REPORT ON CHECK INSPECTION OF PANCHPATMALI BAUXITE MINES OF M/s NATIONAL ALUMINIUM COMPANY LTD. IN KORAPUT DISTRICT OF ODISHA STATE ***[Prepared In The Format, Prescribed Vide CCCOM's Letter No. 11013/35/MP/MISC/89-CCOM (Vol. III)]***

Name and designation of inspecting officer : Shri Harkesh Meena, RCOM

Date of Inspection : 14.03.2019

1. General information of the mine

(i) Name of the mine : PANCHPATMALI BAUXITE MINE

(ii) Lessee : M/s NATIONAL ALUMINIUM COMPANY LTD

(iii) Nominated owner : Shri V. Balasubramanium

(iv) Mining Engineer : Shri Ajaya Choudhury

(v) Agent : Shri Arun Kumar Das

(vi) Mine Manager : Shri B K Dash

(vii) Lease area : 1315.264 Ha

(viii) Location : Located in Bhejaput village of Koraput district in Odisha state.

(ix) Lease period : From 17.11.1982 to 16.11.2032 (50 years)

(x) Date of Expiry : 16.11.2032

(xi) Date of approval of Mining Plan : 10.07.2012

(xii) Date of approval of Review of Mining Plan : 11.11.2016

(xiii) Period of Mining Plan/ Review of Mining Plan : 2017-18 to 2021-22

(xiv) Production :

Year	Proposed in Tonnes	Actual in Tonnes
2017-18	68,25,000	68,25,000
2018-19 (up to Feb'19)	68,25,000	64,23,764

2. Brief description of the mine:

(a) A brief description of the mine covering location, geology, problems associated with mining of the deposit etc.

(1) Location:

The mine is located in Bhejaput village, Panchpatmali hill of Koraput district in Odisha state.

The mine falls in the Survey of India Topo sheet No. 65J/13 and 65N/1between latitude 18°49'04.16532'' to 18°54'46.77408''N and longitude $82^0$59'16.42236'' to $83^0$03'20.13624''E.

(2) Geology:

This M.L. area (Central & North block) is a part of Panchpatmali hill which is characterized by a N-S trending Bauxite capping surrounded by Khondalite on the slopes. Bauxite occurs mainly on the flat portions of the plateau from 1266m above MSL to 1185m above MSL. The rocks exposed in the Panchpatmali Bauxite plateau belong to the Eastern Ghat super group of rocks and are mainly represented by quartzite, garnet-quartz-sillimanite schist /or gneiss (Khondalite), pyroxene granulite, garnetiferous quartzofeldspathic schist (leptynites) and prophyroblastic granite gneiss together with the high level laterite/Bauxite.

Bauxite forms an integral part of the lateritic profile, which is derived by the in-situ chemical weathering of the khondalite (garnet-sillimanite-graphite gneiss). It occurs as a gently rolling or near flat blanket, capping the steeply dipping khondalites. The boundary of the lateritic Bauxite capping is marked at many places by protruding lobes and re-entrant scarp faces. In general, the foliation of khondalite strikes due NNE – SSW and dips at 400 to 800 towards ESE direction.

(3) Problems associated with mining of the deposit etc.: No significant problems

(b) Description on deployment of mining machinery

Mechanized opencast method of mining has been adopted in the mine with deployment of major heavy earth moving machineries (HEMM) like ripper dozer, blast hole drill, front-end loader, back-hoe, dumper, semi mobile crusher with fixed long distance conveyor, double roll toothed crusher and cable belt conveyor extended up to Alumina refinery. The details of machineries are as follows:-

Sl. No.	Machineries deployed	Capacity	Number of units	In use	Idle	Percentage of utilization	Brief description	Remarks
1	2	3	4	5	6	7	8	9
1	Back Hoes	$3M^3$	2	2	0	70%	300 CK Poclain	Most of the machineries are in use.
		$6.5\ M^3$	4	4	0	70%	TATA Telcon 1200 EX	
2	Front End Loader	$8.7M^3$	10	10	0	80%	Komatsu WA700	
3	Water	28 KL	3	3	0	80%	Caterpillar	

	Sprinkler						Water Sprinkler	
		28 KL	2	2	0	75%	BEML Water Sprinkler	
4	Dumpers	55 MT	13	13	0	70%	BH50M BEML dumper	
		55 MT	14	14	0	70%	BH60M BEML dumper	
		55 MT	2	2	0	70%	Caterpillar 7773E dumper	
		91 MT	6	6	0	70%	BH100 BEML Dumper	
5	Drills / Blast Holes	155 mm dia	2	2	0	70%	Atlascopco (Tall Mast)	
		150 mm dia	3	3	0	75%	C-650 D Ravathi CP (Tall Mast)	
6	Bull Dozer/ Ripper Dozers	485 HP	3	3	0	70%	KOMATSU Wheel Dozer WD 600	
		525 HP	2	2	0	70%	KOMATSU D-375 Ripper dozer	
		860/890 HP	6	6	0	70%	KOMATSU D475A-5 Ripper dozer	
7	Motor Graders	12 ft. blade	1	1	0	60%	KOMATSU GD611A-1 Motor Grader	
		16 ft. blade	2	2	0		KOMATSU GD825A-2 Motor Grader	
8	Crushers	900 TPH	2	2	0	80%	Double roll tooth crusher (Fixed)	
		900 TPH	1	1	0	80%	Double roll tooth crusher (Semi Mobile)	
9	Cranes	12 MT	1	1	0	60%	Hyd. Crane	
		30 MT	1	1	0	60%	Groves Crane	

10	Air Compressor		12	12	0	80%	Work Shop , Crusher & Conveyer system	
11	Rock Breaker	200 -550 BPM	2	2	0	75%	Rock Breaker: L&T 90CK	
		350 -750 BPM	1	1	0		Rock Breaker: BEML 220G	
12	Diesel Bouser	9 KL	4	4	0	60%		
13	Explosive van	10 T	3	3	0	60%		
14	EDSON vacuum suction drill ED-2000 Series	50 mm	2	2	0	80%		
15	Fire Tender	0.8 KL/Min	1	1	0	70%		
16	Mini Fire Tender	1800 ltrs/Min	1	1	0	70%		
17	Truck Mounted light Masts	6 KVA (12 nos) /7.5 KVA (7 nos)	19	19	0	70%		

3. Implementation of Mining Plan or Review of Mining Plan:

Sl. No.	Proposal in the approved Mining Plan or Review of Mining Plan	Observations regarding implementation of proposals given in approved Mining Plan or Review of Mining Plan.					Remarks/ Reason for deviation
1	2	3					4
(1)	**CONSERVATION OF MINERALS**						
(a)	Exploration	Year	Borehole Proposed	Borehole Actual	Spacing (m)	Total Meterage (m)	The entire mineralised plateau of M.L area has been explored
		2017-18	No Proposal				
		2018-19	No Proposal				
(b)	Utilization of sub-grade mineral	+30-40% Al2O3 and +7% SiO2 grade mineral is treated as subgrade material. No generation of subgrade material is proposed.					No subgrade stack is available.
(c)	Any other proposal for	No proposal					

	monitoring				
(2)	**SCIENTIFIC MINING**				
(a)	Mine Development and method of mining	Year	Proposed in Metric Tonnes	Actual in Metric Tonnes	Mining operation is carried out as per approved proposal.
		2017-18	68,25,000	68,25,000	
		2018-19 (Feb'19)	68,25,000	64,23,764	
		Bauxite excavation is carried out in two benches known as top bench and bottom bench. Bauxite will be produced in two benches of 8 m height (Top Bench) and 5m height (Bottom Bench) respectively. The ultimate pit slope angle is around 45^0 with the horizontal. Selective mining is carried out at the bottom bench Bauxite which is very uneven, to avoid dilution with PLK in the transition zone. In 30% of cases mineral removal ripper dozers are used and remaining 70% drilling & blasting is carried out. Bauxite is transported to the refinery plant at Damanjodi by a fully covered 14.6 Km long single flight cable belt conveyor.			
(b)	Handling of Waste/ sub-grade material	Year	Proposed in Metric Tonnes	Actual in Metric Tonnes	The waste generated is used for concurrent backfilling of mined out area.
			Sub grade / Waste	Sub grade / Waste	
		2017-18	NIL / 719688	NIL / 720000	
		2018-19 (Feb'19)	NIL / 718888	NIL / 630910	
		It was proposed that the waste generated during will be used for backfilling of mined out area.			
(c)	Area reclamation & restoration	Year	Proposed in ha	Actual in ha	The O/B or waste generated is being backfilled concurrently for reclamation & restoration of mined out area.
		2017-18	22.00	16.65	
		2018-19 (Feb'19)	22.00	16.76	
(d)	Any other proposal for monitoring	No Proposal			

(3)	PROTECTION OF ENVIRONMENT						
(a)	Afforestation	Year	Proposed in ha	No. of Plantation Proposed	Actual in ha	No. of Plantation Achieved	
		2017-18	22.00	65000	18.73	65239	
		2018-19 (Feb'19)	22.00	65000	16.76	65284	
(b)	Quality of air	Quality of air is monitored in regular interval and is within the permissible standard.					The monitoring reports were checked during inspection.
(c)	Quality of Water	Quality of water is monitored in regular interval and is within the permissible standard.					
(d)	Noise level	Noise level is monitored and is within the permissible limit.					
(e)	Vibration	Under permissible limit					
(f)	Any other proposal for monitoring.	No proposal					

4. History of Violations after approval of Mining Plan or Review of Mining Plan :

SL No.	Date of Inspection	Name of inspecting officer	Violations of MCDR, 2017 observed and pointed out	Rectification of violations	Remarks
1	2	3	4	5	6
1	19.02.2019	Shri G C Sethi, DCOM	No violation has been observed.	NA	
2	14.03.2019	Shri Harkesh Meena, RCOM	No violation has been observed.	NA	

5. Socio-Economic Development Plan:

Sl. No.	Proposed Action Plan towards socio-Economic Development	Expenditure proposed 2017-18 (In Rs. Lakh)	Expenditure Incurred (2017-18) (In Rs. Lakh)	Remarks
1	2	3	4	5
(1)	General Development in the area			

	(i) Housing	0	0	As reported by lessee during inspection.
	(ii)Water Supply	11.66	11.66	
	(iii) Sanitation	420.38	420.38	
	(iv) Health safety and Medical Facilities	146.27	146.27	
(2)	Education and Training	171.61	171.61	
(3)	Employment to local inhabitants	4.5	4.5	
(4)	Public Transportation and communication	85.12	85.12	
(5)	Recreation and other sports activities	30.00	30.00	
(6)	Expenditure for environment management	419.86	419.86	
(7)	Other	0	0	
Total		1289.40	1289.40	

(HARKESH MEENA)
Regional Controller of Mines