

**INDIAN BUREAU OF MINES  
MINERALS DEVELOPEMMENT AND REGULATION DIVISION**

**MCDR INSPECTION REPORT**

**Bhubaneshwar regional office**

**Mine file No :** ORI/BXT/KPT/MCDR-1/BBS

**Mine code :** 07ORI09001

- (i) Name of the Inspecting : **S010** ) **SHRI G.C. SETHI**  
Officer and ID No.
- (ii) Designation : Deputy Controller Mines
- (iii) Accompanying mine : Shri B.K.Dash, DGM(Mines), Shri S.K.Patnaik, DGM (Env  
Official with  
Designation
- (iv) Date of Inspection : 19/02/2019
- (v) Prev.inspection date : 07/01/2018

**PART-I : GENERAL INFORMATION**

1. (a) **Mine Name** : **PANCHPATMALI (C&N BLOCK)**
- (b) **Registration NO.** : **IBM/116/2011**
- (c) Category : A Mechanised
- (d) Type of Working : Opencast
- (e) Postal address
- State : ORISSA
- District : KORAPUT
- Village : PANCHPATMALI
- Taluka : POTTANGI
- Post office : DAMANJODI
- Pin Code : 763008
- FAX No. : 06853- 55002, 55003
- E-mail : sbnayak@nalcoindia.co.in,
- Phone : 06853- 34514
- (f) Police Station :
- (g) First opening date : 18/03/1983
- (h) Weekly day of rest : SUN
2. Address for : PANCHPATMALI BAUXITE MINE, M/S.NALCO LTD  
correspondance AT & PO. DAMANJODI, PANCHPATMALI,  
KORAPUT: 763 008
3. (a) Lease Number : ORI0227
- (b) Lease area : 1244
- (c) Period of lease : 30
- (d) Date of Expiry : 20/07/2009
4. Mineral worked : BAUXITE Main

## 5. Name and Address of the

Lessee : M/S NALCO LTD  
 NALCO Bhavan P/1,Nayapalli  
 BHUBANESWAR KHURDA ORISSA  
 Phone:  
 FAX :

Owner : M/S.Nalco  
 P/1,Nayapalli Bhubaneswar  
 KHURDA ORISSA  
 Phone: 0674 442301,2.3  
 FAX : 06853 32214,32

Agent : SHRI ARUN KUMAR DAS  
 AT- PANCHPATMALI PO-  
 DAMANJODI KORAPUT KORAPUT  
 ORISSA  
 Phone:  
 FAX :

## Mining Engineer

Name : C.M.D.MURTHY,Full Time  
 Qualification : BE(Mining),Ist Class MMCertificate  
 Appointment/ :  
 Termination date

## Mining Engineer

Name : E.SAHOO,Full Time  
 Qualification : BE MINING, IST CLASS COMPETENCY  
 Appointment/ : 20/07/1999  
 Termination date

## Geologist

Name : P.K.BEHERA,Full Time  
 Qualification : MSC GEOLOGY  
 Appointment/ : 08/08/2002  
 Termination date

## Manager

Name : A.CHAKRABORTY  
 Qualification : B.Tech(Mining) & FCC Metal,MMR 1961  
 Appointment/ : 20/11/1999  
 Termination date

6. Date of approval of Mining	:	Mining Scheme rule 12 MCDR1988	25/01/2000
Plan/Scheme of Mining	:	Mining Scheme rule 12 MCDR1988	30/04/2004
	:	Mining Scheme rule 12 MCDR1988	19/12/2008
	:	FMCP under 23C(1)	11/06/2012
	:	Renewal under rule 24 MCR1960	10/07/2012
	:	Modif.of approved Mining Plan	01/05/2015
	:	Modif.approved Mining Scheme	01/05/2015
	:	Mining Scheme rule 12 MCDR1988	11/11/2016
	:	Modif.approved Mining Scheme	05/01/2017

## PART - II : OBSERVATION/COMMENTS OF INSPECTING OFFICERS

## Exploration :

Sl.No.	Item	Proposals	Actual work	Remarks
1a	Backlog of previous year	No Back log.	Not applicable.	Nil
1b	Exploration over lease area for geological axis 1 or 2	G1 level: 1075.722ha & un-explored area: 239.542ha	G1 level: 1075.722ha & un-explored area: 239.542ha due to inaccessability approach to the slope portion of the lease..	Nil
1c	Exploration Agencies and Expenditure in lakh rupees during the year	The lessee M/s NALCO Ltd is the exploration agency for the mine and there is no specific proposal for expenditure on account of exploration.	During the year 2017-18, no exploratory boreholes were drilled. However, pre-production drilling holes at 25m x 25m grid intervals is in practice.	Nil
1d	Balance area to be explored to bring Geological axis in 1 or 2	239.542ha. The said area has not been explored as the part of escarpment/steeply sloping area and not accessible for exploration and kept under un-exploration category.	239.542ha. The area has not been explored as the said portion of the lease area is the part of escarpment/steeply sloping area and not accessible for exploration and kept under un-exploration category.	Nil

1e	Balance reserve as on 01/04/20	In the review of mining plan, approved on 11.11.2016 for the period from 2017-18 to 2021-22, the reserves/resources for Bauxite estimated as on 31.07.2016 is as follows:- Proved reserves (111): 126.44 million tonnes & remaining resources of 17.33 million tonnes.	Proved reserves (111): 115.11 million tonnes & remaining resources of 17.33 million tonnes after delpeition of production as on 31.03.2018.	Nil
1f	General remarks of inspecting officers on geology, exploration etc	No comments.	The ML area of north & central block is a part of Panchpatmali hill, which is caractrised by north-south trending Bauxite capping surrounded by Khondalite on the slopes. Highest & lowest altitudes located inside the ML area are at 1366m above MSL and 880m MSL respectively. The Bauxite occurs mainly on the flat portion of the plateau from 1266m to 1185m above MSL. The level of exploration in the lease area is as follows:- G1 level: 1075.722ha & un-explored area: 239.542ha.	Nil

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Development :

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Sl.No.	Item	Propasals	Actual work	Remarks
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2a	Location of development w.r.t.lease area	E/W 22167 to E/W 21530 & N/S 24028 to N/S 23302 and E/W 22167 to E/W 21530 & N/S 23923 to N/S 23302.	E/W 22167 to E/W 21530 & N/S 24028 to N/S 23302 and E/W 22167 to E/W 21530 & N/S 23923 to N/S 23302.	Nil
2b	Separate benches in topsoil, overburden and minerals (Rule 15)	Separate benches for overburden & Bauxite zone are envisaged in the approved review of mining plan. The topsoil is proposed to be scraped & stacked separately.	Separate benches in overburden & Bauxite zone are made. The topsoil are scraped and utilised for spreading over the concurrently backfilled area.	Nil
2c	Stripping ratio or ore to OB ratio	1:0.05(t/cum)	1:0.10 (t/t)	The actual achieved ratio is in tonne/tonne as the waste generation figures are available in tonnes but in the approved document, the same has been furnished in cum.
2d	Quantity of topsoil generation in m3	218294 cum. in 2017-18.	57040 tonnes of topsoil generated during 2017-18.	The less generation of topsoil is due to reduction in average thickness of topsoil layer in the area excavated during the year 2017-18.
2e	Quantity of overburden generation in m3	719688 tonnes of aluminous laterite / over burden material was proposed to be generated in the year 2017-18.	During the year 2017-18, only 720000 tonnes of aluminous laterite/ overburden material was generated.	No deviation in waste handling during 2017-19.

2f	General remarks of inspecting officers on development of pit w.r.t. type of deposit etc	No comments.	Concurrent backfilling followed by plantation on the backfilled are is in practice.	Nil
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### Exploitation:

Sl.No.	Item	Propasals	Actual work	Remarks
3a	Number of pit proposed for production	One (North block)	One (North Block)	Nil
3b	Quantity of ROM mineral production proposed	6824912 tonnes in 2017-18.	During the year 2017-18, 6825000 tonnes of bauxite was produced.	Nil
3c	Recovery of sailable/usable mineral from ROM production	100%	100%	Nil
3d	Quantity of mineral reject generation	No proposal for mineral reject generation in 2017-18.	No mineral reject was generated during 2017-18.	Nil
3e	Grade of mineral rejects generation and threshold value declared.	Not applicable.	No mineral reject was generated during 2017-18.	Nil
3f	Quantity of sub grade mineral generation.	No sub-grade generation proposal during 2017-18.	Not generated during 2017-18.	Nil
3g	Grade of sub grade mineral generation	Not applicable.	No sub-grade was generated during the year 2017-18.	Nil
3h	Manual / Mechanised method adopted for segregating from ROM	Mechanised method.	Mechanised method.	Nil

3i	Any analysis or beneficiation study proposed and carried out for sub grade mineral and rejects.	No such proposal.	Nil	Nil
3j	Provision of drilling and blasting in mineral benches	Provisions for drilling & blasting envisaged in the review of mining plan.	The drilling & blasting are being practised for loosening the overburden /aluminous laterite as well as the Bauxite zone.	Nil
3k	Provision of mining machineries in mineral benches	A good number of heavy earth moving mining machineries are proposed to be deployed as the mining operations are by fully mechanised opencast methods.	A good number of heavy earth moving mining machineries such as excavators & dumpers etc. were deployed for carrying out mining excavations.	Nil
3l	Whether height of benches in overburden and mineral suitable for method of mining proposed in MP/SOM	The proposed height of the benches are 2m overburden and the same for Bauxite ore zone is for 6-8m. The width of the benches about 50-75m.	The height of the benches are 2m overburden and the same for Bauxite ore zone is for 6- 8m. The width of the benches varies from 50m to 75m.	Nil
3m	Total area covered under excavation/pits	22.673ha in 2017-18	22.667ha during 2017-18.	Nil
3n	Ore to OB ratio for the pit/mine during the year.	1:0.05 (t/cum)	1:0.10(t/t)	The proposed ratio is in tonnes/cum. whereas the actual is in tonne/tonne as the waste generation figures are available in tonnes.

3o	Total area put in use under different heads at the end of year	An extent of 22.673ha is proposed to be excavated & 22.00ha of mined out area is proposed to be reclaimed as envisaged in the review of mining plan.	An extent of 22.667ha has been excavated & 22.45ha reclaimed during 2017-18.	A little more area has been reclaimed during the year 2017-18 against the proposed reclaimed area.
3p	Production of ROM mineral during the last five year period as applicable	As per the modification of the mining plan for the period from 2014-15 to 2016-17, the production proposed for the period from 2014-15 to 2016-17 is as given below:-2014-15: 6825000 tonnes, 2015-16: 6825000 tonnes & 2016-17 : 6825000 tonnes. Besides, the proposed production of 6824912 tonnes in 2017-18 as envisaged in the approved review of mining plan.	Actual production achieved during the period from 2014-15 to 2016-17 & 2017-18 is as given below:- 2014-15: 5739120 tonnes, 2015-16: 6340142 tonnes, 2016-17: 6825000 tonnes & 2017-18: 6825000 tonnes	Nil
3q	General remarks of inspecting officers on method of mining etc.	The method of mining was proposed for fully mechanised opencast methods.	The mining operations were carried out by fully mechanised open cast method as per the proposal envisaged in the review of mining plan.	Nil



Sl.No.	Item	Propasals	Actual work	Remarks
4a	Separate dumping of topsoil, OB and mineral rejects (Rule 32,33)	No external dumping proposal & mineral reject generation. However, the overburden material/aluminous laterite is proposed for concurrent backfilling and the topsoil is spread over the backfilled area.	The top soil so generated was spread over the backfilled area during the year 2017-18 & no separate dump for the same was made. The OB & waste generated was backfilled in the mined out areas concurrently.	Nil
4b	Location of topsoil, OB and mineral reject dumps	The OB/aluminous laterite has been proposed to be backfilled concurrently and no proposal for mineral rejects generation. So, no separate dumps for the same has been made.	The OB/aluminous laterite generated was backfilled concurrently in the mined out areas and the topsoil so generated was spread over the backfilled area during 2017-18.	Nil
4c	Number of dumps within lease area and outside of lease area	Only one existing old dump available in the area, which was made during the starting of the mining operations.	Only one existing old dump found in the lease area. No fresh dumping is done.	Nil
4d	Location of dumps w.r.t. ultimate pit limit (Rule 16)	The old existing dump is located in eastern side of the lease area beyond the UPL.	The old existing dump is located in eastern side of the lease area beyond the UPL.	Nil

4e	Number of active and alive dumps.	Not applicable.	Not applicable as the waste generated is utilised in concurrent backfilling.	Nil
4f	Number of dead dumps.	One existing.	One existing.	Nil
4g	Number of dumps established.	One dead dump existing in the lease area.	One dead dump existing in the lease area.	Nil
4h	Whether Retaining wall or garland drain all along dumps are there.	Not applicable.	Not applicable as no dumping is done in the mine.	Nil
4i	Length of Retaining wall or garland drain all along dumps	Not applicable.	Not applicable	Nil
4j	Number of settling ponds	Nil	Not applicable.	Nil
4k	Specific comments of inspecting officer on waste dump management	No Comments.	Concurrent backfilling is done in the mined out areas. No waste dumping practised in the mine.	Nil

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#### Solid Waste Management - Backfilling:

Sl.No.	Item	Propasals	Actual work	Remarks
5a	Status of part or full extraction of mineral from mined out area before starting backfilling.	Concurrent backfilling of mined out area is proposed.	Concurrent backfilling in the mined out area is being practised.	Nil
5b	Area under backfilling of mined out area	22.00ha in 2017-18	22.45ha reclaimed during 2017-18.	Nil
5c	Concurrent use of topsoil for restoration or rehabilitation of mineral out area (Rule 32)	The topsoil so generated is proposed to be spread over the reclaimed/back filled area.	The topsoil so generated was utilised over the reclaimed/backfilled area during 2017-18.	Nil

5d	Total area fully reclaimed and rehabilitated	22.00ha in 2017-18.	22.45ha during 2017-18.	Nil
5e	General remarks of inspecting officers on backfilling and reclamation etc.	No comments.	Concurrent backfilling of mined out areas is being practised as the environmental protection measures.	Nil

#### Progressive Mine Clousre Plan:

Sl.No.	Item	Propasals	Actual work	Remarks
6a	Whether Annual report on PMCP submitted on time and correctly. Rule 23 E(2).	The party has to submit the PMCP returns under rule 26(2) of MCDR,2017 for the preceeding year before 1st July of the following year.	The annual report on PMCP for the year 2017-18 has been submitted by the party under rule 26(2) of MCDR,2017.	Nil
6b	Area available for rehabilitation (ha) .	22.00ha in 2017-18.	22.45ha during 2017-18.	Nil
6c	afforestation done (ha).	22.00ha in 2017-18.	22.45ha during 2017-18.	Nil
6d	No. of saplings planted during the year	65000 saplings to be planted in 2017-18 within lease .	There are 78957 nos. of saplinga planted within the lease area and 13704 nos. saplings planted out sise the ML area during 2017-18.	More number of saplings were planted during 2017-18.
6e	Cumulative no .of plants	No cummilative plantation proposal in the review of mining plan. However, during the year 2017-18, 65000 nos. of saplings proposed to be planted.	15,79,637 nos. of saplings were planted as on 07.01.2018.	Nil

6f	Any other method of rehabilitation	Any other method of rehabilitation not proposed.	Plantation over the concurrent backfilled area has been undertaken during 2017-18.	Nil
6g	Cost incurred on watch and care during the year	No proposal.	Rs.98.94 lakhs spent on watch & care of plantation during 25017-18.	Nil
6h	Compliance on reclamation and rehabilitation by backfilling (i) Voids available for backfilling ( L x B x D	An extent of 22.00ha of mined out area was proposed to be backfilled in the year 2017-18.	An extent of 22.45ha of mined out area was backfilled in the year 2017-18.	Nil
6i	Compliance on reclamation and rehabilitation by backfilling (ii) Voids filled by waste / tailings	An extent of 22.00ha of mined out area was proposed to be backfilled in the year 2017-18.	22.45ha was backfilled during the year 2017-18.	Nil
6j	Compliance on reclamation and rehabilitation by backfilling (iii)Afforestation on backfilled area	An extent of 22.00ha of mined out area was proposed to be backfilled in the year 2017-18.	22.45ha was backfilled during the year 2017-18.	Nil
6k	Compliance on reclamation and rehabilitation by backfilling (iv) Rehabilitation by making water reservoir	An extent of 22.00ha of mined out area was proposed to be backfilled in the year 2017-18. However, no proposal for making water reservoir	22.45ha was backfilled during the year 2017-18. No water reservoir by way of rehabilitation measures has been made during 2017-18.	Nil
6l	Compliance on reclamation and rehabilitation by backfilling (v)any other specific means.	No any such specific proposal.	Not applicable.	Nil

6m	Compliance of rehabilitation of waste land within lease (i)afforestation	Not applicable.	Not applicable.	Nil
6n	Compliance of rehabilitation of waste land within lease (ii)Area rehabilitation (ha)	Not applicable.	Not applicable.	Nil
6o	Compliance of rehabilitation of waste land within lease (iii)Method of rehabilitation	No waste land in the mine & there is no proposal for waste land rehabilitation	Not applicable.	Nil
6p	Compliance of environmental monitoring (core zone and buffer zone)	The ambient air quality, water quality, noise level, vibration level etc. for core zone and buffer zone has been furnished in the modification of mining plan.	The ambient air quality, water quality, noise level, vibration level etc. were being monitored in every quarter and found within the permissible limits.	Nil
6q	General remarks of inspecting officers on PMCP compliance and progressive closure operations etc.	No comments.	The reclamation over an extent of 22.45ha of mined out area was completed during the year 2017-18.	Nil

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Mineral Conservation:

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Sl.No.	Item	Propasals	Actual work	Remarks
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7a	ROM Mineral dispatch or grade-wise sorting within lease area	The entire ROM Bauxite produced from the mine is proposed to be dispatched to their Alumina refinery through belt conveyor.	The entire ROM Bauxite produced from the mine is being dispatched to their Alumina refinery through belt conveyor.	Nil
7b	Method of grade-wise mineral sorting i.e. manual or mechanical.	The entire ROM Bauxite produced from the mine is proposed to be dispatched to their Alumina refinery through belt conveyor.	The entire ROM Bauxite produced from the mine is being dispatched to their Alumina refinery through belt conveyor.	Nil
7c	Different grade of mineral sorted out at mines.	The grades of the Bauxite varies from 40.5% Al <sub>2</sub> O <sub>3</sub> to 44.5% Al <sub>2</sub> O <sub>3</sub> .	The grade of ROM varies from 40.5% Al <sub>2</sub> O <sub>3</sub> to 44.5% Al <sub>2</sub> O <sub>3</sub> .	Nil
7d	Any beneficiation process at mines	Not applicable.	Not applicable.	Nil
7e	General remarks of inspecting officer on Mineral conservation and beneficiation issues	No comment.	The entire ROM produced from the mining operations are supplied to the Alumina plant of M/s NALCO located at about 16 km from the mine.	There is no mineral conservation problems in the mine.

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**Environment:**


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Sl.No.	Item	Proposals	Actual work	Remarks
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8a	Separate removal and utilization of topsoil (Rule 32)	Scrapping of topsoil and spreading the same over the backfilled area was proposed in the review of mining plan.	The same practice is being followed in the mine.	Nil
8b	Concurrent use or storage of topsoil	The topsoil so generated is proposed to be spreading over the backfilled area.	The same practice is being followed in the mine.	Nil
8c	Separate dumps for overburden, waste rock, rejects and fines (Rule 33)	No dumping proposal.	Concurrent backfilling of minrd out area is in practice as per the propopsal.	Nil
8d	Use of overburden, waste rock, rejects and fines dumps for restoring the land to its original use	Concurrent backfillig of overburden/alu minous laterite is proposed in the mining plan.	Concurrent backfillig of overburden/aluminous laterite is in practice in the mine as observed.	Nil
8e	Phased restoration, reclamation and rehabilitation of lands affected by mining operations (Pits, dumps etc)	Phased restoration was not proposed. However, concurrent backfilling of mined out area was proposed.	Concurrent backfilling is a regular practice in the mine but no phase restoration done.	Nil
8f	Baseline information on existence of plantation and additional plantation done (Rule 41)	There are 65000 nos. of saplings are proposed to be planted in 2017-18.	During the year 2017-18, there are 92661 nos. of saplings were planted.	The actual plantation done was in higher side of the proposed number given in the review of mining plan.
8g	Survival rate	65000 nos. of saplings are proposed to be planted in 2017-18.	The reported survival rate of plantation is 80% with plantation of 92661 saplings during 2017-18	Nil

8h	Water sprinkling on roads to control airborne dust	Water sprinkling was proposed on the haul road to control the airborn dust.	Water sprinkling was a regular practice as observed during the field visit.	Nil
8i	General remarks of inspecting officer on aesthetic beauty in and around mines area	No comment.	Concurrent backfilling of the mined out area followed by plantation enhances the austhetice beauty of the area.	Nil

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#### Compliance of Rule 45:

Sl.No.	Item	Propasals	Actual work	Remarks
9a	Status of submission of Monthly and Annual returns	As per the rule 45 of MCDR,2017, the monthly and annual returns to be submitted.	The submission status of all the returns has been verified and found in order for the year 2017-18.	Nil
9b	Scrutiny of Annual return for information on Mining Engineer, Geologist and Manager	The employment status of mining engineer, geologist & mine manager have been furnished in the annual return submitted by the party for the year 2017-18.	The employment status of mining engineer, geologist & mine manager was verified & found in order.	Nil



9c	Scrutiny of Annual return on land use pattern for area under pits, reclaimed area, dumps etc.	The land use pattern in different counts furnished in the annual return 2016-17 is as given below:- (i) Covered under current (O/C) workings: 200.690ha (ii) Reclaimed/rehabilitated: 314.370ha (iii) Occupied by plant, bulidings etc. : 165.700ha & (iv) progressive mine closure plan: 20.450ha	Found to be correct.	Nil
9d	Scrutiny of Annual return on afforestation	As per the annual return 2017-18, 92661 nos. of saplings were planted in the lease area.	Found to be in order.	Nil
9e	Scrutiny of Annual return on mineral reject generation (Grade and quantity)	There is no mineral reject generation in the mine, thereby generation status of mineral rejects has not been furnished in the annual return 2017-18.	Found to be in order.	Nil
9f	Scrutiny of Annual return on ROM stock and/or graded ore	During the year 2017-18, 6825000 tonnes of Bauxite was produced from the mine.	The production figures verified and found in order.	Nil

9g	Scrutiny of Annual return on sale value, Ex. Mine price and production cost	The ex-mine price for Bauxite is mentioned to be for Rs. 668.16, which includes the cost of transportation . Therefore, the cost of production is same as ex-mine price as the Bauxite is meant for captive use.	The ex-mine price & cost of production are appears to be correct.	Nil
9h	Scrutiny of Annual return on fixed assets	The value of the fixed assets is mentioned to for Rs.2576458590.00	The value of the fixed assets furnished in the annual return was in order.	Nil
9k	Scrutiny of Annual return on mining machineries	A good number different mining machineries are deployed in the mine as indicated in the annual return 2017-18.	The deployment status of all the mining machineries are found to be in order.	Nil

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**Details of violations observed during current inspection and compliance position of violation pointed out**

Violation observed		Show cause position	
Rule NO.	Issued on Compliance on	Rule NO.	Issued on Compliance on

**Date :**

**(SHRI G.C. SETHI)**

Indian Bureau of Mines