

**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 S.K.Patnaik, DGM (Env.)
Official with
Designation
- (iv) Date of Inspection : 30/09/2019
- (v) Prev.inspection date : 19/02/2019

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

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|-------------------------------|---|--------------------------------|------------|
| 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.. | The steeply sloping area / escarpment are inaccessible for exploration and kept under unexplored category. |
| 1c | Exploration Agencies and Expenditure in lakh rupees during the year | The potential mineralised area has been explored upto G1 level previously and there is no specific proposal for expenditure on account of exploration. | Nil during 2018-19. | 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 |

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|----|--|---|---|-----|
| 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): 109.44 million tonnes & remaining resources of 17.33 million tonnes after delpeition of production as on 01.04.2019. | Nil |
| 1f | General remarks of inspecting officers on geology, exploration etc | 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. T | Nil | |

Development :

| Sl.No. | Item | Propasals | Actual work | Remarks |
|--------|------|-----------|-------------|---------|
|--------|------|-----------|-------------|---------|

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| 2a | Location of development w.r.t.lease area | The development of quarry has been proposed in between grid 23870N-24597N, 22225E-22960E | As per proposal | 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 generation was negligible during 2018-19. | Nil |
| 2c | Stripping ratio or ore to OB ratio | 1:0.05(t/cum) | 1:0.12 (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 | 213904 cum. in 2018-19. | 52035 tonnes of topsoil generated during 2018-19. | |
| 2e | Quantity of overburden generation in m3 | 359444 CUM of aluminous laterite / over burden material was proposed to be generated in the year 2018-19. | During the year 2018-19, only 409650 tonnes of aluminous laterite/ overburden material was generated. | Nil |
| 2f | General remarks of inspecting officers on development of pit w.r.t. type of deposit etc | | Concurrent backfilling followed by plantation on the backfilled area is in practice. | Nil |

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 | 6824960 tonnes in 2018-19. | During the year 2018-19, 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 2018-19. | No mineral reject was generated during 2018-19. | Nil |
| 3e | Grade of mineral rejects generation and threshold value declared. | Not applicable. | No mineral reject was generated during 2018-19. | Nil |
| 3f | Quantity of sub grade mineral generation. | No sub-grade generation proposal during 2018-19. | Not generated during 2018-19. | Nil |
| 3g | Grade of sub grade mineral generation | Not applicable. | No sub-grade was generated during the year 2018-19. | 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. | Not applicable as no subgrade generated. | 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 |

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| 3k | Provision of mining machineries in mineral benches | A good number of heavy earth moving mining machineries are proposed 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 | 546.375 ha at the end of plan period | Within the proposed area. | Nil |
| 3n | Ore to OB ratio for the pit/mine during the year. | 1:0.05 (t/cum) | 1:0.12(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 | Total area put to use is 721.64 ha at the end of plan period. | As per proposal | |

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| 3p | Production of ROM mineral during the last five year period as applicable | 2014-15: 6825000 tonnes, 2015-16: 6825000 tonnes & 2016-17 : 6825000 tonnes, 2017-18: 6824912 tonnes & 2018-19: 6825000 tonnes | 2014-15: 5739120 tonnes, 2015-16: 6340142 tonnes, 2016-17: 6825000 tonnes, 2017-18: 6825000 tonnes & 2018-19: 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 |

Solid Waste Management - Dumping:

| 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 2018-19 & no separate dump for the same was made. The OB & waste generated was backfilled in the mined out areas concurrently. | Nil |

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| 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 2018-19. | 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 |

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| 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 | | Concurrent backfilling is done in the mined out areas. No waste dumping practised in the mine. | Nil |

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 | 22.00 ha has been proposed for backfilling in the year 2018-19 | 22.68 ha has been backfilled. | |
| 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 2018-19. | Nil |
| 5d | Total area fully reclaimed and rehabilitated | 22.00ha in 2018-19. | 22.68 ha during 2018-19. | Nil |
| 5e | General remarks of inspecting officers on backfilling and reclamation etc. | | 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 Lessee has to submit the PMCP returns under rule 26(2) of MCDR,2017 for the preceeding financial year before 1st July of the following year. | The annual report on PMCP for the year 2018-19 has been submitted by the lessee under rule 26(2) of MCDR,2017. | Nil |
| 6b | Area available for rehabilitation (ha) . | 22.00ha in 2018-19. | 22.68 ha during 2018-19. | |
| 6c | afforestation done (ha). | 22.00 ha in 2018-19. | 16.69 ha in 2018-19. | Violation pointed out under Rule 11(1) of MCDR, 2017. |
| 6d | No. of saplings planted during the year | 65000 saplings to be planted in 2018-19.. | 65284 Nos. of sapling planted during 2018-19. | Nil |
| 6e | Cumulative no .of plants | Not applicable | 1001862 nos. of saplings were planted as on 01.04.2019. | Nil |
| 6f | Any other method of rehabilitation | Any other method of rehabilitation not proposed. | Plantation over the concurrent backfilled area has been undertaken during 2018-19. | Nil |
| 6g | Cost incurred on watch and care during the year | No proposal. | Rs. 23 lakhs spent on watch & care of plantation during 2018-19. | Nil |
| 6h | Compliance on reclamation and rehabilitation by backfilling (i) Voids available for backfilling (Lx B x D | An extent of 22.00ha of mined out area was proposed to be backfilled in the year 2018-19. | An extent of 22.68 ha of mined out area was backfilled in the year 2018-19. | Nil |

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|----|---|---|--|-----------------------|
| 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 2018-19. | 22.68 ha was backfilled during the year 2018-19. | 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 2018-19. | 16.69 ha was backfilled during the year 2018-19. | Violation pointed out |
| 6k | Compliance on reclamation and rehabilitation by backfilling (iv) Rehabilitation by making water reservoir | No proposal for making water reservoir | Nil | 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 |

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|----|---|--|--|-----|
| 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. | | The reclamation over an extent of 16.00ha of mined out area was completed during the year 2018-19. | Nil |

Mineral Conservation:

| Sl.No. | Item | Propasals | Actual work | Remarks |
|--------|---|--|--|---------|
| 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. No grade wise sorting envisaged. | The entire ROM Bauxite produced from the mine is being dispatched to their Alumina refinery through belt conveyor. No grade wise sorting done in the mine. | Nil |

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|----|--|--|---|--|
| 7c | Different grade of mineral sorted out at mines. | The grades of the Bauxite varies from 40.5% Al ₂ O ₃ to 44.5% Al ₂ O ₃ . | The grades of the Bauxite varies from 40.5% Al ₂ O ₃ to 44.5% Al ₂ O ₃ . | Nil |
| 7d | Any beneficiation process at mines . | Not applicable. | Not applicable. | Nil |
| 7e | General remarks of inspecting officer on Mineral conservation and beneficiation issues | | 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. |

Environment:

| Sl.No. | Item | Propasals | Actual work | Remarks |
|--------|---|---|--|---------|
| 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 given in the approved document. | 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 |

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|----|---|--|--|--|
| 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 2018-19. | During the year 2018-19, there are 65284 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 | Not specified. | The reported survival rate of plantation is 80% with plantation of 92661 saplings during 2018-19 | Nil |
| 8h | Water sprinkling on roads to control airborne dust | Water sprinkling was proposed on the haul road to control the airborne dust. | Water sprinkling was proposed on the haul road to control the airborne dust. | Nil |
| 8i | General remarks of inspecting officer on aesthetic beauty in and around mines area | | Concurrent backfilling of the mined out area followed by plantation enhances the aesthetic beauty of the area. | Nil |

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 2018-19. | Nil |

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|----|---|--|---|-----|
| 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 2018-19. | 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: 201.38ha (ii) Reclaimed/rehabilitated: 337.050ha (iii) Occupied by plant, bulidings etc. : 165.700ha & (iv) progressive mine closure plan: 22.68ha | Found to be correct. | Nil |
| 9d | Scrutiny of Annual return on afforestation | As per the annual return 2018-19, 75351 nos. of saplings were planted in the lease area. | Found to be in order. | Nil |

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| 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 2018-19. | Found to be in order. | Nil |
| 9f | Scrutiny of Annual return on ROM stock and/or graded ore | During the year 2018-19, only 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 cost of production is Rs. 736.90. | 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. 3225400000 | The value of the fixed assets is mentioned to for Rs. 3225400000 | Nil |
| 9k | Scrutiny of Annual return on mining machineries | The details of mine machineries deployment in the mine is indicated in the annual return 2018-19. | The deployment status of all the mining machineries are found to be in order. | Nil |

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 |
| MCDR17 | Rule 11(1) | 10/10/2019 | | | |
| MCDR17 | Rule 45(5)(c) | 10/10/2019 | | | |

Date :

(SHRI G.C. SETHI)

Indian Bureau of Mines