitoring data shall be regularly submitted to the Ministry including its Regional Office at Bhubaneswar and to the State Pollution Control Board and the Central Pollution Control Board once in six months.	Complied
(v)	Adequate measures shall be taken for control of noise levels below 85dBA in the work environment. Workers engaged in blasting and drilling operations, operation of HEMM, etc shall be provided with ear plugs/muffs.	Presently all HEMM used in mine are provided with inbuilt system design to minimize noise level. Ear plug/ ear muffs are also provided to work persons.
(vi)	Industrial waste water (workshop and wastewater from mine) shall be properly collected and treated so as to conform to the standards including for heavy metals before discharge prescribed under GSR 422 (E) dated 19 th May 1993 and 31 st December 1993 or as amended from time to time. Oil and grease trap shall be installed before discharge of workshop effluents.	Oil and grease trap is in well working condition and workshop waste water is treated there. Mine waste water is presently collected in surface pond from mine settling sump and treated there before leaving it out side. Proposal for construction of latest designed MDTP is also in final stage and will be installed very soon.
(vii)	Vehicular emissions shall be kept under control and regularly monitored. Vehicles used for transportation of the material shall be covered with tarpaulins and optimally loaded.	complied
(viii)	Monitoring of environmental quality parameters shall be carried out through establishment of adequate number and type of pollution monitoring and analysis equipment in consultation with the State pollution Control Board and data got analyzed through a laboratory recognized under EP rules, 1986.	Complied. Monitoring of environmental quality parameters is being carried out by CMPDIL Ranchi.

(ix)	Personnel working in dusty areas shall wear protective respiratory devices and they shall be provided with adequate training and information on safety and health aspects. Occupational health surveillance programme of the workers shall be undertaken periodically to observe any contractions due to expose to dust and to take corrective measures, if needed.	Complied
(x)	A separate environmental management cell with suitable qualified personnel shall be set up under the control of a Senior Executive, who will report directly to the head of the company.	Complied
(xi)	The funds earmarked for environmental protection measures shall be kept in separate account and shall not diverted for other purpose. Year wise expenditure shall be reported to this Ministry and Regional Office at Bhubaneswar.	COMPLIED. The fund earmarked for environmental protection measures is kept under head ENVIRONMENT and expenditure reflect in cost sheet.
(xii)	The Project authorizes shall advertise at least in two local newspapers widely circulated around the project, one of which shall be in the vernacular language of the locality concerned within seven days of the clearance letter informing that the project has been accorded environmental clearance and a copy of the clearance letter is available with the State Pollution Control Board and may also be seen at the website of the Ministry of Environment & Forests at http://envfor.nic.in .	Complied
(xiii)	A copy of the environmental clearance letter shall be marked to concerned Pancchayat/ZilaParisad, Municipal Corporation or Urban Local Body and local NGO, if any, from whom any suggestion/representation has been received while processing the proposal. A copy of the clearance letter shall also be displayed on the company's website.	Complied
(xiv)	A copy of the clearance letter shall be displayed on the website of the concerned State Pollution Control Board. The EC letter shall also be displayed at the regional Office, District Industry Centre and Collector's Office/Tehsildar's Office for 30 days.	Complied

(xv)	The clearance letter shall be uploaded on the company's website. The compliance status of the stipulated EC conditions shall also be uploaded by the project authorities on their website and updated at least once every six months so as to bring the same in the public domain. The monitoring data of the environmental quality parameter (air, water, noise and soil) and critical pollutants such as PM ₁₀ , PM _{2.5} , SO ₂ and NO _x (ambient and stack if any) and critical sartorial parameters shall also be displayed at the entrance of the project premises and mines office in corporate office and on the company's website.	The monitoring data of the environmental quality parameter and critical pollutants and critical sartorial parameters are displayed on electronic display board. The compliance status of EC conditions will be very shortly loaded in website.
(xvi)	The project proponent shall submit six monthly reports on the status of compliance of the stipulated environmental clearance conditions (both in hard copy and in email) to the respective Regional office of the MOEF, the respective Zonal Offices of CPCB and the SPCB.	Complied
(xvii)	The regional Office of this Ministry located at Bhubaneswar shall monitor compliance of the stipulated conditions. The project authorities shall extend full cooperation to the office(s) of the Regional Office by furnishing the requisite data/information/ monitoring reports.	Complied
(xviii)	The environmental statement for each financial year ending 31 st March in Form-V is mandated to be submitted by the project proponent to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently, shall also be uploaded on the company's website along with the status of the compliance of EC conditions and shall be sent to the respective Regional Offices of the MOEF by E-mail.	Complied

-sd-
On 25/11/2013
PROJECT OFFICER
LAJKURA OCP

FORM-1

**MINISTRY OF ENVIRONMENT & FOREST
REGIONAL OFFICE
MONITORING PROFORMA PART- 1 (DATA SHEET)**

1. **Project Type: River-Valley/Mining Industry/Thermal/Nuclear/Other (Specify)** : Mining Industry
2. **Name of the Project** : Lajkura OCP Expn. (2.5 Mty normative and Peak 3 MTY), MCL
3. **Clearance Letter(s) OM no.& Date** : J-11015/423/2008-IA.II(M) dated 12.03.2013
4. **Location:**
 - (a) district(s), State(s) :Jharsuguda,Odisha.
5. (a) **Address of concerned project** :Office of the Project Officer, Lajkura O C P ,
Chief Engineer (with pin code and telephone/telex/Fax nos. PO-Lamtibahal, Brajraj Nagar , Distt-,Jharsuguda Odisha, Pin-768230; Phone: (06645-242095)
b) Address of Executive project : ----do-----
Engineer /Manager (with pin code and telephone/telex/fax nos.
6. **Salient features:**
 - a. Of the project : Targeted output:2.5 Mty. As per PR, Minable reserve: 6.23MT. Stripping ratio: 3.40 cum/t; Open cast Mining (Dragline & Shovel-dumper system of mining for O B removal and Coal seam is extracted with the help of Surface Miner as well as conventional drilling and blasting combined system; Project Life: 29Yrs.(app)etc.
 - b. Mining Technology-
 - c. Of the environmental : Capital cost of Env't.Mgmt(As per EMP for expansion of 2.5 Mty).—1656.56 Lakhs Resettlement & rehabilitation, Pollution abatement measure cost, Effluent treatment cost, compensatory Afforestation, Arboriculture, Peripheral development, Rain water harvesting etc.
7. **Break up of the project area** :
 - a. Submergence area (Forest and Non-Forest) : 252.29Ha (Only non forest)
 - b. Others
8. **Break-up of project affected population, :** : NIL
with enumeration of those losing houses/dwelling units only, agricultural land only, both dwelling units and agricultural land and land less labourers/artisans.
- a. SC,ST/ Adivasis : Nil
- b. Others : Nil
9. **Financial Details:**
 - a) Project cost as originally planned and Subsequently estimates and the year of price reference. :
 - b) Allocation made for environmental management plans, with item-wise and year wise break-up : As per P.R.
: -Rs-1656.56 lakhs(As per Chapter-9 of PR for expansion of 3.0Mty).The difference heads are Resettlement & rehabilitation, Land reclamation, Air pollution measure, Water pollution measures, Compensatory afforestation, Misc cost etc.

- c) Benefit cost ratio/internal rate of return and the year of assessment : Cost Rs. 874.58 /te; Profit Rs 1230.86(As per cost sheet-12 of LOCP.)for the year 2012-13(up to March 2013)
- d) Whether 9 c) includes the cost of environmental management plans so far. : Yes
- e) Actual expenditure incurred on the Project so far (capital) : Rs.14351.52 lakhs(As on 30.09.2013)
- f) Actual expenditure incurred on the Env't. :
Mgmt plans, so far

1. For tree plantation Rs.1.75 lakhs
- 2.Environmental Exp.(Statutory Fee etc)
Rs-7.05 lakhs. (As per cost sheet-12)
3. Environment monitoring Rs 27.60 lakh

10. Forest land requirements

- a) The status of approval of a diversion of forest land for non-forestry use. : Application has already been made for expansion of 3.0Mty.
- b) The status of Tree felling : not applicable c)
Comments on the viability and : Viable,
Sustainability programme in the light
of actual fields experience so far.

11. Status of construction:

- a) Date of commencement : This is an Expansion Project planned initially
(Actual and/or planned) for 1Mty now extended for 3.0 Mty.
- b) Date of completion : Project Life: 29Yrs.etc.
(Actual and / or planned)

12. Reason for the delay if the project is yet to start : Not Applicable

13. Date of Site visit

- a. The date on which the project was monitored by the Regional Office , If any . :
- b. Date of visit for this monitoring report. : -
14. Details of correspondence with project authority : To MOEF,& OSPCB
For obtaining action plan, information and status
Of compliance to safe guard.

-sd-
On 25/11/2013
PROJECT OFFICER
LAJKURA OCP.

FORM-II**PROFORMA FOR PROVIDING INFORMATION ON REHABILITATION**

(For the year 2013-2014)

1.No. of village affected	: Nil				
2.Families affected	: SC	ST	OTH	Total	
3.Compensation package offered per family. :					
State/ Centre norms			Project package		
As per State Govt. Package					
4. Budget estimate for rehabilitation.	NIL				
a)Total outlay	:				
b) Amount paid/used	:				
5. Employment details					
a)Total employment to be provided	:				
b) Employment given so far.	:				
6. Rehabilitation & Resettlement details.	: No shifting				
a) Nos. of families rehabilitated	: NA				
i)Name of the site	: NA				
iv)Families rehabilitated.	: SC	ST	OTH	TOTAL	
			NA		
b). families yet to be rehabilitated	: NA				
i) Name of site	: NA				
ii).No. of families	: SC	ST	OTH	TOTAL	
			NA		
Any other information.	: NO				

-sd-
On 25/11/2013
PROJECT OFFICE
LAJKURA OCP

FORM –III

**FORMATE FOR PROVIDING PARTICULARS ON GREEN
BELT/PLANTATION UNDER F (C) ACT 1980 AND E (P) ACT 1986.**

1. a. Name of Organization : MAHANADI COALFIELDS LIMITED
 - b. Env't clearance order No. : **J-11015/423/2008-1A-11(M) dated -12.3.2013**
 - c. Forest clearance order No. : 8-147/89 FC of MOEF dtd.09th Aug 2001.and
No. F.No.- 8-147/89-FC(Vol.II) dated:
17/2/2009.(For expansion project for 3 MT
Stage-1 forest clearance application is pending
at the office of PCCF Bhubaneswar.)
2. Location, Block/Sub Division/Distt./State : Vill / Mauja- Brajrajnagar,Unit-I
; Jharsuguda, Sub- division –
Jharsuguda ,
Dist:- Jharsuguda (Odisha).
3. Address for communication :Lajkura OCP, P.O. Lamtibahal,
Brajrajnagar,
Dist:- Jharsuguda (Odisha). PIN-
768230.
4. Existing vegetation in the area/region:
 - a. Species (Trees/shrub/Grasses/climbers). : Trees, shrub, Grasses and climbers.
(With in 1.0Mty boundary)
 - b. major prevalent species of each type :
5. Land coverage by the project
 - a. Total area under the project : 252.29Ha
 - b. Area covered for basic infrastructure :
(road/building/factory etc.)
6. Details about natural vegetation
 - a. Name and number of tree /species felled. : N A
 - b. Name and number of plants species still : N A
Available in the area
 - c. By protecting the area will indigenous : Yes
stock come up
 - d. Extent of green belt developed. : 33.3Ha (External
Dump)+27.039(Internal)
Remaining 40.96Ha in colony and
other places.

7. Plantation required to be carried out as per
- a. Condition of Environment : As per specific condition no. Xvi
the density of the tree shall be around
2500 plants per ha.
- b. A condition of forest(C)Act : N A.
Forest clearance inHa/Nos .
- c. Voluntarily in Ha./Nos : N A.

8. Details about plantation

- a. Total area available for plantation in 2013-14 :
in each category.

i.Green belt ii.Ext. Dumps iii.B/F area iv.Road sides v. Blocks
plantation

Nil	Nil	Nil	Nil	Nil
-----	-----	-----	-----	-----

b. Plantation details (Category wise & Methodology used)

Year of Plantation	Species planted	Spacing	Height attained	Total area covered till date	Proposed plantation programme in 2012- 13 (in Ha.)
1991 to Till date	Given in Annexure- A	As per norms	Self sustainable	100.29 Ha.	NIL

- c. survival % of plantation (for last five years) :75% - 80% after 3 years of
operation.

9. Agency carrying out plantation and maintenance : Chhatisgarh Rajya Van
Vikas Nigam Ltd,
Chhatisgarh & others

10. Inspection of plantation by field : Officers from OSPCB
experts and their comments and
follow up action

- 11.Remarks /any other information. : Good.

Date 25.11.2013

-Sd-
On 25/11/2013
PROJECT OFFICER
LAJKURA OPEN CAST PROJECT
IB VALLEY AREA

AMBIENT AIR QUALITY DATA

LAJKURA OPEN CAST PROJECT IB VALLEY AREA

[illegible]

EFFLUENT QUALITY DATA

LAJKURA OPEN CAST PROJECT IB VALLEY AREA

(All dimensions are in mg/l unless otherwise stated except Ph)**

April'13								May' 13								June' 13							
Date of sampling	monitoring station	Ph	OG	TSS	COD	BOD	NO ₃ N	Date of sampling	monitoring station	Ph	OG	TSS	COD	BOD	NO ₃ N	Date of sampling	monitoring station	Ph	OG	TSS	COD	BOD	NO ₃ N
29-Apr-13	Mine Sump Water	7.45						10-May-13	Mine Sump Water								Mine Sump Water						
29-Apr-13	Outlet from sediment tank (MDTP)	7.35	<1.0	36	55			10-May-13	Outlet from sediment tank (MDTP)	7.4	<1.0	34	50			04-Jun-13	Oil & Grease trap Outlet	7.1	<1.0	20	30		
29-Apr-13	Oil & Grease trap Outlet	7	<1.0	22	35			10-May-13	Oil & Grease trap Outlet	7.1	<1.0	26	40			04-Jun-13	Outlet from sediment tank (MDTP)	7.5	<1.0	36	55		
	Oil & Grease trap Outlet							25-May-13	Outlet from sediment tank (MDTP)	7.2	<1.0	30	45		2.2	21-Jun-13	Oil & Grease trap Outlet	7.2	<1.0	24	35		
	Outlet from sediment tank (MDTP)							25-May-13	Oil & Grease trap Outlet	7.2	<1.0	24	35			21-Jun-13	Outlet from sediment tank (MDTP)	7.65	<1.0	40	60		

EFFLUENT QUALITY

LAJKURA OPEN CAST PROJECT IB VALLEY

(All dimensions are in mg/l unless otherwise stated except Ph)**

July' 13								August' 13								September'							
Date of sampli	monitoring station	Ph	OG	TSS	COD	BOD	NO ₃ N	Date of sampling	monitoring station	Ph	OG	TSS	COD	BOD	NO ₃ N	Date of sampling	monitoring station	Ph	OG	TSS	COD	BOD	NO ₃ N
09-Jul-13	Mine Sump Water	7.68						05-Aug-13	Mine Sump Water							10-Sep-13	Mine Sump Water						
09-Jul-13	Outlet from sediment tank (MDTP)	7.82	<1.0	40	60			05-Aug-13	Outlet from sediment tank (MDTP)	7.85	<1.0	32	50			10-Sep-13	Oil & Grease trap Outlet	7.3	<1.0	22	35		
09-Jul-13	Oil & Grease trap Outlet	7.35	<1.0	24	35			05-Aug-13	Oil & Grease trap Outlet	7.36	<1.0	16	25			10-Sep-13	Outlet from sediment tank (MDTP)	7.74	<1.0	34	50		
24-Jul-13	Oil & Grease trap Outlet	7.97	<1.0	20	30			19-Aug-13	Outlet from sediment tank (MDTP)	7.78	<1.0	36	55			23-Sep-13	Oil & Grease trap Outlet	7.35	<1.0	20	30		
24-Jul-13	Outlet from sediment tank (MDTP)	7.97	<1.0	36	55			19-Aug-13	Oil & Grease trap Outlet	7.45	<1.0	20	30			23-Sep-13	Outlet from sediment tank (MDTP)	7.8	<1.0	36	55		

Lajkura ocp IB Valley Area												
Drinking water Quality												
(All dimentios are in mg/lit except pH unless otherwise stated)**												
Date of sampling	Monitoring station	Fflouride	Selenium	Arsenic	Lead	Zinc	Hexavalent chromium	Boron	Phenolics	Alkalinity	Residual chlorine	MPN
30/Apr/13	Treated water at user end Adarsh nagar (P F)	0.09	<0.01	<0.01	<0.05	<0.01	<0.01	<0.10	<0.001	28	0.2	Nil
30/Apr/13	Madhuban Nagar well water	0.34	<0.01	<0.01	<0.05	<0.01	<0.01	<0.10	<0.001	72	0.18	Nil
30/Apr/13	Chhualiberna well water	0.36	<0.01	<0.01	<0.05	<0.01	<0.01	<0.10	<0.001	68	0.18	Nil
30/Apr/13	Raw Water at mine no.2	0.14	<0.01	<0.01	<0.05	<0.01	<0.01	<0.10	<0.001	44	Nil	Nil
10/May/13	Chhualiberna well water	0.24	<0.01	<0.01	<0.05	0.05	<0.01	<0.01	<0.001	68	0.15	Nil
10/May/13	Treated water at user end	0.08	<0.01	<0.01	<0.05	<0.02	<0.01	<0.01	<0.001	20	NIL	Nil
10/May/13	Madhuban Nagar well water	0.27	<0.01	<0.01	<0.05	<0.02	<0.01	<0.01	<0.001	76	0.16	Nil
4/Jun/13	Madhuban Nagar well water	0.43	<0.01	<0.01	<0.05	<0.02	<0.01	<0.10	<0.001	84	0.2	Nil
4/Jun/13	Treated water at user end Adarsh nagar (P F)	0.11	<0.01	<0.01	<0.05	<0.02	<0.01	<0.10	<0.001	28	0.2	Nil
4/Jun/13	Chhualiberna well water	0.34	<0.01	<0.01	<0.05	0.05	<0.01	<0.10	<0.001	84	0.19	Nil
09/Jul/13	Madhuban Nagar well water	0.23	<0.01	<0.01	<0.05	0.04	<0.01	<0.01	<0.001	72	0.17	Nil
09/Jul/13	Treated water at user end Adarsh nagar (P F)	0.1	<0.01	<0.01	<0.05	<0.02	<0.01	<0.01	<0.001	32	0.19	Nil
09/Jul/13	Raw Water at mine no.2	0.14	<0.01	<0.01	<0.05	0.02	<0.01	<0.01	<0.001	44	Nil	21
09/Jul/13	Chhualiberna well water	0.23	<0.01	<0.01	<0.05	<0.02	<0.01	<0.01	<0.001	72	0.17	Nil
5-Aug-13	Madhuban Nagar well water	0.21	<0.01	<0.01	<0.05	0.75	<0.01	<0.01	<0.001	32	0.19	Nil
5-Aug-13	Treated water at user end Adarsh nagar (P F)	0.07	<0.01	<0.01	<0.05	0.24	<0.01	<0.01	<0.001	88	0.16	Nil
3-Aug-13	Chhualiberna well water	0.25	<0.01	<0.01	<0.05	<0.02	<0.01	<0.01	<0.001	44	Nil	Nil
10/Sep/13	Madhuban Nagar well water	0.34	<0.01	<0.01	<0.05	<0.02	<0.01	<0.01	<0.001	76	0.11	Nil
10/Sep/13	Treated water at user end Adarsh nagar (P F)	<0.16	<0.01	<0.01	<0.05	<0.02	<0.01	<0.01	<0.001	24	0.2	Nil
10/Sep/13	Chhualiberna well water	0.36	<0.01	<0.01	<0.05	<0.02	<0.01	<0.01	<0.001	84	0.17	Nil

All dimensions are in mg/lit except pH unless otherwise stated*

UO** - Unobjectionable

NOISE LEVEL MONITORING DATA							
Lajkura open cast project/IB Valley area							
Date of sampling	Monitoring Station	Noise Level Measurement in Db		Date of sampling	Monitoring Station	Noise Level Measurement in Db	
		Day	Night			Day	Night
29-Apr-13	Dragline yard	53.5	48.2	15-Jul-13	Dragline yard	52.7	47.5
29-Apr-13	Near Project Office	52.5	46.3	15-Jul-13	Near Project Office	52.1	45.8
29-Apr-13	Lajkura Store	52.7	45.9	15-Jul-13	Lajkura Store	53.4	48.7
29-Apr-13	Near Adarsh Nagar Colony	52.5	48.5	15-Jul-13	Near Adarsh Nagar Colony	53.2	47.9
				30-Jul-13	Dragline yard	51.6	46.7
				30-Jul-13	Near Project Office	51.9	46.7
				30-Jul-13	Lajkura Store	52.5	47.7
				30-Jul-13	Near Adarsh Nagar Colony	54.5	48.5
	Maximum	55.6	52.7		Maximum	54.5	48.7
	Minimum	51.2	46.4		Minimum	51.6	45.8
	Average	53.925	48.6625		Average	52.7375	47.4375
Date of sampling	Monitoring Station	Noise Level Measurement in Db		Date of sampling	Monitoring Station	Noise Level Measurement in Db	
		Day	Night			Day	Night
14-May-13	Dragline yard	52.4	47.5	10-Aug-13	Dragline yard	52.5	47.4
14-May-13	Near Project Office	51.5	47.0	10-Aug-13	Near Project Office	52.3	47.6
14-May-13	Lajkura Store	51.5	46.7	10-Aug-13	Lajkura Store	53.4	46.8
14-May-13	Near Adarsh Nagar Colony	53.5	47.1	10-Aug-13	Near Adarsh Nagar Colony	53.9	47.6
30-May-13	Dragline yard	53.4	48.9	30-Aug-13	Dragline yard	51.4	46.4
30-May-13	Near Project Office	52.3	48.9	30-Aug-13	Near Project Office	51.8	48.7
30-May-13	Lajkura Store	52.4	47.7	30-Aug-13	Lajkura Store	52.9	45.6
30-May-13	Near Adarsh Nagar Colony	52.9	48.1	30-Aug-13	Near Adarsh Nagar Colony	52.6	46.5
	Maximum	53.5	48.9		Maximum	53.9	48.7
	Minimum	51.5	46.7		Minimum	51.4	45.6
	Average	52.4875	47.7375		Average	52.6	47.075
Date of sampling	Monitoring Station	Noise Level Measurement in Db (A)		Date of sampling	Monitoring Station	Noise Level Measurement in Db (A)	
		Day	Night			Day	Night
12-Jun-13	Dragline yard	54.9	49.1	14-Sep-13	Dragline yard	51.5	46.9
12-Jun-13	Near Project Office	54.1	47.6	14-Sep-13	Near Project Office	53.9	47.9
12-Jun-13	Lajkura Store	53.4	48.7	14-Sep-13	Lajkura Store	52.7	47.5
12-Jun-13	Near Adarsh Nagar Colony	53.4	49.0	14-Sep-13	Near Adarsh Nagar Colony	54.1	48.5
28-Jun-13	Dragline yard	53.6	48.4	28-Sep-13	Dragline yard	50.6	45.5
28-Jun-13	Near Project Office	53.3	46.5	28-Sep-13	Near Project Office	52.8	47.6
28-Jun-13	Lajkura Store	52.3	47.4	28-Sep-13	Lajkura Store	51.4	48.9
28-Jun-13	Near Adarsh Nagar Colony	52.4	47.4	28-Sep-13	Near Adarsh Nagar Colony	53.1	47.7
	Maximum	54.9	49.1		Maximum	54.1	48.9
	Minimum	52.3	46.5		Minimum	50.6	45.5
	Average	53.425	48.0125		Average	52.3778	47.5625

ANNEXURE - A

FINAL JOINT ENUMERATION REPORT

Lajkura OCP Plantation Year 2008

- 1) Year of Plantation : 2008-09
 2) Agreement No. : MCL/HQ/ENVT/08/3461 Dt. 17.06.2008
 3) Name of site : Lajkura OCP
 4) Total Area Planted : Side 'A' 6 Ha. Side 'B' 2 Ha.
 5) No. of Plant : Side 'A' 15000 Side 'B' 5000
 6) Period of Enumeration : 25.08.2011 to 31.08.2011

SNo.	Name of Species	Side 'A'	Side 'B'
1	Amla	58	12
2	Bahada	359	67
3	Ber	551	127
4	Bel	29	--
5	Chakunda	2504	621
6	Gulmohar	314	90
7	Guava	87	19
8	Gravelia	69	43
9	Jungle Jalebi	2021	994
10	Jac Fruit	89	09
11	Kaju	220	105
12	Karanj	2346	187
13	Kapok	43	06
14	Lajestilia	11	--
15	Neem	100	29
16	Parkingsonia	768	472
17	Siris	570	108
18	Sitafal	138	108
19	Shishu	109	34
20	Menjiam	--	416
21	Khamhar	1689	591
	Total	12075	4038
	Survival %	80.50 %	80.76 %

Accepted only for 6.00 (six) hectare of plantation for Side 'A' only

Asst. Project Range Officer
CGRVVN Ltd.

Sr. Manager (Civil)
L. O. C. P.

G. M. (Min.) / PO (LOCP)

5/10/13

MAHANADI COALFIELDS LIMITED
OFFICE OF THE CHIEF OF MEDICAL SERVICES
IB COALFIELDS

Ref No. MCL/IBV/CH/PME/2013/ 318

Date 05/10/2013
No. 2427
Time
Lakura Open Cast Mine

To
The Chief of Medical Services (MCL)
Jagruvi Vihar, Burla

Sub :- Monthly PME report of IB Coalfields for the month of September 2013.

Dear Sir,

Mentioned below is the P.M.E. Performance report in respect of Ib Valley, Orient, Lakhanpur, Basundhara Garjanbahal Area, Central Workshop and Mines Rescue Station for your kind information and needful.

Units		Man power	Target	ACHIEVEMENT IN 2013												Progre ssive	Balance	Excess	
IB VALLEY AREA				JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC			Curr	Prog
Non	GMO+RSO	255	55	1	1	3	1	2	3	6	7	15				39	16		
Statutory	Central Hosp.	194	39	1	-	-	-	-	-	-	-	-				1	38		
Statutory	S.O.C.P.	866	174	5	10	10	10	9	4	19	5	36				108	66		
	L.O.C.P.	498	100	6	13	15	9	10	7	13	10	12				95	5		
Total :-		1813	368	13	24	28	20	21	14	38	22	63				243	125		
LAKHANPUR AREA																			
Non	G.M. Office			1	-	-	4	2	3	-	4	10				24			
Statutory	B.O.C.M.	674	134	4	20	6	13	33	18	19	8	12				133	1		
	Lakhanpur OCP	911	164	-	3	15	2	18	-	11	34	28				111	53		
	Lilari OCP	189	38	3	6	2	-	3	4	6	3	2				29	9		
Total :-				8	29	23	19	56	25	36	49	52				297			
ORIENT AREA																			
Non	C.G.M. Office	339	63	4	4	15	-	-	4	11	-	4				42	21		
Statutory	O.S.A.	198	39	14	-	-	10	-	12	2	-	-				38	1		
	R.S.A.	187	38	-	-	-	-	3	18	-	-	8				29	9		
Statutory	Mine No.1 & 2	726	211	-	10	29	38	8	29	17	31	10				172	39		
	Mine No.3	904	285	6	8	4	28	44	69	21	22	9				211	74		
	Mine No.4	324	39	-	-	2	-	1	5	8	3	12				31	8		
	H.R.C.	671	177	10	3	12	12	13	10	11	-	-				71	106		
	H.B.M.	1017	220	6	18	35	24	36	23	30	37	15				224	0	4	4
Total :-		4364	1072	40	43	97	112	105	170	100	93	58				818	258		
BASUNDHARA G. AREA																			
Non	G.M. Office	143	28	-	-	-	-	-	-	-	-	-				0			
Statutory	B. (West) OCP	531	91	3	-	7	2	9	17	15	6	12				71	20		
	B. (Kulda) OCP			-	-	-	-	-	-	-	5	-				5			
Total :-				3	0	7	2	9	17	15	11	12				76			
CENTRAL WORKSHOP		212	43	-	-	14	8	-	-	-	10	-				32	11		
Mines Rescue				9	2	13	43	15	14	4	4	4				108			
TOTAL PME				73	98	182	204	208	240	193	189	189				1574		4	4
Contractor Worker				-	-	-	-	-	40	82	16	78				216			
GRAND TOTAL PME				73	98	182	204	208	280	275	205	267				1790			

PME	Manpower	Target	Current	Progr.	Balance	Excess
Ib Coalfields			267	1790		

Grand Total PME for this month -267

Yours faithfully

- cc to:-
1. C.G.M., Lakhanpur Area.
 2. C.G.M. (S&R), MCL, HQ, Burla
 3. G.M., Ib Valley Area.
 4. G.M. Orient Area.
 5. G.M., Basundhara Area.
 6. G.M., Central Workshop
 7. C.M.S. I/c, CH, Ib Valley.
 8. C.M.S., MCL, HQ., Burla.
 9. Area Safety Officer, IB Valley Area.
 10. Area Safety Officer, Lakhanpur Area.
 11. Area Safety Officer, Orient Area.
 12. Area Safety Officer, Basundhara Area.
 13. Area Medical Officer, Orient Area.
 14. Area Medical Officer, Basundhara Area.
 15. Area Medical Officer, Lakhanpur Area.
 16. Area Personnel Manager, Central Workshop.
 17. All Unit Heads of IBV/LKP/ORIENT/B.G. Area.

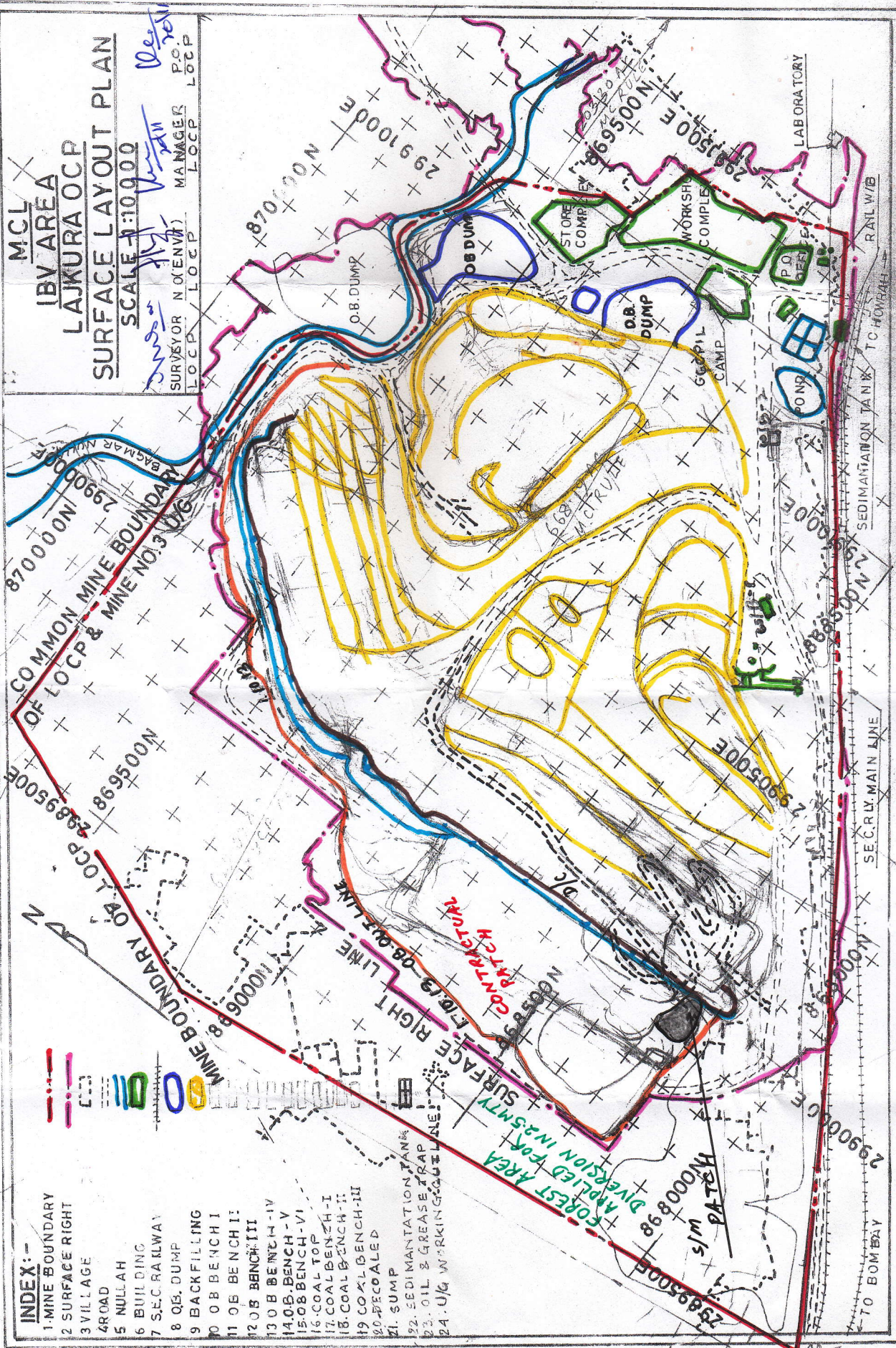
Chief of Medical Services (OH I/c)
Ib Coalfields

Son/colliery Manager,
COCP, Ib Valley Area.



MCL
IBV AREA
LAJKURA OCP
SURFACE LAYOUT PLAN
SCALE 1:10000
SURVEYOR N (ENVH) MANAGER
LOCP LOCP
Dec 2011

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 - 2. SURFACE RIGHT
 - 3. VILLAGE
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