

RAW MATERIALS DIVISION

KALTA IRON MINES

REVIEW OF MINING PLAN
UNDER RULE 17 (2) OF MCR, 2016
AND PROGRESSIVE MINE CLOSURE PLAN
UNDER RULE 23 OF MCDR' 2017
OF
ML-139 LEASE, KALTA IRON MINES

PLAN PERIOD - 2020-21 TO 2024-25

LEASE AREA - 25.981 HECTARES

TYPE OF LAND- FOREST LAND - 25.981 HECTARES

CATEGORY OF MINE- A (OTFM), MINERAL- IRON ORE

VOLUME-I

VILLAGE: KALTA, P.O: KALTA, TALUKA- BONAI, DIST- SUNDARGARH (ODISHA)

(SUBMITTED UNDER RULE 17 (2) OF MCR, 2016 AND RULE 23 OF MCDR'2017)

Executed Lease Period: 17.01.1975 to 16.01.1995

LEASE RENEWAL	GRANT DATE	EXPIRY DATE
1 st RML	16.02.1994	16.01.2025

IBM Registration No.: IBM/5662/2011, Mine Code: 30ORI13060

LESSEE- M/s STEEL AUTHORITY OF INDIA LIMITED

ISPAT BHAWAN, LODHI ROAD

NEW DELHI



सल SAIL

PREPARED BY

1.

Shri Peter Dang, M. Sc. (Geology)

Shri Rajesh Kumar Naik, Ph. D (Geology)

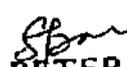
डॉ० आर. के. नाएक / Dr. R. K. NAIK
वरिष्ठ प्रबंधक (भूविज्ञान) योजना एवं विकास
Senior Manager (Geo.) P & D
सेल, आर.एम.डी. राउरकेला
SAIL, RMD, ROURKELA

M/s STEEL AUTHORITY OF INDIA LIMITED

KALTA IRON MINES

P.O.- KALTA, PIN-770052

DISTRICT- SUNDARGARH, ODISHA


PETER DANG
General Manager (Geology)
SAIL, RMD, BIM & KIM
BARSUA IRON MINES &
KALTA IRON MINES



भारत सरकार GOVERNMENT OF INDIA
खान मंत्रालय MINISTRY OF MINES
भारतीय खान ब्यूरो INDIAN BUREAU OF MINES
क्षेत्रीय खान नियंत्रक के कार्यालय
OFFICE OF THE REGIONAL CONTROLLER OF MINES



REGD. PARCEL
Phone: 0674-2352463
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E-mail: ro.bhubaneswar@ibm.gov.in
Plot No.149, Pokhariput
BHUBANESWAR-751020

No. RMP/A/17-ORI/BHU/2019-20

Date: 13.11.2019

To

✓ Shri Vivek Gupta, Director (RM&L) & Nominated Owner,
M/s Steel Authority of India Ltd,
Ispat Bhawan, Lodhi Road,
New Delhi-110003

Sub: Approval of Review of Mining Plan of Kalta Iron Mine (ML-139) along with Progressive Mine Closure Plan (PMCP), over an area of 25.981 ha in Sundargarh district of Odisha State, submitted by M/s Steel Authority of India Ltd under Rule 17 of Mineral Concession Rules, 2016.

- Ref: - i) Your letter No. SAIL/DRML/2019-20/807 dated 17.09.2019 received on 30.09.2019.
ii) This office letter of even no. dated 30.09.2019.
iii) This office letter of even no. dated 30.09.2019 addressed to the Director of Mines, Govt. of Odisha, copy endorsed to you.
iv) This office letter of even no. dated 14.10.2019.
v) Your letter No. SAIL/DRML/2019-20/893 dated 19.10.2019 received on 28.10.2019.

Sir,

In exercise of the power delegated to me vide Gazette Notification No. S.O. 1857(E) dated 18.05.2016, I hereby **Approve** the Review of Mining Plan including Progressive Mine Closure Plan of Kalta Iron Mine (ML-139) over an area of 25.981 ha of M/s Steel Authority of India Ltd in Sundargarh district of Odisha State submitted under Rule 17 of Mineral Concession Rules, 2016. This approval is subject to the following conditions:

- I. The Review of Mining Plan is approved without prejudice to any other law applicable to the mine area from time to time whether made by the Central Government, State Government or any other authority and without prejudice to any order or direction from any court of competent jurisdiction.
- II. The proposals shown on the plates and/or given in the document is based on the lease map /sketch submitted by the applicant/ lessee and is applicable from the date of approval.
- III. It is clarified that the approval of aforesaid Review of Mining Plan does not in any way imply the approval of the Government in terms of any other provision of Mines & Minerals (Development & Regulation) Act, 1957, or the Mineral Concession Rules, 2016 and any other laws including Forest (Conservation) Act, 1980, Environment (Protection) Act, 1986 or the rules made there under, Mines Act, 1952 and Rule & Regulations made there under.
- IV. Indian Bureau of Mines has not undertaken verification of the mining lease boundary on the ground and does not undertake any responsibility regarding correctness of the boundaries of the leasehold shown on the ground with reference to lease map & other plans furnished by the applicant / lessee.

- V. At any stage, if it is observed that the information furnished, data incorporated in the document are incorrect or misrepresent facts, the approval of the document shall be revoked with immediate effect.
- VI. If this approval conflicts with any other law or court order/ Direction under any statute, it shall be revoked immediately.
- VII. Validity of this document shall expire on 31.03.2025.
- VIII. Next Financial Assurance shall be due for submission on 31.03.2025.

Encl: - One copy of Review
of Mining Plan

भवदीय / yours faithfully,


(HARKESH MEENA)

क्षेत्रीय खान नियंत्रक / Regional Controller of Mines

Copy for kind information to:-

1. The Director of Mines, Directorate of Mines, Government of Odisha, Heads of the Department Building, Bhubaneswar- 751001, Odisha along with one copy of Review of Mining Plan by REGISTERED PARCEL.
2. Shri Peter Dang, DGM Geology, Raw material division, M/s Steel Authority of India Ltd, Kalta Iron Mine, At/Po- Tensa, Dist- Sundargarh, Odisha-770042.


(HARKESH MEENA)

क्षेत्रीय खान नियंत्रक / Regional Controller of Mines



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**REVIEW OF MINING PLAN OF KALTA IRON MINE LEASE (ML-139) OVER AN
AREA OF 25.981 Ha. DISTRICT- SUNDARGARH, ODISHA**



INTRODUCTION

ML 139 lease under Kalta Iron Mine is owned by Steel Authority of India Limited (SAIL), Raw Materials Division (RMD). The Block-B of ML 139 is in geographical & geological continuity with ML 130. The lease was worked as a part of Kalta Iron Mine in the latter half of the seventies, though the main production of the mine comes from ML 130 mining lease which is adjacent and contiguous to ML 139. The lease was granted on 17.01.1975 for a period of 20 years by Govt. of Odisha to Hindustan Steel Ltd. Copy of lease deed annexed as Annexure I. Afterwards as per Miscellaneous Provisions Act, 1978 (16 of 1978) of Govt. of India, Hindustan Steel Ltd got merged in SAIL (Annexure XIX). Therefore the present lessee of the ML area is SAIL. The mining lease hold area of ML 139 comprises of 25.981 ha and the entire area comes under forest land.

APPROVED

The profile of the lease area from the date of execution till date is summarised below.

SL. NO	STATUS
1	Mining lease was granted for mining of iron ore which was executed on 17.01.1975 for a period of 20 years over 25.981 ha. The original granted area was 38.1838 ha over two blocks namely Block-A of 22.9982 ha and Block-B of 15.1838 ha totaling 38.182 ha. However, during execution a portion of 12.201 ha located at the northern side of the leasehold and coming within the district of Keonjhar was deducted from the total area keeping the area of the lease to 25.981 ha. The executed area is located in two blocks namely Block-A of 10.7972 ha and Block-B of 15.1838 ha aggregating to 25.981 ha.
2	The date of expiry of the lease was 16.01.1995.
3	Application for 1 st renewal of the mining lease has been done on 16.02.1994 for 20 years w.e.f 17.01.1995 (Copy of renewal application annexed as Annexure IX). The mining plan has been approved by IBM vide letter No. CAL/SG/FC/MP-400 dated 28.03.1996 and was valid up to 2014-15. Successively the approved mining plan was modified to include Progressive Mine Closure plan and was approved by IBM, Bhubaneswar vide letter No. MPM/OTFM/17-ORI/BHU/2012-13 Dt. 21.06.2013 (Annexure II). Subsequently, application for 2 nd renewal of the mining lease has also been done on 04.01.2014 for 20 years w.e.f 17.01.2015. However, as per the provisions of Mines and

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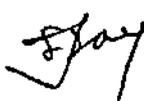
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REVIEW OF MINING PLAN OF KALTA IRON MINE LEASE (ML-139) OVER AN AREA OF 25.981 Ha. DISTRICT- SUNDARGARH, ODISHA



	<p>Minerals (Development & Regulation) Amendment Act, 2015 of Govt. of India, the mining lease would be extended up to 16.01.2025. To this effect Department of Steel and Mines, Govt of Odisha has issued a letter (Letter No.III (B) SM-10/2012/1287/SM, Bhubaneswar Dated 10.02.2016) (Annexure X) extending the lease period up to 16.01.2025. Thereafter modified mining plan was submitted for the period from 2015-16 to 2019-20 and was approved by IBM Bhubaneswar vide letter No. MS/OTFM/02-ORI/BHU/2016-17/1473 Dt. 30.08.2016 (Annexure III). Further, the approved Modified Mining Plan has been modified to incorporate DGPS surveyed lease map in addition to granted mining lease map over 25.981 ha area in village Kalta., transformation of plans and sections as per DGPS surveyed UTM grid, to rectify year of temporary closure of mine due to want of statutory clearances and to modify the waste dumping plan generate during the plan period 2019-20 and approved by IBM Bhubaneswar vide letter No. MPM/OTFM/33-ORI/BHU/2018-19 Dt. 29.03.2019 (Annexure III).</p> <p>Supplementary lease deed for the period from 17.01.1995 to 16.01.2025 could not been executed as per the condition stated in extension of validity of lease due to want of statutory clearances. However, Department of Steel and Mines, Govt of Odisha vide letter no- 4975 /SM. Bhubaneswar, Dtd. 15.07.2019 granted an extended period i.e up to 08.05.2020 to execute supplementary lease deed (Annexure X). Obtaining statutory clearances for the lease is under progress.</p>
4	The present Review of mining plan is submitted now for five years i.e. from 2020 -21 to 2024-25.
5	The Block-B of ML 139 is in geographical & geological continuity with ML 130.
	Forest and Environmental Clearance
6	<p>The entire lease area of 25.981 ha. comes under forest land.</p> <p>For obtaining forest clearance, diversion proposal was submitted in online on 22.07.2015.</p> <p>Towards obtaining Environmental Clearance, MoEF & CC has issued ToR (Terms of Reference) on 11.09.18 for conducting EIA study for production of 49701 TPA iron ore. (Annexure XVIII)</p>
	SURFACE RIGHT AREA
7	The surface right for the entire lease has been granted by collector, Sundargarh vide

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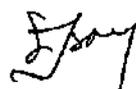
letter No XII/101-75-728 dated 01.07.1975 (Annexure II).

Mining Operation

- 8 Mining operations were started in the area soon after obtaining permission for surface operation i.e. on 01.07.1975. Mining under the lease was continued till 1987-88. Since then mining operations under the lease have been temporarily closed for want of statutory clearances. Production data from the lease since inception of mine is given below. (Copy of the certificate in respect of production is placed at Annexure XIII)

Year	Production (in tonnes)
1976-77	55,629
1977-78	94,463
1978-79	44,737
1979-80	38,828
1980-81	35,003
1981-82	12,185
1982-83	0.00
1983-84	41,290
1984-85	35,236
1985-86	48,473
1986-87	78,680
1987-88	45,467
1988-2018	NIL

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REVIEW OF MINING PLAN OF KALTA IRON MINE LEASE (ML-139) OVER AN
AREA OF 25.981 Ha. DISTRICT- SUNDARGARH, ODISHA



1.0 GENERAL

- a) Name of applicant/ lessee/ Rule 45 registration No.

Steel Authority of India Ltd / IBM/5662/2011

Mine code-30ORI13060

Nominated owner-

Shri Vivek Gupta

Director (RM&L) and Nominated Owner,

Steel Authority of India Ltd

Raw Materials Division

Kalta Iron Mine

At/Po-Kalta

Dist-Sundargarh

Odisha-770052

Phone: 06625-234036,

E-mail:kimkalta@rediffmail.com



Registered Office:

Ispat Bhavan, Lodi Road,

New Delhi – 110 003.

Phone: 0661-24367481-86,

Fax: 24367015

Website: www.sail.co.in

(Office Order regarding Nominated Owner and Photo ID & address proof of nominated owner is enclosed as Annexure VIII) and list of members of board of directors is attached at Annexure V.

- b) Status of applicant/lessee

Private Individual: No

Co-Operative Association: No

Private Company: No

Public limited company: No

Public Sector Undertaking: Yes

Joint Secretary Undertaking: No

Other (Please Specific): No

Steel Authority of India Limited (SAIL), a Public Sector Undertaking Iron and Steel Company Certificate of incorporation of SAIL annexed at Annexure IV), engaged in the business of producing and marketing iron and steel from integrated steel plants in India. Detail List of other Leases held by Lessee is attached as Annexure VI.

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AREA OF 25.981 Ha. DISTRICT- SUNDARGARH, ODISHA**



- c) Mineral(s) which is / are include in the prospecting license (For fresh grant): Not applicable
- d) Mineral(s) which is / are include in the lease deed: Iron ore
- e) Mineral(s) which the applicant /lessee intends to mine: Iron ore
- f) Name of Qualified Person under rule 22C of MCR, 1960 or a Person employed under clause (c) of Sub rule (1) of rule 42 of MCDR, 1988 (Applicable for Scheme of Mining only) preparing Mining Plan:



Name & Qualification	: 1. Shri Peter Dang M.Sc. (Geology) 2. Dr. R K Naik Ph.D (Geology) -
Address	: 1. Shri Peter Dang M.Sc. (Geology) Kalta Iron Mine At/Po-Kalta Dist-Sundargarh Odisha-770052 Mob.No. 8895503649 E-mail: kimkalta@rediffmail.com 2. Dr. R.K. Naik Raw Materials Division, SAIL 2 nd Floor, Modernization Building Rourkela Steel Plant (RSP) Dist - Sundergarh, Odisha - 769011 Mob.No. 8895504068 E-mail: rmdrkl.pnd@gmail.com

Copy of Qualification & experience Certificates of the above persons are enclosed as Annexure XV.

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AREA OF 25.981 Ha. DISTRICT- SUNDARGARH, ODISHA



2.0 LOCATION AND ACCESSIBILITY

a) Lease Details (Existing Mine)

Name of the mine- ML-139 (Kalta Iron Mine)

Date of grant of lease- 17.01.1975 Period/ Expiry Date-16.01.2025

Name of lease holder-Steel Authority of India Ltd / IBM/5662/2011

Nominated owner- Shri Vivek Gupta

Steel Authority of India Ltd



Raw Materials Division

Kalta Iron Mine

A/Po- Tensa,

Dist-Sundargarh

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E-mail:kimkalta@rediffmail.com

Registered Office:

Ispat Bhavan, Lodi Road,

New Delhi – 110 003.

Phone: 24367481-86

Fax: 24367015

Website: www.sail.co.in

b) Details of applied / lease area with location map (fresh area/mine)

Non-Forest (ha)	Forest (ha)	
Nil	Reserve Forest	25.981

Total lease area/ applied area-25.981 ha

District and state-Sundargarh and Odisha

Taluk –Bonai

Village-Kalta

Whether the area falls under Costal regulation Zone (CRZ)? If yes, details there of –

Not applicable.

Existence of public road/railway line, if any nearby and approximate distance- All weather motorable roads exists to the lease area. The area is approachable only through the Kalta Iron Ore Mine; in fact Block- B adjoins the main lease ML-130 along its northern boundary. NH-215 connecting Barbil through State highway No. 10Bat Bhadrasahi and with NH-23 at Rajamunda, passes through the Kalta Mine which lies at a distance of about 110 km from Rourkela (through Rajamunda) and 47 km from Barabil. Roxi Railway Station, which is the rail head of Kalta Mine, will be used for dispatching ML-139 ore to the Rourkela Steel Plant

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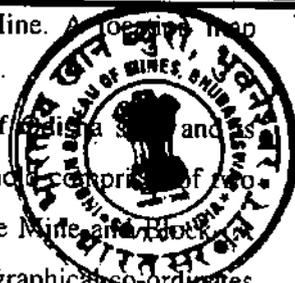

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which is situated approx 120 km from the leasehold via the Kalta Mine. A topographic map showing lease area, access routes etc. has been shown in Plate No. I.

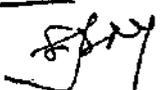
ML 139 is situated in the Bonai sub-division of Sundargarh district of Odisha and is covered by survey of India toposheet no. 73 G/1 and 73 F/4. The leasehold comprises of two blocks, Block- B which adjoins ML-130 of the Barsua – Kalta Iron Ore Mine and Block- A which lies further north, with some intervening non leased area. The geographical co-ordinates (WGS-84) and UTM 45 Co-ordinates of the lease boundary pillars are given below



ORSAC SURVEYED PILLAR CO-ORDINATE OF ML 139 (A&B)

ML No	UTM Co-ordinate		Geographic Co-ordinate	
	Easting	Northing	Latitude	Longitude
ML-139 Block--A				
D	317933.591	2434939.142	22°00'34.53264" N	85° 14' 10.42764" E
E	317858.184	2434829.339	22°00'30.93480" N	85° 14' 07.84320" E
F	317799.314	2434874.98	22°00'32.39640" N	85° 14' 05.77248" E
G	317551.928	2434506.547	22°00'20.32632" N	85° 13' 57.29664" E
H	317610.798	2434459.583	22°00'18.82152" N	85° 13' 59.36772" E
I	317569.126	2434400.052	22°00'16.87068" N	85° 13' 57.93888" E
386	317673.637	2434313.401	22°00'14.09292" N	85° 14' 01.61736" E
385	317741.767	2434400.052	22°00'16.93548" N	85° 14' 03.95736" E
384	317850.908	2434533.005	22°00'21.29868" N	85° 14' 07.70852" E
383	317862.153	2434593.86	22°00'23.28120" N	85° 14' 08.07612" E
382	317889.273	2434675.219	22°00'25.93620" N	85° 14' 08.98908" E
381	317916.393	2434767.823	22°00'28.95696" N	85° 14' 09.89700" E
380	317930.945	2434881.595	22°00'32.66100" N	85° 14' 10.35888" E
ML-139 Block- B				
A	317326.871	2433603.522	21°59'50.88516" N	85° 13' 49.81512" E
AI	317380.142	2433680.668	21°59'53.41344" N	85° 13' 51.64104" E
B	317510.748	2433874.433	21°59'59.76166" N	85° 13' 56.11584" E
C	317263.77	2434045.688	22°00'05.23584" N	85° 13' 47.43696" E
D	316953.162	2433588.003	21°59'50.24004" N	85° 13' 36.79428" E
E	317089.35	2433491.803	21°59'47.16420" N	85° 13' 41.58048" E


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- c) Attach a general location map showing area and access routes. It is preferred that the area be marked on a Survey of India topographical map or a cadastral map or forest map as the case may be. However, if none of these are available, the area may be shown on an administrative map:

Location map (Key Plan) of the area on 1: 50,000 scale has been enclosed vide Plate No. I.



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3.0 DETAILS OF APPROVED MINING PLAN / SCHEME OF MINING

3.1 Date and reference of earlier approved MP/ SOM: -

The mining plan has been prepared by MECON Limited and approved by IBM vide letter No. CAL/SG/FC/MP-400 dated 28.03.1996 and is valid upto 16.01.2015. The first modification to the approved mining plan was approved on dt. 21.06.2013 for incorporation of the PMCP. Successively modification of the approved Mining Plan has been prepared by Geo Consultants Pvt. Ltd, Bhubaneswar and approved by IBM vide letter No. MS/OTFM/02-ORI/BHU/2016-17/1473 dated 30.08.16 (Annexure III). Further, The recent most modification to the approved Modified Mining Plan has been done by Planning & Development wing of RMD, SAIL to incorporate DGPS surveyed lease map in addition to granted mining lease map over 25.981 ha area in village Kalta., transformation of plans and sections as per DGPS surveyed UTM grid, to rectify year of temporary closure of mine due to want of statutory clearances and to modify the waste dumping plan generate during the plan period 2019-20. The same has been approved by IBM Bhubaneswar vide letter No. MPM/OTFM/33-ORI/BHU/2018-19 Dt. 29.03.2019 (Annexure III). The validity of Modification in Mining Plan is as per the extension of the mining lease i.e. 16.01.25 as extended by State Govt.

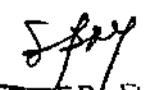
3.2 Details of last modifications if any (for the previous approved period) of approved MP/SOM, indicating date of approval, reason for modification:

modification to the approved Modified Mining Plan has been done for the period 2019-20 to incorporate DGPS surveyed lease map in addition to granted mining lease map over 25.981 ha area in village Kalta., transformation of plans and sections as per DGPS surveyed UTM grid, to rectify year of temporary closure of mine due to want of statutory clearances and to modify the waste dumping plan generate during the plan period 2019-20. The same has been approved by IBM Bhubaneswar vide letter No. MPM/OTFM/33-ORI/BHU/2018-19 Dt. 29.03.2019 (Annexure III).

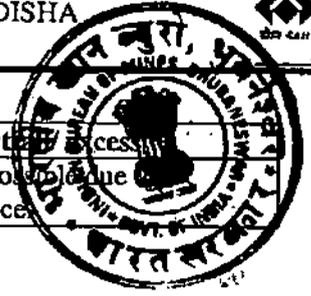
3.3 Give review of earlier approved proposal (if any) in respect of exploration, excavation, reclamation etc.

The last modification to the mining plan was prepared for the year 2019-20. The proposals given in respect of exploration, excavation, reclamation and vis-a vis achievement are as follows.


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Exploration:

Year	Proposed	Achieved	Reason of shortfall/ excess
2019-20	26 nos of Boreholes	Nil	No exploration was possible due to want of forest clearance.

Excavation:

Year	Proposed production (MT)	Achieved production (MT)	Reason of shortfall/ excess
2019-20	49,935	Nil	Mining operations under the lease are temporarily discontinued since 1988 due to want of statutory clearances.

Reclamation:

In view of occurrence of iron ore below the quarry floor at later date, no reclamation proposal had been envisaged during the last modified plan period. However, proposed filling of 0.0112 Ha of void area in the safety zone could not be achieved due to the discontinuance of mining operation after 1988 due to want of statutory clearances.

Afforestation:

Year	Proposed		Achieved		Reason of shortfall/ excess
	Area in Ha.	Nos. of saplings	Area in Ha.	Nos. of saplings	
2019-20	0.1132	181	Nil	Nil	Mining operations under the lease are temporarily discontinued since 1988 due to want of statutory clearances.

3.4 Give status of compliance of violations pointed out by IBM

The violations pointed out during the last mining plan period & its compliance position is given as Annexure XVII

3.5 Indicate and give details of any suspension /closure/ prohibitory order issued by any Government agency under any rule or Court of law:

Mine is temporarily discontinued since 1988 due to want of statutory clearances.

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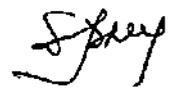


3.6 In case the MP/SOM is submitted under rules 9 and 10 of the MCDR'88 or under rule 22(6) of the MCR'1960 for approval of modification, specify reason and justification for modification under these rules:

Not applicable

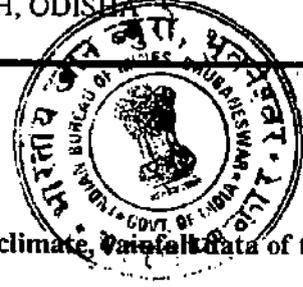



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PART - A



1.0 GEOLOGY AND EXPLORATION:

- a) Briefly describe the topography, drainage pattern, vegetation, climate, and other data of the area applied/mining lease area.

Topography- The area under reference is almost an undulating hilly terrain. The highest altitude of 860 m is noted in northern part of the lease area (Block-A) and lowest altitude of 760 m at the western part of the lease area (Block-B). The maximum gradient of the area is 1 in 2 and minimum is 1 in 13.

Drainage pattern- ML-139 is located north of the Majumachan Pahar, immediately to the north of the Kalta end of ML-130. The NE - trending elongated narrow hill range is a prominent drainage barrier between the western rugged terrain and the eastern undulating & plain country. The gullies along the scarp slopes in the western part give rise to numerous nalas which join to form streams. The latter discharge into the kurhadinadi, which originates in the south-eastern side of the Dandrahar Pahar and, after girdling it, takes a north-westerly course. The Barsua Township of SAIL-RMD is located in a valley of this river.

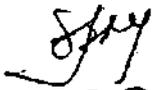
The eastern side drainage is controlled by the Samaj (or sominj) nala on the immediate east of the Barsua - Taldih sector till it crosses the range towards west, forming a valley at an altitude of 550 mRL between the Majumachanpahar and the Karaspanipahar. The samajNala, in its down course thereafter, controls the drainage system of the whole western rugged country.

In the case of ML-139, a nala originating between Block-A and Block- B from the western face of the hill, meanders westwards till it meets the SamajNala. The karonadi controls the drainage on the eastern side of the hill range, flowing parallel to it at a distance of about 4.5 km.

Vegetation--The area has one of the most luxuriant forests so much so that, in some sections of the forest roads, sunlight does not penetrate even during summer. The area supports a large variety of trees; the major species include sal (Shorea robusta) Palash (Butea frondosa), Kusum (Seheleicheratrijug), Kadamba (Anthocephalus Cadamba), Seesum (Delbergialatifolia) and Bija (Pterocarpus marsupium). In addition, fruit trees like, Jackfruit (Artoicarpus lakucha), Mango (Mangifera indica), Guava (Psidium guava), Jamun (Syzygium cumini), etc are also found.

The average density of vegetation is found to be less than 0.1.

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Climate-The climate of the area is sub-tropical. The area enjoys very high precipitation. The weather conditions are not extreme. Summer is not very hot, due to very thick forest cover in the area. The maximum temperature, during exceeds 40°C only for a few days during the year. The minimum temperature, during winter, rarely goes below 07°C. As might be noted, April and May are the hottest months and December and January the coolest ones.

The relative humidity in the area is generally high due to the high level of precipitation, the good forest cover, and several perennial streams & numerous springs flowing in the area. The maximum humidity is usually above 60%, even during summer. The minimum humidity is generally 30%, except in April and May when it goes below 20%. Wind direction in the area does not vary too widely from season to season. The area experiences very high percentage of calm days, ranging from 44% to 62% as measured within the 01-05 kmph range. The wind speed only occasionally exceeded this low range.

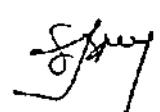
Rainfall data- The average rainfall is of the order of 1200mm. with the maximum during the rainy season i.e. from July to October. Humidity is of the order of 85% in the monsoon.

b) **Brief descriptions of Regional Geology with reference to location of lease/applied area.**

Regional geology

The Iron Ore bearing and associated suites of rocks in the area are belongs to Precambrian meta-sedimentary sequence of the Bonai-Keonjhar belt (BIF-III) of Iron Ore Super Group. It has now been generally accepted that the Iron Ore Super Group was deposited on the denuded edges of older metamorphic suites. The ore bodies are associated with banded hematite-quartzite of the iron-ore Group. The original rocks consisted of alternating ribbons of quartz jasper and haematite, from which silica was leached out and iron-ore bodies formed by the secondary processes of replacement & concentration of iron oxides & hydroxides.

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Regional Stratigraphy & Structure:

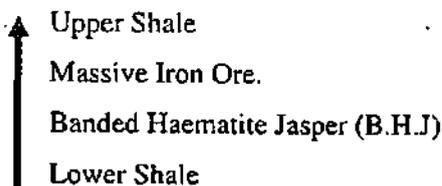
The regional stratigraphic sequences of South Singhbhum & Bonai area are as follows:-

Kolhan Group	Shale, Limestone, Sandstone & Conglomerate
Singhbhum Granite	Granite & Epidiorite
Iron Ore Group	Upper shale with volcanics, (BHQ) Lower shale, Lava, Sandstone & Conglomerate
Older metamorphics	Mica-sillimanite, Hornblende, Chlorite schist, Quartzite.

The primary structural feature of the iron ore series in the area is a pitching asymmetrical fold, the western limb of which (comprising of the Bonai iron ore range, Sasongada – Kalta – Taldih – Barsua Blocks) was overturned and dips at a high angle westwards while the eastern limb (comprising of Toda-Thakurani – Noamundi area) was complicatedly folded with a general westerly dip. This structure assumed a horse-shoe shape due to the pitching nature of the regional folds, open to the north and closed to the south, in the Khandhar – Malangtoli blocks. The severity of folding and over folding increases westwards, with wide outcrops of Banded Haematite Quartzite on the eastern side, and narrow outcrops on the western side, suggesting that the sequence is normal on the eastern limb but overturned on the western limb of the regional asymmetrical fold.

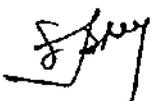
- c) Detailed description of geology of the lease area such as shape and size of the mineral/ore deposit, disposition various litho-units indicating structural features if any etc. (Applicable for Mining Plan for grant & renewal and not for Scheme of Mining/Modifications in the approved mining plan/scheme of Mining).

The sequence of rocks in the Barsua – Taldih – Kalta belt is as follows:



The Upper Shale forms the central shale and clay band in the whole of Barsua Block and in a part of Taldih 'A' Block, after which it gradually swings to the east and passes along the eastern margin of the ore-body in the Kalta Block. Upper shales are not present in ML-139. Banded Haematite Jasper, a hard and resistant rock, constitutes the dominant litho-type of the

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hill range. In the peaks areas, it is generally capped by iron-ore, while in the lower areas, laterite blanketing is common. BHJ exposures are generally seen at the escarpment faces of the hill. Massive Iron Ore in ML-139 occurs as capping of the two hills, separated by BHJ in the lower elevation in the between. The two occurrences identified as Block- A and Block- B. Lower shales are associated with phyllites and volcanic tuffs in the Barsua area. In ML-139, lower shales (without tuffs) are generally present in the lower slopes on the western side. The general strike of the formation in the area is NNE-SSW, with a dip of 80° on the western flank and 45° on the eastern slopes. The general direction of the dip is westerly. Several structural features in the area exerted their influence on the form and extension of the ore bodies. Local folds and slips are common. Two sets of joints, one parallel and the other transverse of the hill range, are prominently marked.

Description of the ore body: The lease area ML-139 is situated adjacent to working lease ML-130 in the north side. Being a contiguous part in the strike direction the physical and chemical properties of ore types are very much similar to the adjacent working Kalta Iron Mines. The different ore types exposed in the surface and in faces of old working within lease area are highly lateritised. The iron ore bodies in the area generally occur in the higher area of the hill range, as capping. The mode of occurrence of iron-ore in the area supports the general conception of ore-formation by secondary processes of leaching, replacement and concentration of iron oxides and hydroxides by the action of circulating meteoric water under structural and geochemical controls. Lateritisation which adversely affected the ore horizons at places also resulted from the same processes. In ML-139, iron ore is found in two areas separated by BHJ exposures. The southern ore zone has been identified as Block- B and the northern one as Block- A. In both blocks, iron ore is found as capping on higher ground, while the break in the continuity of the ore horizons has been caused by exposures of BHJ on comparatively lower ground in between. Thus, the disposition of the two ore bodies in ML-139 is a geo-morphological expression rather than any structural discontinuity.

Like many other secondary enrichment deposits, the iron ore occurrences in the Barsua – Kalta belt are characterized by divergent physical and chemical attributes of the ore bodies. Based on the utilization potential and beneficiation characteristics, the iron ore of different physico-chemical parameters have been classified as under:

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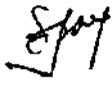
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S.N	Type of Ore	Description of Ore
1	Friable Ore	Very soft laminated ore mixed with pocket of blue dust, ochre, clay and shale. A few "horses" of BHJ are also seen. Fe content of ore is generally 61-62.5%
2	Blue Dust	Pockets and lenses of powdery blue material are present in friable and soft laminated ore. Fe content is generally 63-68%, the high concentration of iron being due to leaching out of silica.
3	Mineable Transitional Ore	Transitional in nature with varying lithology. Mineable ore contains generally 58.2-59% Fe.
4	Massive Ore	Very hard & compact cross-jointed isolated ore patches in contact with BHJ. Fe content in ore is generally 63-65%.
5	Hard Laminated Ore	Mostly hard & laminated, in which sometimes soft porous and spongy layers are present. Often occurs below the laterite capping. Fe content in the ore is generally 60.8-63%.
6	Lateritic Ore	Lateritic characteristics are pre-dominantly present. Fe content is generally 54.2%.
7	Soft Laminated Ore	Porous along laminates, with ocherous substances between the ore laminate. Ore zone generally contains 59.2-61% Fe.

In ML-139, hard laminated, soft laminated and Lateritic ores are the predominant ore-types present. Lateritic ore usually occurs bordering the laminated ores which crop out on the top and upper fringes of the hill. Vein lets and lenses of laterite also are seen in the ore body at places. Though a large mass of laterite is present in the north-eastern corner of the area, laterite occurs only infrequently in the iron ore zone. The hard laminated ore is generally hard & compact, and occurs near the top of the hill. The soft laminated ore is spongy, porous & earthy in nature, and occurs in the hill flanks, usually bordering BHJ. This ore-type breaks easily along the lamination plane, and is quite predominant in the area. The western flank of the hill contains ore rich in iron content. Inter-calations of shale causing dilution of ore quality are pronounced on the eastern flank. The grade of the ore generally improves with depth while hardness decreases. The ore types in the area are characterized by common assemblage of minerals with varying degree of predominance from one physical type to other. Usually, hematite, goethite,


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martite and limonite form the principal / mineral phase of ore, with or without specks of pyrite & magnetite, etc. The chief gangue minerals are kaolinite and gibbsite, with occasional-crypto-crystalline silica. The gangue is present as matrix or as layers in the ore-body.

d) i) Name of the prospecting/exploration agency-

RMD, Steel Authority of India Limited

ii) Address-

Kalta Iron ore Mine, RMD-SAIL

At/P.O – Kalta

Dist. – Sundargarh

(Odisha)

PIN – 770052

iii) Email address -- kimkalta@rediffmail.com

Telephone. 06625 - 234036

Fax No. 06625 - 234023

e) Details of prospecting/exploration already carried out:

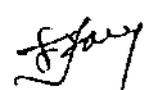
i) Number of pits and trenches indicating dimensions, spacing etc along and across the strike/ foliation with reference to geological plan.

The lease area is located north of ML 130 Kalta end and is in geological continuity with working mine Kalta C-Block of ML 130 having similar nature of ore bodies. The lease area was first geologically mapped and then the extent of mineralization investigated by pitting in 1970. Based on outcome of this exploration, 25.981 Ha were earmarked and mining lease (ML-139) has been obtained. The following exploration activities were carried out in the lease area-

Surveying: ML-139 area being the northern extension of Kalta sector of ML-130, the grid and R.L survey developed for ML-130 was adopted. A baseline, with reference to the MajumachanPahar peak of Kalta Sector, was drawn with a rough alignment along the hill range near its eastern boundary. The major part of the mining area is located on the western side of the baseline. The entire area was covered by grid intervals of 50m x 50m.

Pitting: In view of the geo-morphological setup of the ore-body in the area, exploration carried out in 1970 was based on pitting rather than drilling. On the basis of available geological maps a few pits were dug (upto a depth of about 5m from the surface) in promising areas to examine

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the extent of the ore-body. Pit locations were selected on a staggered grid pattern in the strike and dip directions.

Out of these pits a total of 23 pits (11 in Block- A and 12 in Block- B) comes within the leasehold area of ML 139.

ii) Number of boreholes indicating type (Core/RC/DTH), diameter, spacing, inclination, Collar level, depth etc with standard borehole logs duly marking on geological plan/sections.

Exploratory bore holes could not be drilled due to non availability of forest clearance

iii) Details of samples analysis indicating type of sample (surface/sub-surface from pits/trenches/borehole etc). Complete chemical analysis for entire strata for all radicals may be undertaken for selected samples from a NABL accredited Laboratory or Government laboratory or equivalent. Entire mineralized area may be analyzed meter wise with 10% of check samples. (At least for 10% of total samples may be analyzed in accordance to BIS and reports from NABL accredited/other government laboratory).

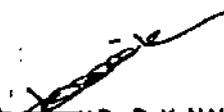
The lease area has been explored through test pits and detailed litho types has been recorded and correlated with adjacent working lease of SAIL fall in the strike direction. Representative samples from exposed mine faces were collected and analysed through NABL accredited laboratory.

iv) Expenditure incurred in various prospecting operations.

The trial pits were carried out during 1970 by erstwhile Ore Mining & Quarries Department of Rourkela Steel Plant departmentally. However, record of expenditure incurred for pitting of trial pits in 1970 is not available now.

f) The surface plan of the lease area may be prepared on a scale of 1: 1000 or 1: 2000 with contour interval of maximum of 10 m depending upon the topography and size of the area duly marked by grid lines showing all features indicated under Rule 28(1)(a) of MCDR 1988.

The surface plan of the lease area has been prepared on a scale of 1:2000 with contour interval of maximum 10 meter and the area is duly marked by grid lines showing all existing surface features. Plate No. IV.


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- g) For preparation of geological plan, surface plan prepared on a scale of 1: 1000 or 1: 2000 scale specified under para 1.0 (f) of Part A of the format may be taken as the base plan. The details of exploration already carried out along with supporting data for existence of mineral, locations proposed exploration, various litho units along with structural features, mineralized/ore zone with grade variation if any may be marked on the geological plan along with other features indicated under Rule 28 (1)(b) of MCDR 1988.

Geological information has been collected from the existing 23 pits & quarry excavation, outcrops of different litho units for preparation of this document. From the available data of existing quarry and pits, the geological Plan has been prepared on a scale of 1:2000 (Plate No. V) and workable iron ore reserve has been estimated both in terms of quality and quantity.

- h) Geological sections may be prepared on natural scale of geological plan at suitable interval across the lease area from boundary to boundary.

Geological sections have been prepared on natural scale of geological plan i.e. 1:2000 at suitable interval across the lease area from boundary to boundary Plate No. V (A).

The applicant has surveyed the area in detail based on which the present mining plan has been prepared. The details of the investigation undertaken are summarized as follows.

1. Grid lines with an interval of 50 m along N-S and E-W have been drawn to know the quarry configuration and topography of the area.
2. Contouring and geological mapping in 1:2000 scale with contour intervals of 10 m have been undertaken for preparation of surface plan and geological plan.
3. 12 nos. of geological cross sections on 1: 2000 scale along the dip direction passing through sub-surficial openings have been prepared.

Details of Exploration Carried Out in ML 139

Sl.No.	Block Name	Test Pit No.	Dimension (L x W x H) in m.	Lithology
1	A	A/1	4 x 4 x 5	Soft laminated ore
2	A	A/2	4 x 4 x 5	Soft laminated ore
3	A	A/3	4 x 4 x 5	Soft laminated ore
4	A	A/4	4 x 4 x 5	Lateritic ore
5	A	A/5	4 x 4 x 5	Soft laminated ore
6	A	A/6	4 x 4 x 5	Soft laminated ore

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7	A	A/7	4 x 4 x 5	Soft laminated ore
8	A	A/8	4 x 4 x 5	Soft laminated ore
9	A	A/9	4 x 4 x 5	Soft laminated ore
10	A	A/10	4 x 4 x 5	Soft laminated ore
11	A	A/11	4 x 4 x 5	BHJ
12	B	B/1	4 x 4 x 5	Lateritic ore
13	B	B/2	4 x 4 x 5	Hard laminated ore
14	B	B/3	4 x 4 x 5	Soft laminated ore
15	B	B/4	4 x 4 x 5	Lateritic ore
16	B	B/5	4 x 4 x 5	Hard laminated ore
17	B	B/6	4 x 4 x 5	Lateritic ore
18	B	B/7	4 x 4 x 5	BHJ
19	B	B/8	4 x 4 x 5	Hard laminated ore
20	B	B/9	4 x 4 x 5	Hard laminated ore
21	B	B/10	4 x 4 x 5	Hard laminated ore
22	B	B/11	4 x 4 x 5	Lateritic ore
23	B	B/12	4 x 4 x 5	BHJ

- i) Broadly indicate the future programme of exploration with due justification (duly marking on Geological plan year wise location in different colours) taking into consideration the future tentative excavation programme planned in next five years.

Based on the available quarry & pit data and geological investigation the present Review of mining plan has been prepared. However, to explore the lease area upto G1 level as per UNFC, a total of 45 nos. boreholes are proposed to be undertaken in the first two years of plan period. The proposed boreholes are located on the cross-sectional lines (Plate No. V). The details of proposed exploration to be carried out are as follows.

Year	No of Boreholes	Type of Boreholes	Grid Interval	Total meterage	No. of pits, Dimensions & Volume	No. of Trenches, Dimensions & Volume
2020-21	27	Core	100X50	8100	Nil	Nil
2021-22	18	Core	100X50	5400	Nil	Nil

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The details of the proposed boreholes are as mentioned below.

Year of drilling	Section No	Proposed BH no	Northing	Easting	Collar RL	Core/R C/DTH	Proposed Depth	Inclination	Forest/Non Forest/Diverted Forest area	Surface right/Non surface right area
2020 2021	G6	PBH-1	2433520.40	317088.26	796	Core	300/ or till the discontinuance of ore body	90°	Forest area	surface right area
	G5	PBH-2	2433603.60	317143.73	810	-do-	-do-	-do-	-do-	-do-
	G4	PBH-3	2433686.81	317199.20	810	-do-	-do-	-do-	-do-	-do-
	G3	PBH-4	2433770.01	317254.67	810	-do-	-do-	-do-	-do-	-do-
	G2	PBH-5	2433853.22	317310.14	824	-do-	-do-	-do-	-do-	-do-
	G1	PBH-6	2433936.42	317365.61	827	-do-	-do-	-do-	-do-	-do-
	G5	PBH-07	2433575.85	317185.31	823	-do-	-do-	-do-	-do-	-do-
	G4	PBH-08	2433659.05	317240.78	822	-do-	-do-	-do-	-do-	-do-
	G3	PBH-09	2433742.26	317296.24	824	-do-	-do-	-do-	-do-	-do-
	G2	PBH-10	2433825.46	317351.71	831	-do-	-do-	-do-	-do-	-do-
	G1	PBH-11	2433908.67	317407.18	826	-do-	-do-	-do-	-do-	-do-
	G4	PBH-12	2433631.34	317282.41	826	-do-	-do-	-do-	-do-	-do-
	G3	PBH-13	2433714.54	317337.88	833	-do-	-do-	-do-	-do-	-do-
	G2	PBH-14	2433797.75	317393.35	836	-do-	-do-	-do-	-do-	-do-
	G1	PBH-15	2433880.95	317448.82	822	-do-	-do-	-do-	-do-	-do-
	G6	PBH-16	2433548.25	317046.71	782	-do-	-do-	-do-	-do-	-do-
	G5	PBH-17	2433631.45	317102.18	790	-do-	-do-	-do-	-do-	-do-
	G4	PBH-18	2433714.66	317157.65	795	-do-	-do-	-do-	-do-	-do-
	G3	PBH-19	2433797.86	317213.12	795	-do-	-do-	-do-	-do-	-do-
	G2	PBH-20	2433881.07	317268.59	804	-do-	-do-	-do-	-do-	-do-
	G1	PBH-21	2433964.27	317324.06	810	-do-	-do-	-do-	-do-	-do-
	G6	PBH-22	2433575.87	317005.06	757	-do-	-do-	-do-	-do-	-do-
	G5	PBH-23	2433659.07	317060.53	772	-do-	-do-	-do-	-do-	-do-
	G4	PBH-24	2433742.28	317116	777	-do-	-do-	-do-	-do-	-do-
	G3	PBH-25	2433825.48	317171.47	775	-do-	-do-	-do-	-do-	-do-
	G2	PBH-26	2433908.69	317226.94	780	-do-	-do-	-do-	-do-	-do-
	G1	PBH-27	2433991.89	317282.41	795	-do-	-do-	-do-	-do-	-do-

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2021	G12	PBH-28	2434382.81	317663.20	824	-do-	-do-	-do-	-do-	-do-	
	G11	PBH-29	2434466.01	317718.67	821	-do-	-do-	-do-	-do-	-do-	
	G10	PBH-30	2434549.22	317774.14	820	-do-	-do-	-do-	-do-	-do-	
	G9	PBH-31	2434632.42	317829.61	824	-do-	-do-	-do-	-do-	-do-	
	G8	PBH-32	2434715.63	317885.08	842	-do-	-do-	-do-	-do-	-do-	
	G10	PBH-33	2434521.69	317815.31	805	-do-	-do-	-do-	-do-	-do-	
	G12	PBH-34	2434410.29	317621.62	825	-do-	-do-	-do-	-do-	-do-	
	G11	PBH-35	2434493.50	317677.09	832	-do-	-do-	-do-	-do-	-do-	
	G10	PBH-36	2434576.70	317732.56	838	-do-	-do-	-do-	-do-	-do-	
	2022	G9	PBH-37	2434659.91	317788.03	845	-do-	-do-	-do-	-do-	-do-
		G8	PBH-38	2434743.11	317843.50	853	-do-	-do-	-do-	-do-	-do-
		G7	PBH-39	2434826.57	317898.95	860	-do-	-do-	-do-	-do-	-do-
		G11	PBH-40	2434521.48	317635.47	825	-do-	-do-	-do-	-do-	-do-
		G10	PBH-41	2434604.69	317690.94	836	-do-	-do-	-do-	-do-	-do-
		G9	PBH-42	2434687.89	317746.41	847	-do-	-do-	-do-	-do-	-do-
G8		PBH-43	2434771.10	317801.88	850	-do-	-do-	-do-	-do-	-do-	
G11		PBH-44	2434544.4	317600.14	810	-do-	-do-	-do-	-do-	-do-	
G8		PBH-45	2434792.40	317769.47	840	-do-	-do-	-do-	-do-	-do-	

As indicated above, all the 45 numbers of boreholes have been proposed to be drilled for exploration of iron ore during the period 2020-21 and 2021-22 (27nos of bore holes drilled in 2020-21 and 17nos of boreholes in 2021-22). Out of 45 nos. of coring boreholes 07 nos. of boreholes have been proposed to be drilled in the BHJ zone to prove the barrenness. All the boreholes have been proposed to drill in 100 m x 50m grid interval in iron ore zone to prove the extension and occurrence of ore bodies. Boreholes will be drilled upto a maximum depth of 300 m or till the discontinuance of ore body and meter wise representative core/sludge samples would be collected and analysed for Fe (T), SiO₂ and Al₂O₃. In addition to for Fe (T), SiO₂ and Al₂O₃, Chemical analysis for S, P, CaO, MgO, Na₂O, K₂O and Mn will be done to samples from the ore zone. Out of total samples collected from mineralized zone more than 10% of analysed samples will be consider for check samples and will be analysed in from third party NABL accredited laboratory or other government laboratory. This is to be undertaken only after commencement of mining operation.

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- j) Reserves and Resources as per UNFC with respect to the threshold value pointed by B may be furnished in a tabular form as given below: (Area explored under different level of exploration may be marked on the geological plan and UNFC code for area considered for different categories of reserve/resources estimation may also be marked on geological cross sections).

The reserve and Resources has been assessed following the rules Part II (4) of MEMC, 2015 and the method of estimation is described below.

Method of estimation of reserve

Ore Boundary:

There is a single existing quarry of iron ore present in Block-B of the lease area. This quarry has been worked up to 810 mRL. Reserve of iron ore within the ML area has been calculated based on available existing quarry and pit information. As per UNFC, ore exposed in the quarry benches has been categorized as G2 and ore exposed in the test pits has been categorized as G3 based on the spacing of existing sub-surface openings. Accordingly resources existing in Block-B have been categorized under G2 and G3. As there is no existing quarry openings present in the Block-A, the resource in Block-A have been estimated based on test pit only, hence in Block-A the entire resource categorized as G3. No proved reserve has been calculated for the lease area due to absence of boreholes.

Depth-wise continuity:

As observed in the field, in Block-B, of the lease area only one quarry is present and it consists of different types of iron ore. There are 23 nos of existing test pits located within the lease area and each test pit goes upto a depth of about 5m. In Block-A, the depth ward continuity of ore has been limited to the bottom of the existing test pits. Laterally, the ore zone has been extended 50 m from the existing test pits limiting this to the litho-contact. In Block- B, there is a quarry and 12 pits. Iron ore has been encountered till 795 mRL in Pit No B/10, ore zone has been considered in this block limiting to RL 795m. Laterally, the ore zone has been extended 50 m from the existing pits limiting this to the litho-contact.

In both 'A' & 'B' Blocks, the depth continuity of mineralization has been considered limited to the depth up to direct evidence of mineralization i.e. up to the depth of trial pits and old working benches. The resources has been re-estimated as per the provision Part II (4) of

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MEMC rules, 2015, in which the depth continuity of mineralization has been limited to depth up to which the direct evidence of mineralization is established through

Categorization of Reserve:

Probable (G2) – For preparation of the present Review of Mining plan, existing test pits as well as quarry features have been taken in to consideration. The only quarry has been worked up to 810 mRL. After plotting the altitude of iron ore occurrences in quarry benches on the geological cross sections, 50m the depth-wise ore limit has been taken till the end of occurrence of ore in the corresponding quarry. The total ore present within each cross section has been considered as probable zone.

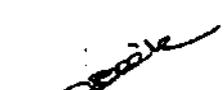
Inferred (G3) – Resources estimated considering trial pits have been categorized under G3. The depth-wise ore limit has been taken till the end of occurrence of ore in the corresponding trial pits.

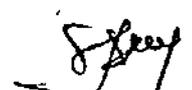
The total reserves/Resources come under different categories have been marked on the geological sections. (Plate No. V A)

The threshold value and Cut off value considered in estimation of reserve is Fe 45% and Fe 58% respectively. Resources as on 01.07.2019

MT=Metric Ton

Grade	Proved (G1) MT	Probable (G2) MT	Inferred (G3) MT	Total (MT)
Saleable (>58% Fe)	---	6,69,122	11,74,781	18,43,903
Mineral rejects (45 -58 %Fe)	---	46,221	2,62,233	3,08,454
Total	---	7,15,343	14,37,014	21,52,357


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Area explored under different level of exploration as on 01.07.2019

Name of the Mineral: Iron ore (Hematite)							
Sl. No.	Name of the Lease & Owner	Total Lease area (in Ha.)	Lease area explored as per UNFC norms (in Ha.)				Remarks/Comments including reasons for not carrying out the exploration as per UNFC Norms.
			C=D+E+F+G				
			G1 Level	G2 Level	G3 Level	Other Lease area/unexplored area	
A	B	C	D	E	F	G	H
1	M.L-139 (Kalta Iron Mine) & Steel Authority of India Limited.	25.981	Nil	7.60	10.17	8.211	Mine is temporarily closed since 1988. Exploration as proposed in this Review of Mining Plan will be completed after re-opening of the mine
Total			Nil	7.60	10.17		

The justification for various UNFC categories of reserves established at ML-139 within the leasehold is given below:-

The UNFC consists of a three dimensional grid with following three axes

- (i) Geological Assessment
- (ii) Feasibility Assessment
- (iii) Economic Viability

The parameters of the above axis are as follows

- (i) Geological Axis (G)
 - Detailed Exploration (1)
 - General Exploration (2)
 - Prospecting (3)
 - Reconnaissance (4)
- (ii) Feasibility Axis
 - Feasibility Study (1)
 - Pre Feasibility Study (2)
 - Geological Study (3)

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- (iii) Economic Axis
- Economic (1)
 - Potentially Economic (2)
 - Intrinsically Economic (3)



JUSTIFICATION OF UNFC:

PROBABLE MINERAL RESERVE (122)

(i) Geological Assessment- The Lease area is devoid of exploratory bore holes hence, to establish the ore bodies detailed geological survey has been carried out and Geological plan has been prepared in 1:2000 scale based on surface exposures. In the Block-B of lease area one quarry has opened and worked up to 810 mRL. In absence of exploratory borehole the reserve has been estimated based on the actual thickness of the ore body as deciphered from the existing quarry benches and considered under probable category hence the geological axis can be brought under G2.

(ii) Feasibility Assessment- On feasibility axis, mining plan was prepared and approved and the recoveries & efficiencies estimated. Manpower / machine requirement has been estimated based on actual need. Infrastructure resources are already available. Forest clearance is yet to be obtained. Thus, the resources can be brought under F2.

(iii) Economic Axis- On economic front, the materials already being dispatched to the Rourkela Steel Plant in past running years, accordingly the grade of the ore is suitable for the end use. Internal Rate of Return (IRR) calculated for a period of next 15 years reflects positive economic parameters. Land use pattern, working plan is already known or designed, hence the reserves can be brought under E1.

Based on above mentioned justifications under UNFC guidelines, the reserves can be classified under 122 group.

PREFEASIBILITY MINERAL RESOURCES (222)

i) Geological Assessment- The resource has been estimated considering the exposed ore body in the opened and worked up benches of existing quarry. In absence of exploratory


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**REVIEW OF MINING PLAN OF KALTA IRON MINE LEASE (ML-139) OVER AN
AREA OF 25.981 Ha. DISTRICT- SUNDARGARH, ODISHA**



borehole the reserve has been estimated based on the actual thickness of the ore body and considered under G2 level.

(ii) Feasibility Assessment- The resources blocked and cannot be extracted due to pit slope or safety zone. Thus, the resources can be brought under pre-feasibility (F2).

(iii) Economic Axis- The resources available below ultimate pit limit and block in the benches as well as ore below cut-off grade (mineral rejects) which cannot be mine economically at present and possibly economically viable subject to changes in technology and economic categorised under E2.

INFERRED MINERAL RESOURCES (333)

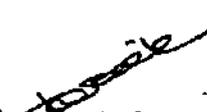
ii) Geological Assessment- The resource has been estimated with low level of confidence considering the available trial pits and inferred from the geological mapping. In absence of exploratory borehole the reserve has been estimated based on the actual thickness of the ore body encountered in trail pits and categorised under G3 level.

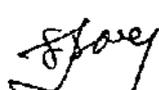
(ii) Feasibility Assessment- Detail exploration is required to know the vertical continuity and behaviour of ore body to increase the confidence level and feasibility of extraction of ore. Thus, the resources can be brought under F3.

(iv) Economic Axis- The resources calculated from the available trial pits and required further detail geological studies to assess the grade and tonnage in detail. Thus, the resources can be brought under E3

GEOLOGICAL AXIS

Category of reserve	Field Guidelines	Studies carried out
G2 (General Exploration)	1. Geological survey: (i) Mapping on 1:25,000 to 1:5,000 or larger scale with triangulation points, benchmarks, if any shown For coal, mapping on 1:10,000 scale (ii) Linking of maps so prepared with topogrid; (iii) Assessment of lithology, structure, surface mineralisation, analysis of old history of mining.	Detailed mapping of the area has been carried out in a scale of 1:2000. Assessment of lithology, structure etc. has been done in detail.
	2. Geochemical survey: (i) Detailed litho-	Pit sampling was done and litho-


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Category of reserve	Field Guidelines	Studies carried out
	<p>geochemical channel sampling from fresh rock exposures, trenches, pits; (ii)Recording of deleterious elements, likely by-product elements (e.g. Ga in bauxite, Ni, PGE etc. in chromite, Au in Fe ore, etc. (Nil for coal/lignite exploration); (iii)In coal/ lignite exploration, geo-chemical sampling of coal and water to be done for environmental study.</p>	<p>types recorded. surface samples from the exposed lithotypes in benches of old working have been analysed. The ore types in the lease area are northern extension of Barsua-Kalta iron belt in strike direction and situated adjacent to well explored Kalta Iron Mine. There is very close resemblance in physical and chemical properties of ore types in between two leases.</p>
	<p>3. Geophysical survey: (i) Borehole geophysical survey; (ii) Special geophysical traverses for problem solving, if required.</p>	<p>Geophysical survey could not be done due to non availability of forest clearance.</p>
	<p>4. Technological: (a) Pitting/trenching: systematic pitting/trenching for deciphering extent of mineralisation at surface. (b)Drilling: grid reduction needed: spacing (i) for coal, gypsum near surface potash and salt beds-400 to 1000m; (ii) Iron and manganese ore-100 to 200m. (iii) limestone and dolomite and barytes- 200 to 400m up to a depth of at least 30 m; (iv) bauxite of thick cappings and chromite as regional lode-100 to 300m. (c) Sampling: (i) Systematic pit and trench sampling, deep pitting if necessary; (ii) Core sampling: lithology and strength of mineralisation wise (check sampling -10%). (d) Laboratory scale scanning/chemical analysis, (e) Bulk sampling if necessary for testing processing technology. (f) Collection of abiotic geo-environmental parameters.</p> <p>5. Petrographic and mineralogic study: Study of petrographic character of rocks including grain size, texture etc.</p>	<p>The lease area has been Explored by 23 nos of trial pits across the lease area. The extent of mineralization has been deciphered through litho. types/ ore types encountered in the trial pits and in the benches of old working.</p> <p>Petrographic and mineralogical study of different litho types/Ore types encountered in the lease area has been studied. The ore characteristics are very much similar to the adjacent Kalta Iron Mines of ML-130 with common boundary in the Southern side.</p>

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 AREA OF 25.981 Ha. DISTRICT- SUNDARGARH, ODISHA



Category of reserve	Field Guidelines	Studies carried out
G3 (Prospecting)	<p>1. Geological survey: (i) Mapping on 1:50,000 to 1:25,000 scale (for coal, lignite exploration mapping on 1:10,000); (ii) Linking of maps so prepared with topo-grids; (iii) Assessment of lithology, structure, surface mineralisation, analysis of old history of mining.</p>	<p>Detailed mapping of the area has been carried out in a scale of 1:2000. Assessment of lithology, structure etc. has been done in detail.</p>
	<p>2. Geochemical survey: Geochemical sampling, rock type-wise and if necessary, rock type-cum-skeletal soil-domain-wise (for all metallic mineral exploration).</p>	<p>Pit sampling was done and litho types recorded. The ore types in the lease area are northern extension of Barsua-Kalta iron belt in strike direction and situated adjacent to well explored Kalta Iron Mine. There is very close resemblance in physical and chemical properties of ore types in between two leases.</p>
	<p>3. Geophysical survey: Detailed ground geophysical work; bore-hole geophysical logging, if possible.</p>	<p>Geophysical survey could not be done due to non availability of forest clearance.</p>
	<p>4. Technological: (a) Pitting/trenching to explore bed rock/mineralised zone; (b) Drilling: Preliminary drilling (dry drilling for bauxite and in formation vulnerable to wash). Bore-hole spacing - (i) Coal, gypsum, near surface potash and salt-beds- 1000 to 2000 meters; (ii) Iron and manganese ore - 200 to 400 m; (iii) Limestone and dolomite - 400 to 500 m; (iv) Bauxite of thick capping - 300 to 400 m. (v) Chromite as regional lode - 300 m; (vi) Barytes formations - 400 to 500 m. (c) Sampling: Sampling at well-defined locations at surface and also from pits/trenches, boreholes and existing mine openings.</p>	<p>The lease area has been Explored by 23 nos of trial pits across the lease area. The extent of mineralization has been deciphered through litho types/ ore types encountered in the trial pits.</p>
	<p>5. Petrographic and mineragraphic study: (i) Petrographic study of rocks of the deposit and its surroundings, alterations (if any) connected with mineralisation; (ii) Determination of phase in which mineral of interest occur; (iii) Mineralogical studies including paragenesis, identification of zones of oxidation and primary zones, grain size distribution, overall characteristics of useful minerals.</p>	<p>Petrographic and mineralogical study of different litho types/Ore types encountered in the lease area has been studied. The ore characteristics are very much similar to the adjacent Kalta Iron Mines of ML-130 with common boundary in the Southern side.</p>

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FEASIBILITY AXIS

F2 (Pre-feasibility Study)	1. Geology: Local geology, mineralogy, identification of ore types and geometry.	The geology of the area has been discussed in the PFR (Prefeasibility Report).
	2. Mining: Methods, preproduction plan, development plan, manpower (rough estimate).	Mining plan has been prepared considering the required mining parameters and approved by statutory authority.
	3. Environment: Base line data on environment.	EIA EMP study has already been carried out.
	4. Processing: Proven laboratory scale/pilot scale beneficiation, investigation data, likely establishment,	The details of mineral handling with all the variables have been discussed in the FR
	5. Infrastructure and services, construction activities: Brief details	The same has been discussed in the PFR
	6. Costing: Capital and operating cost - rough estimates based on comparable mining operations.	The same has been discussed in the PFR
	7. Marketing: Overview like industrial structure, demand supply relation, pricing, etc.	The same has been discussed in the PFR
	8. Economic viability: Preliminary study of cash flow forecasts.	The same has been discussed in the PFR
	9. Other factors: Statutory provisions relating to labour, land, mining, taxation, etc.	The same has been discussed in the PFR
F3 (Geological study)	1. Geological and related study: (i) Geological, mineralogical and chemical analysis data; (ii) Topographical setting and nature of land; (iii) Infrastructure; (iv) Meteorological and preliminary ecology data if possible.	The same has been studied and discussed in the PFR
	2. The activities as above or less than that required for F 2.	The same has been discussed in the PFR

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ECONOMIC AXIS

E1(Economic)	1. Detailed exploration.	The geology of the area has been discussed in the FR. Detailed Exploration could not be carried out due to want of forest clearance. However, the ore body identified in the lease area through pitting and exposed working faces are strike ward extension of profitably working Kalta Iron Mine.
	2. Mining report /mining plan / working mines. (Above economic cut-off grade).	Mining plan has been prepared considering the required mining parameters and approved by statutory authority.
	3. Specific end-use grades of reserves	The mines will be a captive mines of M/s SAIL. Hence the ore will be fed to the Steel plants of M/s SAIL.
	4. Specific knowledge of forest/nonforest and other land use data.	The area comes under Reserved Forest. Application of forest clearance is already in process.
E2 (Potentially Economic)	1. Detailed exploration.	The geology of the area has been discussed in the FR. Detailed Exploration could not be carried out due to want of forest clearance. However, the ore body identified in the lease area through pitting and exposed working faces are strike ward extension of profitably working Kalta Iron Mine.
	2. Mining report /mining plan / working mines. (above & below economic cut-off grade).	Mineral Reject (Fe Content 45% to 58%) and Blocked Ore.
	3. Specific end-use grades of reserves	The mines will be a captive mines of M/s SAIL. Hence the ore will be fed to the Steel plants of M/s SAIL.
	4. Specific knowledge of forest/nonforest and other land use data.	The area comes under Reserved Forest. Application of forest clearance is already in process.

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E3 (Intrinsically Economic)	1. Reconnaissance to detailed geological study, rough estimates of grades (may be below economic cut-off), general idea about forest /non -forest and land use status.	Detailed mapping of the area has been carried out in a scale of 1:2000. Assessment of lithology, structure etc. has been done in detail. Pit sampling was done and litho types recorded. The ore types in the lease area are northern extension of Barsua-Kalta iron belt in strike direction and situated adjacent to well explored Kalta Iron Mine. There is very close resemblance in physical and chemical properties of ore types in between two leases. The area comes under Reserved Forest. Application of forest clearance is already in process.
	2. The activities as above or less than that required for E 2.	The same has been discussed in the PFR

Based on the above, the UNFC category wise reserve/resource estimated is summarized as follows:

Reserve/Resources as on 01.07.2019

MT= Metric Ton

Classification	Code	Quantity in MT	Grade
Total mineral resource (A+B)		21,86,913 21,52,357	Fe%
A: Mineral Reserves			
Proved Mineral Reserves	111	----	
Probable Mineral Reserves	121	----	
	122	2,58,736	>58%
B. Remaining Resources			
Feasibility mineral resources	211	----	
Pre-feasibility mineral resource	221	----	
	222	4,10,386 (Blocked) + 46,221 (Mineral Reject) =4,56,607	> 45%
Measured mineral resources	331	----	
Indicated mineral resources	332	----	
Inferred mineral resources	333	14,37,014	> 45%
Reconnaissance mineral resources	334	----	

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REVIEW OF MINING PLAN OF KALTA IRON MINE LEASE (ML-
AREA OF 25.981 Ha. DISTRICT- SUNDARGARH, ODISHA



- K) Furnish detailed calculation of reserves/resources section wise (When the mine is fully mechanized and deposit is of complex nature with variation of size, shape of mineralized zones, grade due to intrusion within ore zone etc, an attempt may be made to estimate reserves/resources by slice plan method). In case of deposits where underground mining is proposed, reserve/resources may be estimated by level plan method, as applicable, as per the proposed mining parameters.

A total of twelve geological cross-sections have been prepared to calculate the reserve of iron ore within the lease area of M.L-139.

The following parameters have been considered for estimation of reserve.

- i) Length of influence
- ii) Cross sectional area
- iii) Bulk Density
- iv) Recovery factor

Length of influence:

Length of influence has been considered different for different cross sections limiting to maximum 50 m on both side from the seen and exposed litho types in the test pits and mine faces of old working. The litho types/ ore types traced and plotted in the surface geological plan. Ore zone has been limited to the litho contacts.

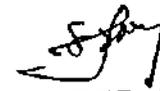
Cross sectional area:

Cross sectional area method has been adopted suitably to calculate the geological reserves. It consists of twelve nos. of cross sections at regular intervals oriented approximately at right angle to the regional trend of geological formations. At the same time, quarry excavation is taken in to consideration to prepare the sections across them to represent the benches in quarries and ore zone is computed for each section by means of graphical method in Auto-cad.

Bulk Density:

Approximate bulk density of iron ore has been considered different for different types of ore. These have been arrived based upon laboratory testing of few samples (Annexure XI) as below:

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Type of Ore	In Situ Bulk Density		
	Sample I(A)	Sample II (B)	Average
Hard laminated Ore (H.L.O)	3.56	3.42	3.49
Soft Laminated ore (SLO)	3.16	3.12	3.14
Lateritic Ore (L.O)	2.47	2.39	2.43
Blue dust	3.0	-	3.0

Recovery factor:

As per geological observation of the lease area, there is no considerable quantity of overburden, side burden and intercalated waste and the overall grade of the mineralized zone is +45% Fe. The mines has closed since 1988 and time series data is not available, hence recovery factor has been assumed as 100% as mentioned in the approved Modified Mining Plan (2019-20). The formula adopted to calculate the geological reserves is as follows.

$$Q=C \times L \times R F \times T$$

Where Q=Quantity of geological reserve in MT, C= Cross sectional area (sq m)

L= Length of influence (m), RF= Recovery factor (1)

T= Tonnage conversion factor (MT/m³)

The detailed Section wise calculation of Reserve/Resource for various litho types in Block 'B' is given below:

CROSS SECTIONAL RESERVES - HLO (ML-139, BLOCK-B)								
SECTION	AREA (A)			INFLUENCE (l)	RESERVES (A x l x 3.49 t/m ³)			TOTAL
	122	222	333		122	222	333	
G2-G2'	0	440	0	97	0	148953	0	148953
G3-G3'	425	22	0	70	103828	5375	0	109202
G4-G4'	146	85	0	98	49935	29072	0	79007
G5-G5'	0	405	0	70	0	98942	0	98942
G6-G6'	0	144	78	62	0	31159	16878	48036
Total	571	1096	78	--	153762	313500	16878	484140

CROSS SECTIONAL RESERVES - SLO (ML-139, BLOCK-B)								
SECTION	AREA (A)			INFLUENCE (l)	RESERVES (A x l x 3.14 t/m ³)			TOTAL
	122	222	333		122	222	333	
G2-G2'	0	70	85	92	0	20222	24555	44776
G3-G3'	331	36	0	101	104973	11417	0	116390
G4-G4'	0	26	41	74	0	6041	9527	15568
G5-G5'	0	78	0	46	0	11266	0	11266
Total	331	210	126	--	104973	48946	34082	188001

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CROSS SECTIONAL RESERVES - LATERITIC ORE (ML-139, BLOCK-B)								
SECTION	AREA (A)			INFLUENCE (I)	RESERVES (A x I x 2.43 t/m ³)			TOTAL
	122	222	333		122	222	333	
G1-G1'	0	0	519	58	0	0	73148	73148
G2-G2'	0	151	0	51	0	18713	0	18713
G3-G3'	0	10	0	62	0	1507	0	1507
G4-G4'	0	102	0	78	0	19333	0	19333
G5-G5'	0	28	478	98	0	6668	113831	120499
Total	0	291	997	-	0	46221	186979	233200

CROSS SECTIONAL RESERVES - BLUE DUST (ML-139, BLOCK-B)								
SECTION	AREA (A)			INFLUENCE (I)	RESERVES (A x I x 3 t/m ³)			TOTAL
	122	222	333		122	222	333	
G6-G6'	0	170	0	94	0	47940	0	47940
Total	0	170	0	-	0	47940	0	47940

CROSS SECTIONAL RESERVES - SLO (ML-139, BLOCK-A)								
SECTION	AREA (A)			INFLUENCE (I)	RESERVES (A x I x 3.14 t/m ³)			TOTAL
	122	222	333		122	222	333	
G7-G7'	0	0	258	94	0	0	76151	76151
G8-G8'	0	0	434	97	0	0	132188	132188
G9-G9'	0	0	925	93	0	0	270119	270119
G10-G10'	0	0	577	93	0	0	168496	168496
G11-G11'	0	0	833	93	0	0	243253	243253
G12-G12'	0	0	620	120	0	0	233616	233616
Total			3647		0	0	1123822	1123822

CROSS SECTIONAL RESERVES - LATERITIC ORE (ML-139, BLOCK-A)								
SECTION	AREA (A)			INFLUENCE (I)	RESERVES (A x I x 2.43 t/m ³)			TOTAL
	122	222	333		122	222	333	
G7-G7'	0	0	---	---	0	0	---	---
G8-G8'	0	0	---	---	0	0	---	---
G9-G9'	0	0	---	---	0	0	---	---
G10-G10'	0	0	333	93	0	0	75255	75255
G11-G11'	0	0	---	---	0	0	---	---
G12-G12'	0	0	---	---	0	0	---	---
Total			333	---			75255	75255

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AREA OF 25.981 Ha. DISTRICT- SUNDARGARH, ODISHA



Mineable reserve

Mineable reserve in probable category has been calculated deducting the reserve that would be blocked under the pit slope and within the safety zone. The mineable reserve within the area thus is as follows.

MT=Metric tonnes

Grade	Probable (G2) MT
Saleable(>58 % Fe)	2,58,736
Mineral Reject (45 -58 %Fe)	0
Total	2,58,736

The mineable reserve of iron ore is 2,58,736 MT

Grade: Grade wise reserve could not be ascertained as detailed exploration is yet to be carried out. Iron ore of > 58% Fe is considered as good and marketable grade. The average content of Fe is more than 58% Fe as revealed from the chemical analysis (Annexure XI). Hence to maintain the quality of finished product to be dispatch to SAIL steel plants cut off grade of ROM has been considered as Fe 58% considering threshold value of Fe 45%. The reserve in between 45-58% Fe has been taken as Mineral reject.

1) Mineral reserves/Resources:

Mineral Resources: (Mineral resources may be estimated purely based on level of exploration, with reference to the threshold value of minerals declared by IBM)

The threshold value and cut off value of Fe% has been considered during calculation of reserve is 45% and 58% respectively. Mineral reserves/Resources as on 01.07.2019 is given below-

Classification	Code	Quantity in MT	Grade
Total mineral resource (A+B)		21,86,913	Fe%
A. Mineral Reserves			
Proved Mineral Reserves	111	-----	
Probable Mineral Reserves	121	-----	
	122	2,58,736	>58%
B. Remaining Resources			
Feasibility mineral resources	211	-----	
Pre-feasibility mineral resource	221	-----	
	222	4,10,386 (Blocked) + 46,221 (Mineral Reject) =4,56,607	> 45%

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 AREA OF 25.981 Ha. DISTRICT- SUNDARGARH, ODISHA



Measured mineral resources	331	----	
Indicated mineral resources	332	----	
Inferred mineral resources	333	14,37,014	> 45%
Reconnaissance mineral resources	334	----	

Note 1: It was not be possible to quantify grade wise reserves, as normally there is considerable variation in size and grade distribution within the ore zone, which results variable recovery factor and bulk density. Thus tonnages arrived are tentative.

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2.0 MINING

A. OPEN CAST MINING:

- a) Briefly describe the existing as well as proposed method for excavation with all design parameters indicating on plans /sections.

Existing and proposed method of mining

The mode of occurrence of iron ore within the lease hold has persuaded the lessee to work by open cast mining method on single shift basis. As such, during the course of operation in the previous years, the lessee has opened up a single quarry in Block-B. The ML 139 lease comes under Category – A (Other than fully mechanized category) as per the IBM guidelines.

For the five year plan period (2020-21 to 2024-25) it is proposed to continue the mining operation with the same practice in the block-B for sustainable development because 1) the ore body has been delineated through detail mapping and pitting, 2) The different types of ore body has been exposed in the existing quarry benches which facilitate proper blending for mineral conservation with consistent finished quality and 3) easy accesses for development of the block as Block-B is adjacent to existing operational mine pit (Kalta C-Block) of MI-130.

The deposit will be worked by opencast mining method with formation of benches by drilling and blasting. The working benches will be of 6 m height and 10 m wide. 100 mm diameter holes will be drilled with the help of wagon drills to a depth of 6.6 m with 10% sub-grade drilling at a spacing and burden of 3 m x 2.5 m in ore, mineral reject and waste. For primary blasting 83 mm, 2.78 kg slurry/ emulsion explosive cartridges will be used whereas secondary blasting will be done by plaster shooting. The blasted boulders will be manually sized and sorted to around 300 mm average size. The sorted boulders will be thereafter stacked for measurement and loaded into trucks of 10t capacity. The area offered favorable topography for developing approach road up to the pit excavation site. Machineries like excavator, pay loader, tipper and wagon drill were being deployed in the mine. The ore produced from the mine will be transported by tippers. Part of the waste generated during excavation will be transported by tippers for peripheral development and rests will be dumped in the dumping site. OTFM-A method of mining on single shift basis will be practiced in the lease area during the mining plan period. Mine approach roads having suitable gradient i.e. 1 in 16 to 1 in 20 are to be developed for smooth and safe transportation of ores and waste material. Steps are to be provided within

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benches for easy movement of workers. The individual benches faces will be maintained around 70° or less and the overall slope will be maintained at less than 45°. Backfilling of iron ore quarries cannot be commenced unless it is exhausted from the lease area.

The mine working is proposed to be restricted within the influence zone of section lines. As ML-139 consists of very small non-mineralised area, it is not possible to dump all the waste material within the dump. Therefore it is proposed to utilise the waste material of first three years of the ensuing plan period in peripheral development work. Accordingly, the generated waste will be utilise in void filling and levelling of broken safety zone, making roads etc. Waste produced from the lease area in the last two years of the ensuing plan period will be dumped at the selected site covering 0.9 ha in the north western part of the Block-B area after proving the barrenness. The detail lay out of the proposed quarries and-sections are shown in plate -VI.

Description of the existing quarries and dumps:

Mining activities have been carried out in the lease area since commencement of the lease till 1987-88. Presently the mine is temporarily discontinued since 1988 for required statutory clearances. In course of mining one iron ore pit has been developed in the lease area. The iron quarry extends from about 2433424 N to 2433860 N in north-south direction and 317112 E to 317245 E in east-west direction. Details of the existing quarry in Block-B have been given below.

Sl. No.	Location	Length (m)	Width (m)	No. of Benches	Top mRL	Bottom mRL	Remarks
1	2433424 N to 2433860 N - 317112 E to 317245 E	436	233	6	846	810	

No waste dump exists within the lease area.

Development of iron ore during the year 2020-21

During the plan period 2020-21 it has been proposed to develop the south western side of the lease area. The existing iron pit has been proposed for development. To fulfil the required production target, section namely M4-M4' has been considered. In the process of development two nos. of benches will be formed. The bench will proceed from east to west and the orientation

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of the bench SW to NE. At the end of the year the bottom of the quarry will go up to 812mRL. The total area developed during this year will be inside the existing quarry. The total quantity of saleable ore, waste to be generated, bench geometry and quarry development particulars for the year are as follows.

Particular for the year		
Bench Geometry	Height (m)	6
	Width (m)	10
	Individual bench slope angle	70°
Quarry Development	Location of Development in UTM coordinate	N2433627 to N2433702 & E317251 to 317316
	Cross-sections considered for development	M4-M4'
	Benches considered for development with RL	1) 812mRL -818mRL 2) 818mRL-824mRL
	Direction of advancement	West to East
	Dimension of the quarry at the end of the year including existing benches in m (Length X Width)	436 X 233
	Over all quarry slope angle	<45°
	Production of saleable iron ore (MT)	49,935
	Generation of Mineral rejects ore from quarry (MT)	0
	Total Production of ROM (Ore+Mineral Reject) in MT	49,935
	Volume of waste generation (Cum)	10,115

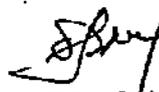
Development of iron ore during the year 2021-22

During this year it has been proposed to proceed from the north eastern side of the previous year development. Here section M3 – M3' has been considered for the exploitation purposes. In this year three nos. benches will be developed and the benches will proceed from east to west and the orientation of the bench SW to NE. At the end of the year the bottom of the quarry will go up to 826mRL.

The total quantity of saleable ore, waste to be generated, bench geometry and quarry development particulars for the year are as follows.

Particular for the year		
Bench Geometry	Height (m)	6
	Width (m)	10
	Individual bench slope angle	70°
Quarry Development	Location of Development in UTM coordinate	N2433696 to N2433757 & E317321 to E317415


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Cross-sections considered for development	M3-M3'
Benches considered for development with RL	1) 826mRL-832mRL 2) 832mRL-838mRL 3) 838mRL-844mRL
Direction of advancement	West to East
Dimension of the quarry at the end of the year including existing benches in m (Length X Width)	436 X 233
Over all quarry slope angle	<45°
Production of saleable iron ore (MT)	49,544
Generation of Mineral rejects ore from quarry (MT)	0
Total Production of ROM (Ore+Mineral Reject) in MT	49,544
Volume of waste generation (Cum)	2,912

Development of iron ore during the year 2022-23

In this year exploitation of iron ore has been proposed at the western side of the previous year development. Cross section M3 – M3' has been considered for the fulfilment of the targeted production. Two nos. of benches will be developed during this year. The bench will be move from east to west. At the end of the year the bottom of the quarry will go up to 820mRL.

The total quantity of saleable ore, waste to be generated, bench geometry and quarry development particulars for the year are as follows.

Particular for the year		
Bench Geometry	Height (m)	6
	Width (m)	10
	Individual bench slope angle	70°
Quarry Development	Location of Development in UTM coordinate	N2433712 to N2433777 & E317301 to E317391
	Cross-sections considered for development	M3-M3'
	Benches considered for development with RL	1) 820mRL -826mRL 2) 826mRL -832mRL
	Direction of advancement	West to East
	Dimension of the quarry at the end of the year including existing benches in m (Length X Width)	436 X 233
	Over all quarry slope angle	<45°
	Production of saleable iron ore (MT)	49,733
	Generation of Mineral rejects ore from quarry (MT)	0
	Total Production of ROM (Ore+Mineral Reject) in MT	49,733
	Volume of waste generation (Cum)	2,940

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Development of iron ore during the year 2023-24

During this year it has been proposed to proceed from the western side of the previous year development. Cross section M3 – M3' consider for the exploitation of iron ore from the lease area. In this year two nos. benches will be developed and at the end of the year the bottom of the quarry will go upto 814 mRL. The bench will proceed from east to west and the orientation of the bench will be SW to NE.

The total quantity of saleable ore, waste to be generated, bench geometry and quarry development particulars for the year are as follows.

Particular for the year		
Bench Geometry	Height (m)	6
	Width (m)	10
	Individual bench slope angle	70°
Quarry Development	Location of Development in UTM coordinate	N2433720 to N2433779 & E317289 to E317390
	Cross-sections considered for development	M3-M3'
	Benches considered for development with RL	1) 814mRL -820mRL 2) 820mRL -826mRL
	Direction of advancement	West to East
	Dimension of the quarry at the end of the year including existing benches in m (Length X Width)	436 X 233
	Over all quarry slope angle	<45°
	Production of saleable iron ore (MT)	49,405
	Generation of Mineral rejects ore from quarry (MT)	0
	Total Production of ROM (Ore+Mineral Reject) in MT	49,405
	Volume of waste generation (Cum)	6,942

Development of iron ore during the year 2024-25

During this year it has been proposed to proceed from the western side of the previous year development. Cross section M3 – M3' consider for the exploitation of iron ore from the lease area. In this year three nos. benches will be developed and at the end of the year the bottom of the quarry will go upto 798 mRL. The bench will proceed from east to west and the orientation of the bench will be SW to NE.

The total quantity of saleable ore, waste to be generated, bench geometry and quarry development particulars for the year are as follows.

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Particular for the year		
Bench Geometry	Height (m)	6
	Width (m)	10
	Individual bench slope angle	70°
Quarry Development	Location of Development in UTM coordinate	N2433727 to N2433805 & E317279 to E317350
	Cross-sections considered for development	M3-M3'
	Benches considered for development with RL	1) 798mRL -802mRL 2) 802mRL -808mRL 3) 808mRL -814mRL
	Direction of advancement	West to East
	Dimension of the quarry at the end of the year including existing benches in m (Length X Width)	436 X 233
	Over all quarry slope angle	<45°
	Production of saleable iron ore (MT)	49,725
	Generation of Mineral rejects ore from quarry (MT)	0
	Total Production of ROM (Ore+Mineral Reject) in MT	49,725
	Volume of waste generation (Cum)	848

b) Indicate year-wise tentative Excavation in Cubic Meters indicating development, ROM, pit wise as in table below.

MT= Metric Ton

YEAR	PIT NO.	TOTAL EXCAVATION (m ³)	TOP SOIL (m ³)	OB/SB/IB (m ³)	ROM (m ³)		ORE (MT)	MINERAL REJECTS	ROM/WASTE RATIO (MT/m ³)
					ORE (m ³)	MINERAL REJECTS (m ³)			
2020-21	Iron pit	24,423	0	10,115	14,308	0	49,935	-	1:0.20
2021-22	Iron pit	17,108	0	2,912	14,196	0	49,544	-	1:0.06
2022-23	Iron pit	1,7190	0	2,940	14,250	0	49,733	-	1:0.06
2023-24	Iron pit	21,220	0	6,942	14,278	0	49,830	-	1:0.14
2024-25	Iron pit	15,079	0	848	14,231	0	49,666	-	1:0.02
TOTAL		95,020	0	23,757	71,263	0	248,708	-	1:0.10

Note: Tentative tonnage of the saleable material has been arrived by computing approximate bulk density and recovery factor as these data are variable and are to be established on time series.

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REVIEW OF MINING PLAN OF KALTA IRON MINE LEASE (ML-139) OF AREA OF 25.981 Ha. DISTRICT- SUNDARGARH, ODISHA



I. Insitu tentative excavation of Iron Ore:

Tentative tonnage of the saleable material has been arrived by computing approximate bulk density and recovery factor as these data are variable and are to be established on time series. Thus, tentative tonnage arrived is as below:

YEAR	PIT NO.	TOTAL EXCAVATION (MT)	TOP SOIL (MT)	OB/SB/IB (MT)	ROM (MT)		MINERAL REJECTS	ROM/WASTE RATIO (MT/m ³)
					ORE (MT)	MINERAL REJECTS (MT)		
2020-21	Iron pit	74,211	0	24,276	49,935	0	-	1:0.20
2021-22	Iron pit	56,533	0	6,989	49,544	0	-	1:0.06
2022-23	Iron pit	56,789	0	7,056	49,733	0	-	1:0.06
2023-24	Iron pit	66,491	0	16,661	49,830	0	-	1:0.14
2024-25	Iron pit	51,701	0	2,035	49,666	0	-	1:0.02
TOTAL		305,725	0	57,017	248,708	0	-	1:0.10

Break-up of saleable and Mineral reject

YEAR	Total ROM (m ³)	Saleable (MT)	Mineral reject (MT)	Total ore (MT)
2020-21	14,308	49,935	0	49,935
2021-22	14,196	49,544	0	49,544
2022-23	14,250	49,733	0	49,733
2023-24	14,278	49,830	0	49,830
2024-25	14,231	49,666	0	49,666
TOTAL	71,263	248,708	0	248,708

अनुमोदित
APPROVED

(Signature)
3/11/19

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REGIONAL CONTROLLER OF MINES
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YEARWISE DEVELOPMENT TABLE OF ML-139 (BLOCK-B)

Year	Sec Considered	No. of Benches	Bottom mRL	L.O.I. (ORE) (m)	X-Sec. Area of Ore (m ²)	Vol. of Ore (m ³)	Total Quantity of Ore (MT)	L.O.I. (OB) (m)	X-Sec. O.B area of (m ²)	Vol. of O.B (m ³)	Total Vol. of Excavation (m ³)	Stripping ratio (m ³ /MT)
a	b	c	d	e	F	g = exf	h = gxT.F	i	J	k = i x j	m = g + k	n = k / h
2020-21	M4-M4'	2	812	98	146	14308	49935	85	119	10115	24423	1:0.20
2021-22	M3-M3'	3	826	91	156	14196	49544	91	32	2912	17108	1:0.06
2022-23	M3-M3'	2	820	114	125	14250	49733	70	42	2940	17190	1:0.06
2023-24	M3-M3'	2	814	118	121	14278	49830	89	78	6942	21220	1:0.14
2024-25	M3-M3'	3	798	107	133	14231	49666	53	16	848	15079	1:0.02

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II. Dump re-handling (for the purpose of recovery of mineral):

As at present, there is no existing dump within the lease area. Hence no proposal of dump re-handlings has been given in the plan period.

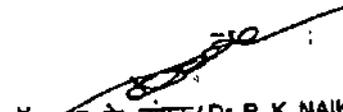
- c) Enclose Individual year wise development plans and sections showing pit layouts, dumps, stacks of mineral reject, if any, etc. in case of 'A' category mines. Composite development plans showing pit layouts, dumps, stacks of mineral reject, if any, etc. and year wise sections in case of 'B' category mines.

All the activities proposed in this mining plan period will be under Opencast semi-mechanized under category A (OTFM) mine. The development plan & sections, Dump plan & section have been furnished in Plate No. VI.

- d) Describe briefly giving salient features of the proposed method of working indicating Category of mine.

It is planned to adopt the "OTFM A" open-cast mining method in plan period. The height of the individual benches shall be made and maintained at 6m and width of minimum 10 m. 100 mm diameter holes will be drilled with the help of wagon drills to a depth of 6.6 m. with 10% sub-grade drilling at a spacing and burden of 3 m x 2.5 m. The overall bench slope will be maintained at 45°. For primary blasting 83 mm, 2.78 kg slurry/ emulsion explosive cartridges will be used whereas secondary blasting will be done by plaster shooting. Blasting will be generally carried out once in a week. The blasted boulders will be manually sized and sorted to around 300 mm average size. The sorted boulders will be thereafter stacked for measurement and loaded into trucks of 10t capacity. Hence, "OTFM" opencast method of mining is proposed to be continued. The mine working is proposed to be restricted within the influence zone of section lines. The detail lay out of the proposed quarries and sections are shown in Plate No. VI. Mine approach roads having suitable gradient i.e. 1 in 16 to 1 in 20 are to be developed for smooth and safe transportation of ores and waste material. Steps are to be provided within benches for easy movement of workers.

It is proposed to operate the mines on single shift basis. Keeping in view of holidays, stoppage of work due to rain and other un-foreseen circumstances 300 days per year have been considered for effective mining operation. The blasted boulders will be manually sized and


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sorted to around 300 mm average size. The sorted boulders will be thereafter stacked for measurement and loaded into trucks of 10t capacity. The boulders will be subjected to manual breaking and sizing. The lumps (-40+10mm) and fines (-10mm) will be segregated, which will in turn be transported to the Roxy railway siding at a distance of around 22 km by 20t trucks. Overburden/ Inter-burden will be loaded through 0.9-1.0 cum excavator into 10 t/ 20t dumpers for its disposal in the proposed dump. Rock breakers will be used in case of large size boulders. The type and quantity of mining machineries proposed are as mentioned below-

Drilling

Diameter of the blast hole	:	100mm
Height of the bench	:	6m
Sub-grade drilling	:	0.6m
Length of the hole	:	6.6m
Burden	:	3.0m
Spacing	:	2.5m
Volume of earth to be broken/loosen per hole.	:	$3.0 \text{ m} \times 2.5 \text{ m} \times 6 \text{ m} = 45 \text{ m}^3$

Meter age of drilling per year

Vol. of excavation per year : 24,423 m³

(Including ore and waste)

Assuming 60% of the vol.

Number of holes to be drilled $14,654 \text{ m}^3 / 45 \text{ m}^3 = 325.64$ or say 326 nos.

Meterage of drilling to be required $326 \times 6.6 = 2151.6$ mor say 2152 m.

Meter age of drilling per drill:

Speed of the drill=10m/Hr

No. of working days in a year=300

Efficiency=60%


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No. of shift per day 1

Meterage of drilling to be effected/ year $300 \times 10 \times 8 \times 1 \times 60\% = 14400 \text{ m}$.

Required Drill

Total meterage to be drilled /year

No. of drills required=

Total meterage to be drilled/year

Total meterage can drilled/year/ drill

= $2152 \text{ m} / 14400 \text{ m} = 0.15$ or say 1 no.



Compressor requirement

One compressor of 12 Cu.m /min capacity will be sufficient at the mine site to operate the said drills effectively.

During the blasting, in case of large boulder formation rock breaker will be used for breaking large boulder to avoid secondary blasting.

Blasting

Drilling and blasting will be required for loosening of the rock mass for ease in excavation. Controlled blasting along with Shock tube initiation system/NONEL system of blasting will be adopted for getting optimum blast result and minimization of flying rocks.

Broad blasting parameters

Drill holes will be drilled in single rows as well as in multi row on staggered pattern by wagon drills. However, drilling, blasting parameters are chosen as follows-

Sl. No.	Parameters	Magnitude	
1	Dia. of the hole	100mm	
2	Drilling pattern	Burden	2.5m
		Spacing	3.0m
3	Depth	Blast hole	6m
		Sub-grade drilling	0.6m
		Total	6.6m
4	Nature of the hole	Vertical	

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5	Type of main explosive	Name	SMS
6	Powder factor		6 t/kg
7	Requirement of explosive	Quantity/hole	23.55 kg
		Quantity/single blast	235.5 kg
8	Initiative explosive	Detonator	OD
		Fuse	NONEL
9	Type of blasting	Frequency of blasting	Primary
10	Yield/hole		49.5 m ³

Blasting induced vibration study is proposed to be carried out immediately after opening of mine and accordingly optimum charge per delay and most suitable drilling and blasting design along with initiation/firing pattern would be deciphered.

Type of explosive to be used

Shock tube initiation system/NONEL system of blasting will be adopted for getting optimum blast result and minimization of flying rocks.

Storage and transportation of explosives

The mine management has a magazine of 7.725 t capacity, which will be common for the adjacent ML 130, 139 & 227 leases.

Loading equipment

Loading of waste to tippers will be done by using Poclain of 0.9 m³ bucket capacity.

Excavation

Specification	
Bucket capacity	= 0.9CuM
Production efficiency [machine operating efficiency + job management efficiency]	= 90%
Time cycle/pass at 90 ⁰ swing	= 25sec
Excavating Parameters	
Nominal bucket capacity	= 0.9CuM
Average nominal bucket capacity [C]	= 1CuM

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Bucket fill factor [f]	= 0.9
Time cycle/pass at 90° swing [T]	= 25sec
Swell factor [s]	= 0.7
Production efficiency factor [e]	= 0.9
Seconds per hour [t]	= 3600
Depth of cut factor [d]	= 0.95
Rate of production:	
Output/shovel/hour	= $C \times f \times s \times d \times e \times t \div T = 1 \times 0.9 \times 0.7 \times 0.95 \times 0.9 \times 3600 \div 25$ = 77.57Cum
Output/shovel/shift with 5hours effective working time.	= 77.57x 5 = 387.85CuM or say 388 m ³
Number of excavator(s) required	= Total vol. of excavation handling in a day ÷ Handling capacity of one excavator per day
Max total excavation and O.B. handling per day (Considering excavation of overburden, excavation of RoM of iron and 300 working days in a year)	= 24,423 m ³ ÷ 300 = 81.41m ³ say 82 m ³
Excavator required to be engaged	= 82 ÷ 388 = 0.21 or say 1no.

Transportation of waste

Over burden/waste will be dumped. The waste generated at the quarry face will be loaded in to dumper by excavators and dumped at dumping site by dumpers. However excavator and tipper/dumper matching calculation are made as follows:

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Dumper / Tipper parameters

Parameters	
Truck capacity	10 t
Swelling volume	90%
Swell factor	0.8
Average bucket capacity	0.9m ³
Tonnage factor	3t/m ³
Tonnes per pass	0.9x0.8x0.9x3=1.944
No. of passes	Tonnage rating per tipper/ tonnes per pass=10/1.944=5 Pass .

Tipper cycle time:

Loading time	No. of passes x time cycle per pass 5 x 35 = 175 sec
Hauling time	Lead K.M. / avg. haul speed (Kmph) 0.5/15 = 120 sec
Unloading time	60 sec
Returning time	0.5 / 20 = 90 sec
Spotting time	60 sec
Tipper cycle time	175 + 120 + 60 + 90 + 60 = 505 seconds

Tipper requirement:

Overall utilisation factor	0.6
No. of tippers	Tipper cycle time 505 seconds Excavator cycle time 175 + spotting time 60 = 2.14 say 3 nos. per excavator. Total tippers required are 3x 1= 3 nos.

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Transportation of marketable ore

The marketable iron ore will be dispatched to the nearest stack, located at a distance of about 0.2 km from the project site.

Annual rate of marketable

iron ore production = 49,935MT

Average daily rate of production = $49,935/300 = 166.45$ MT Say 166MT

Average daily quantum of ore to be

transported to the railway site = 166MT

Capacity of tipper = 10 T

Required no. of trips/day = $166/10 = 16.60$ or say 17

No of trips can be transported per tipper

Per day of one shift working = 30

No of tippers required per day = $17/30 = 0.57$ or say 1

Standby to meet repair and

Maintenance time = 1

Water tank mounted truck = 1

Total = 1+1+1 = 3 Nos.

The list of existing and proposed mining machineries furnished below

Sl no.	Equipment	Specification	Existing	Proposed
1	Excavator	0.9m ³ capacity	Nil	1
2	Wagon drill	BMC-150	Nil	1
3	Tippers	Tata (10T)	Nil	6
4	Compressor	Holman TA 13T	Nil	1
5	Jack hammers	Atlas Copco	Nil	2
6	Rock breaker	---	Nil	1
7	Water Tanker	TMB	Nil	1
8	Water pump	10HP	Nil	3

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- e) Describe briefly the layout of mine workings, pit road layout, the layout of faces and sites for disposal of overburden/waste along with ground preparation prior to disposal of waste, reject etc. A reference to the plans and sections may be given. UPL or ultimate size of the pit is to be shown for identification of the suitable dumping site.

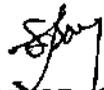
All the activities proposed in this plan period will be under opencast semi-mechanized category A (OTFM) mine. The development plan & sections, Dump plan & section have been furnished in Plate No. VI.

The site selection for dumping will be based upon the results of borehole proposed to prove the barrenness of the area. As the lease area is yet to be explored in detail, boreholes have been proposed to identify mineralised zone in the present plan period after commencement of mining operation. Therefore, no area right now can be declared as barren. However, for planning purpose areas which seem to be barren from geological observations and outside the Ultimate Pit Limit have been selected for site preparation of future dumping purpose. The dumping site is selected to the north western side of the existing quarry on BHJ zone area and outside of UPL limit. After commencement of mining operation, exploratory drilling would be drilled to prove the barrenness. The waste generated during the ensuing plan period from 2020-21 to 2022-23 will be utilised in filling and levelling of the disturbed part of safety zone areas & peripheral development works. And the waste produced during the subsequent plan period from 2023-24 to 2024-25 will be dumped at the proposed waste dumping site located at north western portion of Block- B covering 0.9 ha. if the area is proved to be barren after completion of proposed exploration. The detail layout of the proposed dumps are shown in plate No. VI.

- f) Conceptual Mine planning upto the end of lease period taking into consideration the present available reserves and resources describing the excavation, recovery of ROM, Disposal of waste, backfilling of voids, reclamation and rehabilitation showing on a plan with few relevant sections.

ML-139 comprises of two blocks namely Block-A & Block-B. Considering the available exploration data, the resource of iron ore in Block-A is 11,99,077 MT and the resource of iron ore in Block-B is 9,53,281 (the total reserve is 21,52,357). Till the end of five years of this plan period 2,48,708 MT of iron ore will be exhausted from Block-B leaving only 19,03,649 Mt of

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iron ore. Hence keeping in view the maximum production of iron ore target at 50,000 TPA per annum, the life of the mine will be $19,03,649 / 50,000 = 38$ years. Hence the life of the mine will be 38 years.

However, the life of the mine is relative & will depend on increase & decrease of production in subsequent years and result of exploration.

The conceptual mine plan & section is shown in Plate No. IX & IX (A)

Ultimate extent and size of the quarry

In the lease area, only iron ore will be exploited. ML-139 comprises of two blocks namely Block-A & Block-B. At the northern side of the lease area Block-A is situated in which iron ore will be developed after converting the inferred reserve in to mineable category after completion of proposed exploration. At the southern side of the lease area Block-B is present in which iron ore will be exploited in the plan period as well as in the conceptual stage. The reserve forest area that separates two blocks is not included within the lease area. Ultimately two mineralized areas will be exploited within the leasehold. The extents of mineralized zone of northern side (Block-A) will be 83,134 m² and the extent of mineralized zone of southern side (Block-B) will be 1,04,156 m². However, considering the validity of lease period (upto 2025) and proposed excavation plan (2020-21 to 2024-25), the Ultimate Pit Limit (UPL) have been designed. Hence the total ultimate pit limit will be 41,283 m² or 4.13 ha. The iron quarry will reach up to 798 mRL in Block-B.

Ultimate slope angle

During the plan period, the individual benches will kept nearly vertical with 70° – 80° slope angle. Keeping the height and minimum width of the benches at 6m and 10m respectively, the ultimate pit slope will be kept at around 45° at the close of the mine.

Ultimate pit limit boundaries

The ultimate pit limit boundaries have been earmarked in conceptual plan Plate No. IX).

Ultimate capacity of dump

Considering the present level of exploration and validity of lease period the conceptual plan has been made. Due to non-availability of reserve under mineable category there is no proposal of excavation made and accordingly no waste will be generated from Block-A. Production plan

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have been proposed from Block-B only. Conceptually, volume of waste to be generated from the iron quarry of Block- B will be 23,757 m³. So a total vol. of 23,757 m³ wastes will be utilized in backfilling and peripheral development works. In the plan period 23,757m³ of overburden/waste will be generated, out of which vol. of 615 m³ waste will be utilized for filling of the disturbed areas in safety zone around the iron pit in the eastern and southern side of Block-B and a volume of 15,352 m³ waste will be used in infrastructure development works. It has been proposed to dump the balance waste of 7,790 m³ generated from the fourth year of ensuing plan period over the proposed dump of an area of 9002 m² or 0.9 ha. Ultimately, there will be no dump within the lease area as the exhausted areas will be backfilled using the stored wastes.

Ultimate Mineral reject stack

Considering present level of exploration and validity of lease period no mineral reject will be generated till the end of the conceptual period.

Land degradation and/reclamation/afforestation

During conceptual period an area of 6.91 ha will be mined out. As the total area is yet to be explored, no backfilling proposal has been proposed in this plan period.

However, based on outcome of the proposed exploration, suitable planning would be made for reclamation of the quarries. Conceptually, the exhausted quarries will be backfilled using the generated wastes and the backfilled areas will be rehabilitated through plantation.


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The land use pattern at the conceptual period is as follows:

Type of land Use	At present (ha)	Additional area during the plan period (ha)	Total (ha)	As at the Conceptual Period (ha)	As at the Final Closure Plan period (ha)
Area under excavation	6.91	0	6.91	6.91	6.91
Overburden Dump	0	0.9	0.9	0.9	0
Mineral storage	0	0.45	0.45	0.45	0
Storage for top-soil	0	0	0	0	0
Mineral reject storage	0	0	0	0.17	0
Infrastructure (shelter, other buildings)	0	0.002	0.002	0.002	0.002
Township	0	0	0	0	0
Roads	0.1	0.34	0.44	2.483	2.483
Ancillary activities including float mining	0	0	0	0	0
Retaining wall, garland drain & settling tank around dump, Plantation, etc.	0	0.9148	0.9148	0.786	0
Safety Zone to be maintained with plantation. (including disturbed area covering 0.0112 ha in the safety zone with wastes and subsequently covered with plantation)		2.46	2.46	2.46	0
Sub total	7.01	5.067	12.077	14.161	9.395
Undisturbed area	18.971	-	13.904	11.82	11.82
Total	25.981	5.0668	25.981	25.981	21.215

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Planned post mining land-use pattern of the ML – 139 Mining Lease is as follows

Sl. No.	Description	Land use (ha)				
		Plantation	Water Body	Public use	Undisturbed area	Total
1	Mining area	6.91	-	-	-	6.91
2	Dumps, mineral storage (External waste, top soil, & Mineral rejects)	1.52	-	-	-	1.52
3	Infrastructure (rest shelter, other buildings)	-	-	0.002	-	0.002
4	Roads	-	-	2.483	-	2.483
5	Retaining wall, garland drain & settling tank around dump, Plantation, etc.	0.786	-	-	-	0.786
6	Safety zone to be maintained with plantation	-	-	-	2.46	2.46
7	Undisturbed area	-	-	-	11.82	11.82
	Total	21.036	Nil	2.485	14.28	25.981

B. UNDERGROUND MINING

Not applicable

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3.0 MINE DRAINAGE

- a) Minimum and maximum depth of water table based on observations from nearby wells and water bodies

The minimum and maximum depth of water tables 10 and 15m below the general surface level as observed in the dug-wells of the locality. Water table is present in the area at minimum depth is 730mRL and maximum depth is 725mRL as it is observed from nearby wells and water bodies.

- b) Indicate maximum and minimum depth of Workings.

Since mining is carried out in hilly area, water table is not intersected as it is planned to be worked up to a depth of 798 mRL at the end of the plan period which is above the ground water table. Therefore such depth of working would not affect the ground water table.

Name of The Quarry	Existing depth (mRL)		At the end of plan period (mRL)		At the end of conceptual period (mRL)		Depth of water table (mRL)
	Top	Bottom	Top	Bottom	Top	Bottom	
Block-B	846	810	846	798	846	798	725

- c) Quantity and quality of water likely to be encountered, the pumping arrangements and places where the mine water is finally proposed to be discharged

The trend of natural drainage pattern in the area is towards west. The surface run-off water will find clear access into the existing seasonal nala during rains. Since mining is carried out in hilly area, water table is not intersected as the general ground water table observed in the dug-wells of the locality is 10 to 15m below the general surface level.

As the lease area is part of the undulating hill, the surface run-off water will be channelized through the existing two seasonal nalas, one in Block- A and the other in Block- B. To arrest the suspensions of the flowing water, check dams made up of cement concrete will be provided within the nala course in a staggered pattern (Plate No. VII). The length of each check dam would be 3m, width - 2m and height of 2m.

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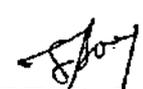
- d) Describe regional and local drainage pattern. Also indicate annual rain fall, catchments area, and likely quantity of rain water to flow through the lease area, arrangement for arresting solid wash off etc.

M.L-139 totally comes under Toda reserve forest. Karo river is located at a distance of about 4 Km. in south east direction of the mining lease area constitutes the principal drainage system. A dry nala flowing in the lease area (Block-B) from east to west. The flow of water in the nala is restricted to the rainy season only.

The mine working will be on hill slope. The average annual rainfall in the catchment area is about 1200mm. A part of the rain water will be absorbed in the sub-soil or unfiltered through cracks and fissures. Balance quantity of surface runoff water will flow through the natural drainage system. The quantity of rain water flow within the lease area will be negligible. However retaining wall around the proposed dump have been proposed to arrest the solid waste.

No water will be used in the mining except for drinking and water sprinkling purpose.


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4.0 STACKING OF MINERAL REJECT /SUB GRADE MATERIAL AND DISPOSAL OF WASTE

a) Indicate briefly the nature and quantity of top soil, overburden / waste and Mineral Reject to be disposed off.

The wastes to be removed from the quarries are mainly composed of laterite, shale, BHJ etc.

In the plan period around 23,757m³ of overburden/waste will be generated. Out of which 615 m³ will be utilize in filling of disturbed safety zone and 15,352 m³ waste will be utilize in making of road etc in first three years of plan period. In fourth year and fifth year 6,942m³ and 848m³ quantity of waste respectively will be dump in the designated waste dump after proving barren through proposed exploration. There is no top soil and mineral rejects will be generated during the plan period. The nature of disposal of the top soil, overburden and mineral rejects is as tabulated below.

Year	Top Soil (m ³)		Overburden (m ³)			Mineral Rejects	
	Reuse/ spreading	storage	Backfilling (Disturbed part of safety zone)	Development of infrastructure/ Road making	Storage	Blending	Beneficiation
2020-2021	Nil	Nil	615	9,500	Nil	Nil	Nil
2021-2022	Nil	Nil	Nil	2,912	Nil	Nil	Nil
2022-2023	Nil	Nil	Nil	2,940	Nil	Nil	Nil
2023-2024	Nil	Nil	Nil	Nil	6,942	Nil	Nil
2024-2025	Nil	Nil	Nil	Nil	848	Nil	Nil

b) The proposed dumping ground within the lease area be proved for presence or absence of mineral and be outside the UPL unless simultaneous backfilling is proposed or purely temporary dumping for a short period is proposed in mineralized area with technical constraints & justification.

In first three years of plan period (2020-21 to 2023-24) out of total 15,967m³ waste encountered during mining, 615 m³ will be utilize in filling of disturbed safety zone and 15,352m³ waste will be utilize in making of road etc. from the fourth year of ensuing plan period waste will be dump in the designated waste dump. As the lease area is yet to be

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explored, boreholes have been proposed for complete exploration in the present plan period after commencement of mining operation. Therefore, no area right now can be declared as barren. However, for planning purpose, area which seems to be barren from geological observations has been selected and planned now for dumping purpose. After commencement of mining operation, exploratory drilling would be undertaken in these areas to prove their barrenness and waste will only be dumped in the proposed waste dumping site only if the area is proved to be barren. The earmarked site is to be proved barren by putting boreholes in the year 2020-21. The detail lay out of the proposed waste dump area is shown in Plate No. VI.

Stacking of Mineral reject:

In the plan period no Mineral reject will be generated. However, an area of 0.45 ha has been identified outside the UPL for the temporary stacking and blending of ROM for consistency in quality before dispatch to captive steel plants. For protective measures retaining wall and garland drains are to be constructed around the stack yard to protect from washout.

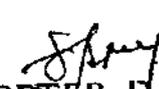
Storage of Top-soil: No top soil will be generated in the plan period as there is no top soil present in the area. Hence storage of top soil does not arise.

c) Attach a note indicating the manner of disposal of waste, configuration and sequence of year wise buildup of dumps along with the proposals for protective measures.

In the plan period from 2020-21 to 2022-23 waste generated during mining will be used for the development of making approach roads and filling of voids in safety zone. However, based on geological mapping 9002 m² or 0.9 ha area has been identified at the southern part of the lease area over barren BHJ/BHQ zone outside the UPL for ground preparation and preparation of protective measures before dumping of waste from the ensuing plan period 2023-24 to 2024-25. The dumping of waste will be commenced only if the proposed area is proved barren after completion of proposed exploration.

It is proposed to dump around 6,942 m³ and 848 m³ of waste during 2023-24 and 2024-25 respectively whereas the designed capacity of dump over 0.9 ha will be accommodate 20,740 m³ of waste, which is higher than the actual waste quantity to be dump. Two nos of terrace will be formed and the bottom and top mRL of individual terrace will be 1) 765 to 775 and 2) 775 to 785 in the plan period, each having 10m of height with 37° of slope angle. The ultimate


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slope of the dump will be 28°. The dumping of waste will be in steps and retaining wall.

The details of waste dump furnished below-

Year	Waste to be dumped (m ³)	Dump No	Location of dumping (coordinates)	Proposed area (m ²)	Proposed dumping mRL	No of terrace proposed	Individual Terrace height (m)	Slope of the terrace
2023-24	6,942	W	Bounded by- 1)N2433780, 317165	0.9	1)765-780	2	1) 10 2) 5	37°
2024-25	848	W	2)N2433805 E317128 3)N2433896, E317180 4)N2434017, E317260		1)780-785	1	5	

Before start of dumping, retaining wall and garland drains are to be constructed around the proposed dump site. Also, plantation covering 0.40 ha will be undertaken all around the proposed site.

The detail lay out of the proposed dumps are shown in plate -V. The average rainfall in the area is of the order of 1200mm. During the rainy season to arrest the wash-off of the dumps following protective measures and precautions are to be undertaken for the proposed waste dump and its management as follows:

- Each terrace will have inward slope with catch drains at the inward side of the terrace.
- The catch drains of the individual terrace will be connected to the garland drain outside the periphery of the dump.
- These catch drains will have half concrete open pipes followed by settling tanks to avoid wash offs.
- Each terrace will have a provision of berm at the outer end to reduce gully formation due to rain water wash offs.
- The retaining wall will be made to arrest the waste dump materials for consolidation.

The dimension of retaining wall around the waste dump is as follows.

Year	Around dump	Dimension (Length x Width x Height) in m
2023-24	Proposed waste dump	1180 x 1.2 x 1

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- vi) Garland drains will be paved around the dump to arrest possible wash off in rainy seasons.
vii) The dimension of garland drain around dump is as follows.

Year	Around dump	Dimension (Length x Width x Height) in m
2023-24	Proposed waste dump	1205 x 3 x 2

- X) Suitable grass/plant species will be paved in the waste dump slope, which will hold the materials in its fibrous and spread over roots to protect wash off in the rainy seasons.

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5.0 USE OF MINERAL AND MINERAL REJECT

The following are to be furnished in the interest of mineral conservation.

- a) Describe briefly the requirement of end-use industry specifically in terms of physical and chemical composition

The entire production from ML -139 lease, will be supplied to all the integrated steel plants of SAIL. The chemical & physical specifications for lump & fine ores are given below:-

Parameters	Lumps	Fines
Fe%	63	63
SiO ₂ %	2.0	2.5
Al ₂ O ₃ %	2.7	3.0
Lumps	+10-40 mm	
Fines	-10 mm	

- b) Give brief requirement of intermediate industries involved in up-gradation of mineral before its end-use.

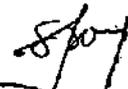
The requirement of intermediate industries for up-gradation of mineral before its end-use is not required because the lump and fines produce during the plan period will be with +58% Fe and will be suitably blend with other material at captive steel plants for up gradation.

- c) Give detail requirements for other industries, captive consumption, export, associated industrial use etc.

The entire production from ML -139 lease will be supplied to all the captive steel plants of SAIL. The chemical & physical specifications for lump & fine ores are given below:-

Parameters	Lumps	Fines
Fe%	63	63
SiO ₂ %	2.0	2.5
Al ₂ O ₃ %	2.7	3.0
Lumps	+10-40 mm	
Fines	-10 mm	


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d) **Indicate precise physical and chemical specification stipulated by buyers**

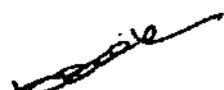
The chemical & physical specifications for lump & fine ores in captive steel plants of SAIL are mentioned at 5 (a).

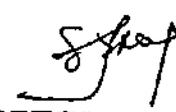
e) **Give details of processes adopted to upgrade the ROM to suit the user requirements.**

The entire ore sorting at ML139 will be done manually. ROM will be picked and sorted upto 300mm size and shifted to temporary mineral stack yard for manual breaking and sizing to reduce the size up to -40mm. The lumps (-40+10mm) and fines (-10mm) will be segregated and stacked separately. Representative samples from both lump and fines stack will be collected for physical and chemical analysis in the laboratory at Kalta. Proper blending action will be carried out at the mineral stack yard for the consistency in quality before dispatch.

f) **The useable mineral recovered from ROM may not be directly used in any industry and may need intermediate process to suit the user industry in terms of physical and chemical compositions.**

The lump and fines produce with +58% Fe and dispatch to captive steel plants and suitably blend at captive plants with other material for desirable physical and chemical quality.


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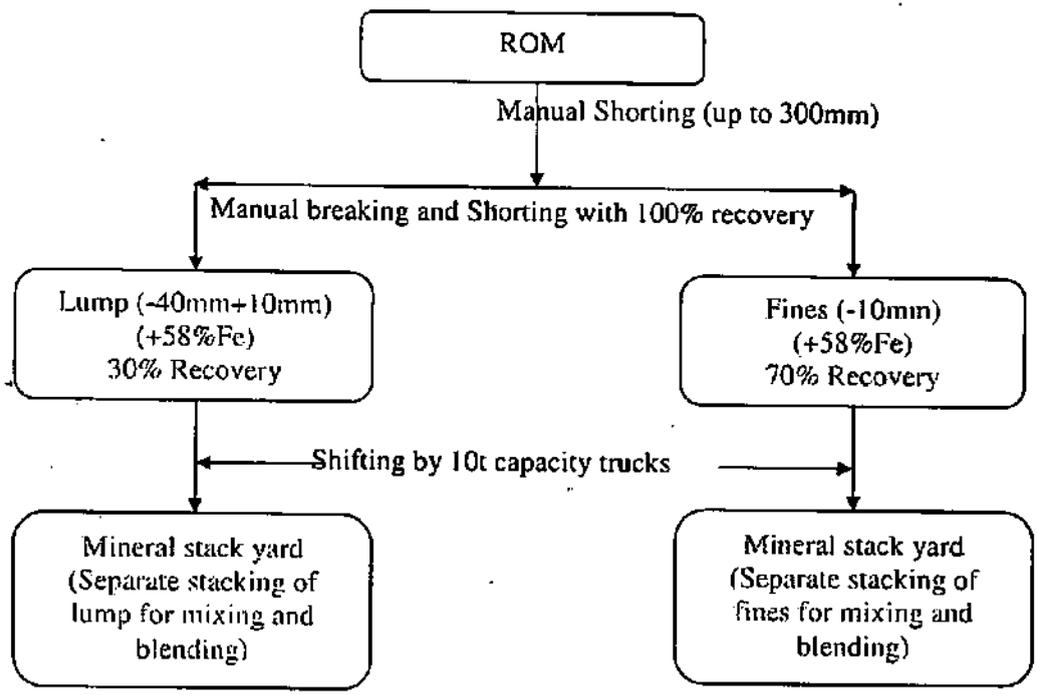
6.0 PROCESSING OF ROM AND MINERAL REJECT

a) If processing / beneficiation of the ROM or Mineral Reject is planned to be conducted, briefly describe nature of processing / beneficiation. This may indicate size and grade of feed material and concentrate (finished marketable product), recovery etc.

During the plan period no mineral reject will be generated. ROM with more than 58% Fe iron ore produced from the mine during the plan period will be subjected to manual sorting up to 300 mm. Then these ROM will be manually crushed and screened to produce +10 mm to-40 mm lump and -10 mm fines of more than 58% Fe with 100% recovery. The sized ore will be stored in the earmarked stack-yards separately. Proper blending action will be carried out to maintain consistency in quality before dispatch.

b) Give a material balance chart with a flow sheet or schematic diagram of the processing procedure indicating feed, product, recovery, and its grade at each stage of processing.

ROM will be processed through manual breaking and shorting to produce +10 mm to -40 mm lump and -10 mm fines of more than 58% Fe with 100% recovery. The sized ore will be stored in the earmarked stack-yards separately. Proper blending action will be carried out to maintain consistency in quality before dispatch. A flow sheet showing material balance chart is given below-



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c) Explain the disposal method for tailings or reject from the processing plant.

Not applicable

d) Quantity and quality of tailings /reject proposed to be disposed, size and capacity of tailing pond, toxic effect of such tailings, if any, with process adopted to neutralize any such effect before their disposal and dealing of excess water from the tailings dam.

Not applicable

e) Specify quantity and type of chemicals if any to be used in the processing plant.

Not applicable

f) Specify quantity and type of chemicals to be stored on site / plant.

Not applicable

g) Indicate quantity (cum per day) of water required for mining and processing and sources of supply of water, disposal of water and extent of recycling. Water balance chart may be given.

No processing of iron ore will be carried out. Therefore, there is no requirement of water for processing. Water is only used for suppressing the dust generated on haul roads due to movement of trucks & drinking water at mine site use.

The following table shows the water balance of the mine activity:

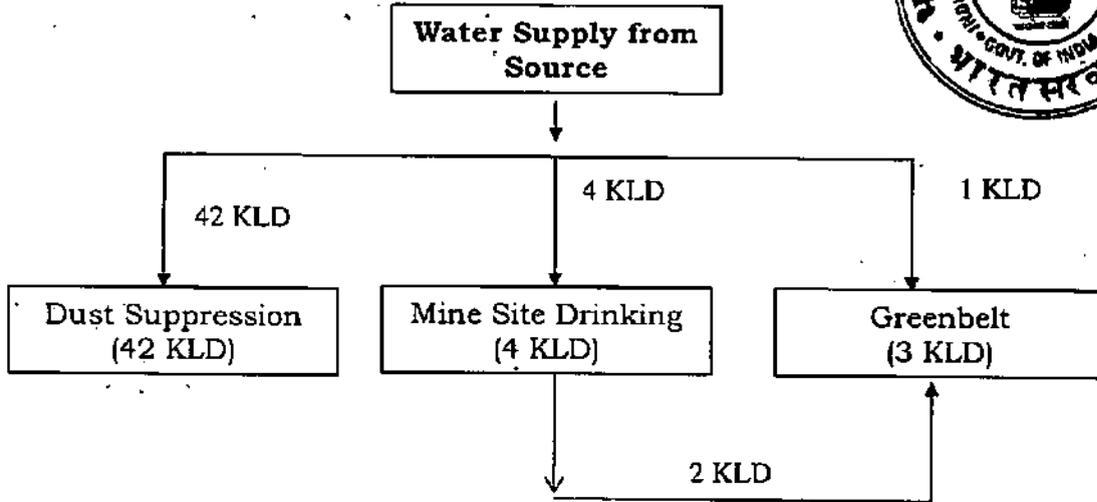
Table 4.2: Water demand for the project

Sl. No.	Activities	Average demand KLD
1	Mine Operation Dust Suppression	42.0
2	Green Belt	3.0
3	Mine Site Drinking	4.0
	Total	49.0

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The above water requirement to the tune of 47 KLD can be met from existing water source i.e. Najkura Nalah, which flows near the mine.

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7.0 OTHER

Describe briefly the following:

a) Site services

All services provided at the Kalta Iron Mine (KIM) will be common for ML - 130, 139 & 227 leases.

Industrial Services:

Power: Electric power supply is received through a 11 KVA feeder from the Odisha State Electricity Board Sub-Station at Tensa. It is stepped down to 440 V in two sub-stations. One 500 KVA transformer is located in the Colony sub-station, while one 500 KVA and two 250 KVA transformers, are located at the Mining sub-stations at the hill top.

Workshop Facilities: The Kalta Mine has a Field Maintenance and Repair Shop for routine jobs. Major repairs are undertaken at neighboring Barsua Mine of the Company.

Water Supply: For meeting water requirements at Kalta Complex, the management have created a 1,500 m³ impoundment by constructing a weir in the NajkuraNala (which flows near the property). Water requirement for the mine to the tune of 47 KLD can be met form the existing source.

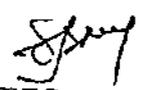
Other Support Facilities: All the Services and facilities required under the Mine Act (and the regulations, Rules and Bye-laws made there under) have been provided at the Kalta Mine. These include a Vocational Training Centre, Rest Shelters, First Aid Stations, a Canteen, an Explosive Magazines, etc. In addition, a site office and public conveniences are also provided.

Township and Municipal Facilities:

A small township spread over 33.9 ha of land outside the mining lease area of ML - 130 has been developed in the Kalta Valley. It has 163 pucca houses and 102 temporary units (making 265 residential units in all), and has been provided with all municipal facilities. The township has its own marketing centre, in addition to the weekly hatia, a co-operative store is also functioning in the colony. Medical facilities are provided through an 18 bed hospital, staffed with three doctors and 23 para-medical & public health personnel. There are two schools in the township, one high School and one Middle School.

For recreation, a Community Centre and a Multi-Purpose Centre have been provided besides a cable T.V network. Public utility services in the township include a bank, a post office, the Odisha State Transport buses. For cultural encouragement, the management patronizes the only


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cultural group in the area, Bhanja Kala Parisad. As has been mentioned in the mining plan, the water requirements of the mine and the township are met through (besides a artesian well in the locality) water pumped from a local perennial NajkuraNala. About 250 kL of water per day is pumped daily. Water for human consumption is supplied after treatment at water treatment plant, through an overhead tank and a network of pipes. Treatment of sewage is through septic tanks provided in every building.

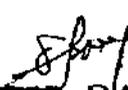
b) Employment potential:

As per provision of rule 55 of MCDR 2017 for ML-139 mining lease, Shri A.K.Mishra and Shri P. Dang has been appointed as Mining Engineer and Geologist respectively. The status of existing and proposed statutory personnel is mentioned below.

Sl no	Designation	Qualification	Existing	Proposed	Experience
1	1st class Mines Manager (Mining Engineer)	Degree/ Diploma in Mining Engineering.	1 no.	-	1st class mines manager certificate of competency
2	Geologist	Post-Graduation Degree	1 no.	-	-
3	Mining Foreman	Diploma in mining engineering	Nil	1 no.	3 years experience with mining Foreman competency certificate
4	Mining Mate	Matriculate	Nil	1 no.	3 years experience with mining mate competency certificate
5	Clerk	Graduation	Nil	1 no.	
6	Peon	-	Nil	2 nos.	
Total				6nos.	

Mining operations under the ML-139 lease are temporarily discontinued since 1988 due to want of statutory clearances. ML-139 is an adjoining lease to working lease ML-130 (Kalta block) under the lessee. The manpower deployed in Kalta block is serving for the ML- 139 as per requirement. However statutory personnel as per requirement will be appointed when the mine will become operational.

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Semi-skilled

Designation	Qualification	Persons
Excavator operator	Valid driving license	2
Tipper driver	Valid driving license	12
Drill operator	Valid driving license	5
Total		19

Un-skilled

Raising & other Misc. labour – 68nos.

In the lease area iron ore about 49,935MT will be produced. The following factors have been considered for planning the man power.

- O.M.S 3 MT
- Working days in a year 300

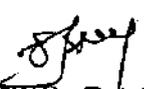
To achieve a production of about 49,935 MT of iron ore per annum,

The daily production will be about $49,935\text{MT} / 300 = 166.45$ or say 167 MT

Man power required $167 / 3 = 55.66$ or say 56nos.

Taking absentism at 20 %, the requirement of labours would be around 68nos. Hence a total nos. of 87 semiskilled and un skilled labours will be required to achieve the production target.


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8.0 PROGRESSIVE MINE CLOSURE PLAN UNDER RULE 23 OF MCDR

8.1 Environment Baseline information: Attach a note on the status of baseline information with regard to the following.

- existing land use pattern indicating the area already degraded due to mining, roads, processing plant, workshop, township etc. in a tabular form.

Mining under the lease was continued till 1988. Since then mining operations under the lease have been temporarily closed for want of statutory clearances. Environmental Quality monitoring around the Kalta Iron Mine is being done through Corporate Environment Management Division, SAIL and the impact has been assessed based on the same. Environmental Quality reports for the period from March, 2019 to May, 2019 are placed at Annexure XVI

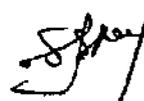
Existing Land Use pattern

Type of land Use	Existing Land use (ha)
Area under excavation	6.91
Overburden Dump	0
Mineral storage	0
Storage for top-soil	0
Mineral reject storage	0
Infrastructure (rest shelter etc.)	0
Township	0
Roads	0.10
Ancillary activities including float mining	0
Retaining wall, garland drain & settling tank around dump, Plantation, etc.	0
Safety Zone to be maintained with planation	-
Total	7.01

ii) Water Regime

There is no perennial nala or water course on the hill top. All the rain water falling on ML-139 area drains down the steep hill slopes in a very short time, and there is no accumulation of water in the leasehold area even after heavy rains, except for accumulated water in small local depressions. Even this water percolates down through the floor strata and flow out from the hill sides. It is to be noted that the existing groundwater levels on the hill top are well below the ore-body floor, expectedly more than 40 m underneath the surface level. These would therefore remain unaffected by mining operations.

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iii) Air Quality

Although mining operation are already in progress in the locality since long no recorded noticeable adverse impact on the quality of air was observed. As such atmospheric fresh air exists in the locality till date.

iv) Noise Level

The noise level recorded in and around Kalta Iron Mine is recorded quarterly and found no noticeable adverse record.

For preparation of separate Environmental Management Plan a detailed programme for monitoring of air and water quality will be taken up after commencement of mining operation.

v) Flora and fauna

Flora

The area supports a variety of local species; the major species include Sal (Shorea robusta), Palash (Butea frondosa), Kusum (Schleichera trijuga), Kadamba (Anthocephalus cadamba), Seesum (Delbergialatifolia) and Bija (Pterocarpus marsupium). In addition, fruit trees like, Jackfruit (Artocarpus lakucha), Mango (Mangifera indica), Guava (Psidium guava), Jamun (Syzygium cumini), etc are also found.

Fauna

As the area adjoins running mines, wild animals are not seen within and around the area. The available species include Wild Bear (Ursus arctus), Jackal (Canis auratus), Fox (Vulpes bengalensis), etc. Avi-Fauna of the area includes Red Jungle Fowl (Gallus gallus), Cuckoo (Cuculus indicus), common Hawk (Falco), Common Myna (Acridotheres tristis), Jungle Crow (Dicrurus macrocerus) etc.

Aquatic Fauna

No perennial river flows within the lease area. Perennial rivers and streams nearby to the area contain small and large species of fish, the principal ones being Rohu, Mirikala, Bhakur, Sala, Serula, Balia etc.

vi) Climatic Condition

The climate of the area is sub-tropical. Barsua Mine of ML 130 has been maintaining daily record of rainfall, temperature and humidity almost since its inception in 1960. The average annual rainfall over the past 28 year period (1967-1994) was 2,155 mm. The maximum rainfall during this period was 3,047 mm (1971), and the minimum 1,373 mm (1992). The area enjoys very high precipitation. The weather conditions are not extreme. Summer is not very hot, due

REVIEW OF MINING PLAN OF KALTA IRON MINE LEASE (M-18)
AREA OF 25.981 Ha., DISTRICT- SUNDARGARH, ODISHA



to forest cover in the area. The maximum temperature, during summer exceeds 40°C only for a few days during the year. The minimum temperature, during winter, rarely goes below 07°C. As might be noted, April and May are the hottest months and December and January the coolest ones.

The relative humidity in the area is generally high due to the high level of precipitation. The maximum humidity is usually above 60%, even during summer. The minimum humidity is generally 30%, except in April and May when it goes below 20%. Wind direction in the area does not vary too widely in this area, from season to season. The area experiences very high percentage of calm days.

vii) Human settlement

No village or basti is located within the leasehold area. The buffer zone has 07 villages, with a total of 1,233 households and population of 5,342, including 2,870 males and 2,472 females. Overall literacy in the buffer zone is 31.13%, composed of male literacy 42.6% and female literacy 17.84%. Schedule caste constitutes 8.08% of the population and schedule tribes 76.5%.

Vocational data of the buffer zone is given below:

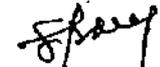
Type	Buffer zone
Cultivator	8.24%
Agriculture Labourers	5.05%
Household industry,	1.95%
Other workers	18.74%
Total Main Workers	33.98%
Marginal Workers	4.14%
Non-Worker (mainly Women and Children)	61.88%

Approach to two villages is by pucca road while 05 villages can be approached by kutchra road only. One village, namely kalta, is on the bus route. The nearest market is at a distance of less than 05 km from 04 villages, one village is 05-10 km distant from the nearest market and the remaining two villages are located more than 10 km away from the nearest market. Kalta village has a primary health center, while 03 villages are within 05 km of medical facility; the remaining 03 villages are more than 10 km away from such facility. Drinking water is drawn from wells in all the villages; and one village has a tube well. Village Kalta has a post and telegraph office. Rice and Maize form the staple food of villagers.

viii) Public Buildings, Temples, places, monuments in the area:

There is no place of archaeological or religious importance within 5 km of the lease.

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viii) Indicate any sanctuary is located in the vicinity of leasehold

There is no sanctuary is located in the vicinity of leasehold

8.2 Impact Assessment: Attach an Environmental Impact Assessment Statement describing the impact of mining and beneficiation on environment on the following:

i) Land area indicating the area likely to be degraded due to quarrying, dumping, roads, workshop, processing plant, tailing pond/dam, township etc.

A total of 9.628 ha land is likely to be degraded due to proposed mining and construction of road and site services at the end of the plan period. This would naturally create a change in topography. These topographical changes would be of the following order:

Type of land Use	At present (ha)	Additional area during the plan period (ha)	Total (ha)
Area under excavation	6.91	0	6.91
Overburden Dump	0	0.9	0.9
Mineral storage	0	0.45	0.45
Storage for top-soil	0	0	0
Mineral reject storage	0	0	0
Infrastructure (rest shelter etc.)	0	0.002	0.002
Township	0	0	0
Roads	0.10	0.34	0.44
Ancillary activities including float mining	0	0	0
Retaining wall, garland drain & settling tank around dump, Plantation, etc.	0	0.9148	0.9148
Filling of disturbed/void areas in safety zone with wastes and subsequently covered with plantation.	0	0.0112	0.0112
Total	7.01	2.618	9.628

ii) Air quality

Mining activities will have the impact on the air environment because various operations like quarrying, sizing, sorting, deploying of tippers and diesel operated machineries and blasting

Corrective measures

Monitoring

It is proposed to monitor air samples at 5 locations (Plate No. VIII) at least once in each month during the present plan period both within the core and buffer zones. Lessee has got the

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Environment Management Division as a nodal agency for carrying out monitoring operations in respect of the environmental parameters periodically.

Monitoring Station No.	Location of Monitoring Stations	Frequency of Monitoring
A1	At the entry of Proposed Waste dump	Once in a month
A2	Nearby Pit of ML-130-C' Block	
A3	Nearby Pit of ML-130-C' Block	
A4	Nearby Pit of ML-130-C' Block	
A5	Kalta Township near Guest House	

Management

Suitable measures for dust suppression are being proposed through spraying water at dust generating points and haul roads. Emission of noxious gas from vehicles can be controlled by regular maintenance. Water sprinkling with plantation along the safety zone will be done in the lease area for dust suppression. Regular air samples will be analysed. Air sample stations have been proposed to be constructed around the core and buffer zone of the lease area. Wet drilling / dust extractors will be used in drill units for dust suppression. The year wise programme of afforestation in the safety zone area is given below:

Year	Area (Ha)	Type of saplings	No. of saplings	Distance between saplings(m x m)
2020-21	0.5	Mangifera indica	250	2.5 x 2.5
2021-22	0.5	Psidium guajava	250	2.5 x 2.5
2022-23	0.5	Mangifera indica	250	2.5 x 2.5
2023-24	0.5	Psidium guajava	250	2.5 x 2.5
2024-25	0.46	Mangifera indica	250	2.5 x 2.5
Total	2.46		1250	

iii) Water quality

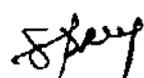
Existing surface water bodies

There is no perennial nala existing within the lease area. Two seasonal nalas exist, one in each block.

Existing ground water bodies

Dug well serves as drinking and other domestic needs in the area. Water table in the adjoining area seems to be at a depth of 10 to 15 m below the general surface level. Since mining is

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carried out in hilly area water table will not be intersected as ground water is at a deeper level.

Water quality management

There will be least chance of pollution of the surface and groundwater due to surface mining. In rainy season there may be a chance of surface water pollution due to contamination of suspended and dissolved solids those are mostly expected from the out slopes of the mine excavation and slopes of waste dumps. It is general practice that before starting the monsoon, a deep drain is being cut all around the top surface of quarry to check the rain water entering into the quarry. It is also proposed to construct a boulder wall and garland drain all around the foot of the dump and will be provided with settling tanks to minimize the suspended particulates entering the river. The settling tank will be cleaned periodically so as to avoid over flowing of the tank. The water thus released to the natural drainage will be analyzed periodically to check the quality of water. It is proposed to monitor the water quality monthly once in four stations planned in both core and buffer zone to know its quality.

Monitoring Station No.	Location of Monitoring Stations	Frequency of Monitoring
W1	Upstream of seasonal Nala at the West of existing pit	Once in a month
W2	Discharge point of Garland drain at the West of Proposed Mineral Stack	
W3	Downstream of the seasonal nala after meeting of discharged water from Garland Drain	
W4	Bore well at Kalta Admn. Building	

As the lease area is part of the undulating hill, the pumped out and the surface run-off water will be channelized through the existing two seasonal nalas, one in Block- A and the other in Block- B. To arrest the suspensions of the flowing water, check dams made up of cement concrete have been proposed within the nala course in a staggered pattern.

iv) Measures to minimize noise level

Provision to keep machineries in good condition: This will help keep noise level within 90 dBA and also help in reducing vibration level. Muffle blasting will be undertaken so as to reduce fly rock movements. Noise monitoring stations are proposed in 3 locations (Plate No. VIII) to monitor the noise level monthly once and to take proper precautions to keep the noise within the prescribed limit. Plantation as proposed in the safety zone will help minimize noise level.

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REVIEW OF MINING PLAN OF KALTA IRON MINE LEASE (ML-139) AREA OF 25.981 Ha. DISTRICT- SUNDARGARH, ODISHA



Monitoring Station No.	Location of Monitoring Stations	Frequency of Monitoring
N1	Centre of proposed development	Once in a month
N2	At the road exit point from lease	
N3	At Kalta Guest House	

v) Measures to minimize vibration

Provision of delay detonators: This will help keep noise level within 90 dBA and also help in reducing vibration level. Muffle blasting will be undertaken so as to reduce fly rock movements. The ground vibration to be generated due to blasting at ML 139 lease will be quite low and will require no ameliorative action, as the charge per delay is limited.

vi) Water regime

It is to be noted that the existing groundwater levels on the hill top are well below the ore-body floor. These would therefore remain unaffected by mining operations.

vii) Acid mine drainage

Not applicable as no noxious gas is released in the course of mining.

viii) Surface subsidence

The quarries are proposed to be developed through well maintained benches. Hence surface subsidence is ruled out. Also, these openings are proposed to be backfilled after exhaustion of ore in the conceptual period.

ix) Socio economics

The Kalta Mine as a whole (including ML-139) employs a total of 2209 workers. Almost all these workers belong to the surrounding villages and areas.

This mining employment has greatly benefited the income levels of the natives. In addition, creation of over 1,200 comparatively well paid jobs in the area has generated not only sizeable trade in household supplies (including vegetables, milk, food, textile, etc) but also some household employment. It has also generated demand for tertiary services like transport and repair shops. The impact of mining operations in the area on socio-economic has been a positive one. The infrastructure of the area roads, public transport P&T facilities and electricity supply etc have also been improved after the advent of mining operation in the area. As part of its social concern, the management is helping out the local villages in solving their day to day problems by sinking tube wells, repairing village approach roads, constructing public buildings

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like schools, dispensary, assisting in health care activities, assisting the neighborhood adult literacy centre, holding rural sports meets and developing playing fields, etc. These will be further augmented after commencement of mining operation in ML 139.

x) Historical monuments etc

There are no historical monuments or places of archeological interest within 5 km radius of the lease.

8.3 Progressive Mine Closure Plan:

At the end of the plan period a total area of 9.628 ha is to be degraded under various mining activities. During conceptual period an area of 18.73 ha will be mined out under mining. As the total area is yet to be explored, no backfilling proposal has been proposed in this document.

To mitigate the impacts and ameliorate the condition, describe proposed steps for phased restoration, reclamation of lands already/to be degraded in respect of following items separately for 01 year period (Plate No. VIII)

However, based on outcome of the proposed exploration, suitable planning would be made for reclamation of the quarries. Conceptually, the exhausted quarries will be backfilled using the wastes of the dumps and the backfilled areas will be rehabilitated through plantation.

8.3.1. Mined-Out Land: Describe the proposals to be implemented for reclamation and rehabilitation of mined-out land including the manner in which the actual site of the pit will be restored for future use. The proposals may be supported with yearly plans and sections depicting yearly progress in the activities for land restoration/reclamation/rehabilitation, afforestation etc, called "Reclamation Plan".

At the end of the plan period a total area of 9.628 ha will be degraded under mining.

Type of land Use	At present (ha)	Additional area during the plan period (ha)	Total (ha)
Area under excavation	6.91	0	6.91
Overburden Dump	0	0.90	0.90
Mineral storage	0	0.45	0.45
Storage for top-soil	0	0	0
Mineral reject storage	0	0	0
Infrastructure, rest shelter, other buildings)	0	0.002	0.002
Township	0	0	0
Roads	0.10	0.34	0.44
Ancillary activities including float mining	0	0	0

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Retaining wall, garland drain & settling tank around dump, Plantation, etc.	0	0.9148	0.9148
Filling of void in safety zone with wastes and subsequently covered with plantation.	0	0.0112	0.0112
Total	7.01	2.618	9.628

The mined out area has not been matured for reclamation and rehabilitation hence, backfilling will be commenced after complete extraction of mineral.

Year	Mined out area at the beginning (m ²)	Additional area proposed during the plan period (m ²)	Total area (m ²)	Area to be reclaimed and rehabilitated during the plan period (m ²)	Mined out area at the end of the plan period (m ²)
2020-21	Nil	0	Nil	0	Nil
2021-22	Nil	0	Nil	0	Nil
2022-23	Nil	0	Nil	0	Nil
2023-24	Nil	0	Nil	0	Nil
2024-25	Nil	0	Nil	0	Nil

8.3.2 Top soil Management: The topsoil available at the site and its utilization may be described.

No top soil will be generated in the plan period as there is no top soil present in the area. Hence storage of top soil does not arise.

8.3.3 Tailings Dam Management: The steps to be taken for protection and stability of tailing dam, stabilization of tailing material and its utilization, periodic desilting measures to prevent water pollution from tailings etc, arrangement for surplus water overflow along with detail design, structural stability studies, the embankment seepage loss into the receiving environment and ground water contaminant if any may be described.

The pit will be cleared regularly and the rejects will be shifted to the dumping site. There is no proposal for any beneficiation plant and hence tailing dam management is not required

8.3.4 Acid mine drainage, if any and its mitigative measures.
Does not arise.

8.3.5 Surface subsidence mitigation measures through backfilling of mine voids or by any other means and its monitoring mechanism. The information on protective measures for reclamation and rehabilitation works year wise may be provided as per the following table.

The quarries are proposed to be developed through well maintained benches. Hence surface subsidence is ruled out. Also, these openings are proposed to be backfilled after exhaustion of ore in the conceptual period.

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REVIEW OF MINING PLAN OF KALTA IRON MINE LEASE (M.L. No. 19)
AREA OF 25.981 Ha. DISTRICT- SUNDARGARH, ODISHA



PROPOSAL FOR THE YEAR 2020-21

ITEMS	DETAILS	PROPOSED	ACTUAL	REMARKS
		AREA (Ha.)	AREA (Ha.)	
		PROPOSED	PROPOSED	
DUMP MANAGEMENT	Area afforested(ha)	Nil	Nil	
	No of sapling planted	Nil	Nil	
	Cumulative nos. of plants	Nil	Nil	
	Cost including watch and care during the year	Nil	Nil	
MANAGEMENT OF WORKED OUT BENCHES	Area available for the rehabilitation(ha.)	Nil	Nil	
	Afforestation done	Nil	Nil	
	No of saplings planted in the year	Nil	Nil	
	Cumulative nos. of plants	Nil	Nil	
	Any other method of rehabilitation	Nil	Nil	
	Cost including watch and care during the year	Nil	Nil	
RECLAMATION AND REHABILITATION BY BACKFILLING	Void available for backfilling(LXBXD) pit wise/stope wise	Nil	Nil	
	Disturbed areain safety zone filled by waste /tailing	0.0112	Nil	Broken safety zone
	Afforastation on the backfilled area	Nil	Nil	
	Rehabilitation by making water reservoir	Nil	Nil	
	Any other means	Nil	Nil	
REHABILITATION OF WASTE LAND WITHIN THE LEASE	Area available (ha.)	Nil	Nil	
	Area rehabilitated	Nil	Nil	
	Method of rehabilitation	Nil	Nil	
OTHERS (Specify)	Plantation along safety zone	0.5	Nil	250 nos. of saplings
	Check Dam in Nala bed (Length X Width X Height) in m	03 nos.		3 x 2 x 2
	Retaining wall at mineral stack (Length X Width X Height) in m	0.088	Nil	734 x 1.2 x 1
	Garland drain at mineral stack (Length X Width X Height) in m	0.59	Nil	760 x 3 x 2
	Settling ponds	(1 nos)	Nil	For mineral stack

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REVIEW OF MINING PLAN OF KALTA IRON MINE LEASE (9) OVER
AREA OF 25.981 Ha. DISTRICT- SUNDARGARH, ODISHA



PROPOSAL FOR THE YEAR 2021-22

ITEMS	DETAILS	PROPOSED AREA (Ha.)	ACTUAL AREA (Ha.)	REMARKS
		PROPOSED	PROPOSED	
DUMP MANAGEMENT	Area afforested(ha)	Nil	Nil	
	No of sapling planted	Nil	Nil	
	Cumulative nos. of plants	Nil	Nil	
	Cost including watch and care during the year	Nil	Nil	
MANAGEMENT OF WORKED OUT BENCHES	Area available for the rehabilitation(ha.)	Nil	Nil	
	Afforestation done	Nil	Nil	
	No of saplings planted in the year	Nil	Nil	
	Cumulative nos. of plants	Nil	Nil	
	Any other method of rehabilitation	Nil	Nil	
	Cost including watch and care during the year	Nil	Nil	
RECLAMATION AND REHABILITATION BY BACKFILLING	Void available for backfilling(LXBXD) pit wise/stope wise	Nil	Nil	
	Disturbed areain safety zone filled by waste /tailing	Nil	Nil	
	Afforastation on the backfilled area	Nil	Nil	
	Rehabilitation by making water reservoir	Nil	Nil	
	Any other means	Nil	Nil	
REHABILITATION OF WASTE LAND WITHIN THE LEASE	Area available (ha.)	Nil	Nil	
	Area rehabilitated	Nil	Nil	
	Method of rehabilitation	Nil	Nil	
OTHERS (Specify)	Plantation along safety zone	0.5	Nil	250 nos of saplings
	Maintenance of Retaining wall, Garland drain and settling pond constructed for mineral stack yard			

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AREA OF 25.981 Ha. DISTRICT- SUNDARGARH, ODISHA



PROPOSAL FOR THE YEAR 2022-23

ITEMS	DETAILS	PROPOSED	ACTUAL	REMARKS
		AREA (Ha.)	AREA (Ha.)	
		PROPOSED	PROPOSED	
DUMP MANAGEMENT	Area afforested(ha)	Nil	Nil	
	No of sapling planted	Nil	Nil	
	Cumulative nos. of plants	Nil	Nil	
	Cost including watch and care during the year	Nil	Nil	
MANAGEMENT OF WORKED OUT BENCHES	Area available for the rehabilitation(ha.)	Nil	Nil	
	Afforestation done	Nil	Nil	
	No of saplings planted in the year	Nil	Nil	
	Cumulative nos. of plants	Nil	Nil	
	Any other method of rehabilitation	Nil	Nil	
	Cost including watch and care during the year	Nil	Nil	
RECLAMATION AND REHABILITATION BY BACKFILLING	Void available for backfilling(LXBXD) pit wise/stope wise	Nil	Nil	
	Disturbed areain safety zone filled by waste /tailing	Nil	Nil	
	Afforastation on the backfilled area	Nil	Nil	
	Rehabilitation by making water reservoir	Nil	Nil	
	Any other means	Nil	Nil	
REHABILITATION OF WASTE LAND WITHIN THE LEASE	Area available (ha.)	Nil	Nil	
	Area rehabilitated	Nil	Nil	
	Method of rehabilitation	Nil	Nil	
OTHERS (Specify)	Plantation along safety zone	0.5	Nil	250 nos of saplings
	Maintenance of Retaining wall, Garland drain and settling pond constructed for mineral stack yard			

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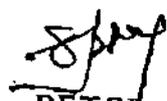
REVIEW OF MINING PLAN OF KALTA IRON MINE LEASE (M.L. 113) OVER AN AREA OF 25.981 Ha. DISTRICT- SUNDARGARH, ODISHA



PROPOSAL FOR THE YEAR 2023-24

ITEMS	DETAILS	PROPOSED AREA (Ha.)	ACTUAL AREA (Ha.)	REMARKS
		PROPOSED	PROPOSED	
DUMP MANAGEMENT	Area afforested(ha)	Nil	Nil	
	No of sapling planted	Nil	Nil	
	Cumulative nos. of plants	Nil	Nil	
	Cost including watch and care during the year	Nil	Nil	
MANAGEMENT OF WORKED OUT BENCHES	Area available for the rehabilitation(ha.)	Nil	Nil	
	Afforestation done	Nil	Nil	
	No of saplings planted in the year	Nil	Nil	
	Cumulative nos. of plants	Nil	Nil	
	Any other method of rehabilitation	Nil	Nil	
	Cost including watch and care during the year	Nil	Nil	
RECLAMATION AND REHABILITATION BY BACKFILLING	Void available for backfilling(LXBXD) pit wise/stope wise	Nil	Nil	
	Disturbed areain safety zone filled by waste /tailing	Nil	Nil	
	Afforastation on the backfilled area	Nil	Nil	
	Rehabilitation by making water reservoir	Nil	Nil	
	Any other means	Nil	Nil	
REHABILITATION OF WASTE LAND WITHIN THE LEASE	Area available (ha.)	Nil	Nil	
	Area rehabilitated	Nil	Nil	
	Method of rehabilitation	Nil	Nil	
OTHERS (Specify)	Plantation along safety zone	0.5	Nil	250 nos of saplings
	Retaining wall at waste dump (Length X Width X Height) in m	0.23	Nil	1180 x 1.2 x 1
	Garland drain along waste dump (Length X Width X Height) in m	0.59	Nil	1205 x 3 x 2
	Garland drain beyond settling pond (Length X Width X Height) in m	0.0732	Nil	183 x 4 x 2
	Settling ponds	(1 nos)	Nil	For waste dump
	Maintenance of Retaining wall, Garland drain and settling pond constructed for mineral stack yard			

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SAIL BARSUA


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KALTA IRON MINE

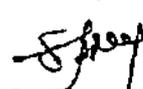
REVIEW OF MINING PLAN OF KALTA IRON MINE LEASE (M.L. 13)
AREA OF 25.981 Ha. DISTRICT- SUNDARGARH, ODISHA



PROPOSAL FOR THE YEAR 2024-25

ITEMS	DETAILS	PROPOSED	ACTUAL	REMARKS
		AREA (Ha)	AREA (Ha)	
		PROPOSED	PROPOSED	
DUMP MANAGEMENT	Area afforested(ha)	Nil	Nil	
	No of sapling planted	Nil	Nil	
	Cumulative nos. of plants	Nil	Nil	
	Cost including watch and care during the year	Nil	Nil	
MANAGEMENT OF WORKED OUT BENCHES	Area available for the rehabilitation(ha.)	Nil	Nil	
	Afforestation done	Nil	Nil	
	No of saplings planted in the year	Nil	Nil	
	Cumulative nos. of plants	Nil	Nil	
	Any other method of rehabilitation	Nil	Nil	
	Cost including watch and care during the year	Nil	Nil	
RECLAMATION AND REHABILITATION BY BACKFILLING	Void available for backfilling(LXBXD) pit wise/stope wise	Nil	Nil	
	Disturbed areain safety zone filled by waste /tailing	Nil	Nil	
	Afforastation on the backfilled area	Nil	Nil	
	Rehabilitation by making water reservoir	Nil	Nil	
	Any other means	Nil	Nil	
REHABILITATION OF WASTE LAND WITHIN THE LEASE	Area available (ha.)	Nil	Nil	
	Area rehabilitated	Nil	Nil	
	Method of rehabilitation	Nil	Nil	
OTHERS (Specify)	Plantation along safety zone	0.46	Nil	250 nos of saplings
	Maintenance of Retaining wall, Garland drain and settling pond constructed for waste dump and mineral stack yard			

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REVIEW OF MINING PLAN OF KALTA IRON MINE LEASE
AREA OF 25.981 Ha. DISTRICT- SUNDARGARH,



8.4 Disaster Management and Risk Assessment: This may deal with action plan for high risk accidents like landslides, subsidence flood, inundation in underground mines, fire, seismic activities, tailing dam failure etc. and emergency plan proposed for quick evacuation, ameliorative measures to be taken etc. The capability of lessee to meet such eventualities and the assistance to be required from the local authority may also be described.

The objective of on-site disaster management plan for the mine is to in a state of perpetual readiness through training and development to immediately control and arrest any emergency situation so as to avert a full-fledged disaster and to manage the same so that the risk of the damage to life and property is minimized. SAIL has a demand procedure for Emergency preparedness and Responses. The emergency situations arising out of the situations as defined in the clause shall be addressed. The salient features are elaborated as below:

- Emergency Response Organization
- Communication System
- Action on the site
- Facilities available at site
- Medical treatment for injured personnel's
- Emergency Response Organization

Following officers of the mines will be responsible for co-ordination in case of any emergency in any sections of the mine.

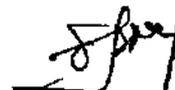
Person	Responsibility
Head of Department / Mine Agent	Site Controller
Mines Manager / Shift in-charge	Accident Controller / Communication Officer
Employee who gives the first information about the incident / accident	Primary Controller
P & A Department (HOD)	Liaison Officer

Key Personnel and their responsibilities

Site Controller:

- The head of the department / mine agent shall have an overall responsibility for controlling the incident / accident and directing the personnel.
- To prepare a full proof plan for control of accident like landslides, subsidence flood and other natural calamities.
- To inform statutory bodies of the State and Central Government.

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REVIEW OF MINING PLAN OF KALTA IRON MINE LEASE (ML-199) OVER AN
AREA OF 25.981 Ha. DISTRICT- SUNDARGARH, ODISHA



- To inform communication officer about the emergency, control centre and assembly point.
- To provide all assistance and call for fire squad, security officer and other services required for removing / control of danger.
- To ensure that all necessary personnel assemble at assembly point.
- Make arrangement for medical treatment to the personnel injured seriously.

Accident Controller:

- Mines manager shall act as accident controller/ communication officer.
- Mock rehearsal of management plan prepared for accident.
- To withdraw men / machine from the affected area with priority for safety of personnel, minimize damage to the machines, environment and loss of material.
- To make a report based on the facts and figure and submit to the site controller.
- To communicate to the site in charge and make arrangement for first aid and transportation of the injured personnel.

Primary Controller:

- To inform the Accident Controller / shift in-charge from the nearest means of communication about the location and the nature of accident.
- To assist in clearing any obstruction in relief of accident.
- To carry out all instructions of accident controller.
- To provide first aid treatment and communicate to the shift in-charge.

Capability of Lessee:

Following facilities will be made available:

- Public address system
- Telephone / Mobile handsets
- Runners / Messenger
- Emergency alarm
- Fire fighting equipment and accessories with trained manpower
- Full fledge hospital at a distance of 4 km from the mine.
- Training centre
- Ambulance van

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REVIEW OF MINING PLAN OF KALTA IRON MINE LEASE (ML-1990) AREA OF 25.981 Ha. DISTRICT- SUNDARGARH, ODISHA



8.5 Care and maintenance during temporary discontinuance: An emergency plan for the situation of temporary discontinuance due to court order or due to statutory requirements or any other unforeseen circumstances may indicate measures of care, maintenance and monitoring of status of discontinued mining operations expected to re-open in near future.

When the mine will be temporarily discontinued due to any unforeseen circumstances the following care and maintenance shall be carried out:

- Notice to be served to all the concerned authorities.
- Temporary fencing shall cover the mining pit area.
- All access roads/openings to the pit / face shall be closed by parapet wall as per rule.
- Warning shall be displayed on 'Notice Boards' at appropriate places.
- Security personnel shall be posted at every danger point.
- No unauthorized person shall be allowed to enter into the mine without prior permission of the management.
- Mine benches shall be dressed and properly sloped for its stability.
- Garland drain shall be made all around the mine and dump to prevent water flow towards mine for prevention of landslide/side fall and siltation etc.
- All men and machinery shall be withdrawn from the mine and shall be kept in a safe place.
- All safety precautions shall be taken care of as per rule.

8.6 Financial Assurance:

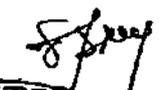
The financial assurance can be submitted in any encashable form preferably a Bank Guarantee from a Scheduled Bank as stated in Rule 23(F)(2) of Mineral Conservation and Development Rules, 1988 for five years period expiring at the end of validity of the document. The amount calculated for the purpose of Financial Assurance is based on the CCOM's Circular no. 4 dated 2006 as below.

Financial Assurance Plan is enclosed at Plate No. X

The calculation is as below:

(As per CCOM's Circular No.4/2006)


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REVIEW OF MINING PLAN OF KALTA IRON MINE LEASE (ML-139) OVER AN
AREA OF 25.981 Ha. DISTRICT- SUNDARGARH, ODISHA



SL. No.	Type of land used	Area put on use at start of plan period (Ha)	Additional requirement during plan period. (Ha)	Total (Ha)	Area considered as fully reclaimed & rehabilitated (Ha)	Net area considered for calculation of financial assurance (Ha)
a	b	c	d	e=c+d	f	g
1	Area under mining	6.91	0	6.91	0	6.91
2	Storage for top-soil	0	0	0	0	0
3	Overburden dump	0	0.9	0.9	0	0.9
4	Mineral storage	0	0.45	0.45	0	0.45
5	Infrastructure	0	0.002	0.002	0	0.002
6	Roads	0.10	0.34	0.44	0	0.44
7	Railways	0	0	0	0	0
8	Tailing pond	0	0	0	0	0
9	Effluent treatment plant	0	0	0	0	0
10	Mineral separation plant	0	0	0	0	0
11	Township area	0	0	0	0	0
12	(Others) Retaining wall, garland drain & settling tank, etc.	0	0.9148	0.9148	0	0.9148
13	Filling of void in safety zone with wastes and subsequently covered with plantation.	0	0.0112	0.0112	0	0.0112
	Total	7.01	2.618	9.628	0	9.628

As the mine comes under category A OTFM Mine, financial assurance at the rate of Rs3,000,00/-per hectare has been taken in to consideration as per Rule 27 of MCDR '17. Hence, the total financial assurance comes to be 9.628 X 3,00,000= Rs 2,888,400/- (Rupees Twenty Eight Lakh Eighty Eight Thousand Four Hundred only) has been submitted vide BG No. 1731319BG0001555 Dated 22.10.19 (Copy enclosed as Annexure XX).

अनुमोदित

APPROVED

क्षेत्रीय खान निबंधक

REGIONAL CONTROLLER OF MINES

भारतीय खान ब्यूरो

INDIAN BUREAU OF MINES

भुवनेश्वर/BHUBANESWAR

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PART B

9.0 Consents/Undertakings/Certificates(As detailed below)

DESCRIPTION	PAGE
Consent letter/Undertaking/Certificate from Applicant	90
Certificate from Qualified Persons	91

~~डॉ० आर.के. नाईक~~ / Dr. R. K. NAIK
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CONSENT LETTER/ UNDERTAKING/ CERTIFICATE

- 01) The Review of Mining Plan in respect of Kalta Iron Mine over an area of 25.981ha, in village- Kalta, Post – Kalta, District- Sundargarh, State –Odisha under Rule 17(2) of Minerals (Other than Atomic and Hydro Carbons Energy Minerals) Concession Rules, 2016 and Progressive Mine closure plan under Rule 23 of Mineral Conservation and Development Rules, 2017 has been prepared by following Qualified Persons as per rule 15 (1) of MCR 2016.

1. Sri Peter Dang M.Sc (Geology)
2. Dr. Rajesh Kumar Naik Ph.D (Geology)

This is to request the Regional Controller of Mines, Indian Bureau of Mines, Bhubaneswar, to make any further correspondence regarding any correction of the Review of Mining Plan with the said qualified persons at their address below:-

1. Sri Peter Dang , GM (Geology) Kalta Iron Mine Raw Materials Division District : Sundargarh State : Odisha Pin : 770052 Mobile No. : 8895503649	2. Dr. Rajesh Kumar Naik, AGM (Geology) P&D Planning & Development Wing Raw Materials Division 2 nd Floor, Project & Modernization Building of Rourkela Steel Plant District : Sundargarh State : Odisha PIN : 769011 Mob : 8895504068
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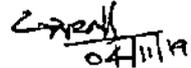
We hereby undertake that all modifications/updation as made in the said Review of Mining Plan by the said qualified persons be deemed to have been made with our knowledge and consent and shall be acceptable on us and binding in all respects.

- 02) It is certified that the CCOM Circular No-2/2010 will be implemented and complied with when an authorized agency is approved by the State Government.
- 03) It is certified that the Progressive Mine Closure plan of Kalta Iron Mine of Steel Authority of India Limited over an area of 25.981 ha complies with all Statutory Rules, Regulations, Orders Made by the Central or State Government, Statutory organization, Court etc. which have been taken into consideration and wherever any specific permission is required the lessee will approach the concerned authorities.

The information furnished in the Progressive Mine Closure Plan is true and correct to the best of our knowledge and records.

- 04) "The provisions of Mines Act, Rules and Regulations made there under have been observed in the Review of Mining Plan over an area of 25.981 hectares in Sundargarh District, in Odisha State, belonging to Kalta Iron Mine of Steel Authority of India Limited and where specific permissions are required, the applicant will approach the D.G.M.S. Further, standards prescribed by D.G.M.S. in respect of miners' health will be strictly implemented".

Date: 04.11.2019
Place: New Delhi


विवेक गुप्त / VIVEK GUPTA (Vivek Gupta)
निदेशक (सी मटेरियल्स एंड लॉजिस्टिक्स) Director (RM&L)
DIRECTOR (RAW MATERIALS & LOGISTICS) Nominated Owner of the Mines
स्टील अथॉरिटी ऑफ इण्डिया लिमिटेड Steel Authority of India Limited
इस्प्यात भवन, लोदी रोड, नई दिल्ली-110003 Ispat Bhawan, Lodi Road,
Ispat Bhawan, Lodi Road, New Delhi-110003 New Delhi -110003

इस्प्यात भवन, लोदी रोड, नई दिल्ली 110 003, दूरभाष : 011-24367481-86 फैक्स : 011-2436 7015, वेबसाईट : www.sail.co.in
Ispat Bhawan, Lodi Road, New Delhi-110 003, Phone : 011-2436 7481-86, Fax : 011-2436 7015, Website : www.sail.co.in.
PAN No. AAACS7062F Corporate Identity No. L27109DL1973 GOI00645"

CERTIFICATE FROM QUALIFIED PERSONS

The provisions of the Mineral Conservation and Development Rules 2017 have been observed in the preparation of the Review of Mining Plan for Kalta Iron Mine (ML 139) lease over an area of 25.981 Ha or 64.20 Acres of M/S Steel Authority of India Limited (SAIL), in village Kalta, P.O: Kalta, District Sundargarh of Odisha State and whenever specific permissions are required, the applicant will approach the concerned authorities of Indian Bureau of Mines.

The information furnished in the Review of Mining Plan is true and correct to the best of our knowledge.

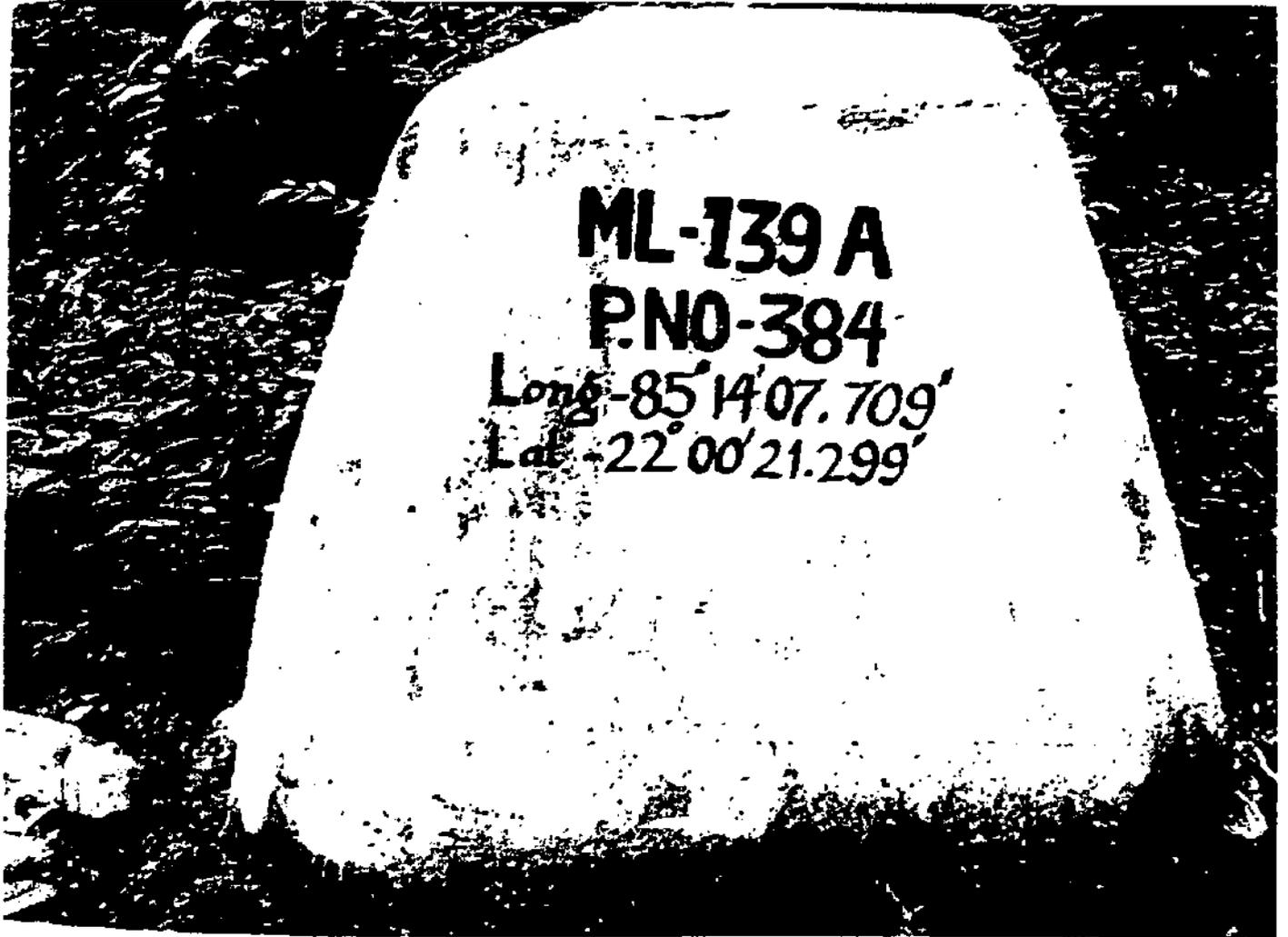
Place: Kalta Iron Ore Mine

Date: 25/10/19

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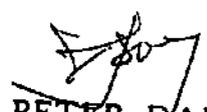
~~Signature
PE PERDANG
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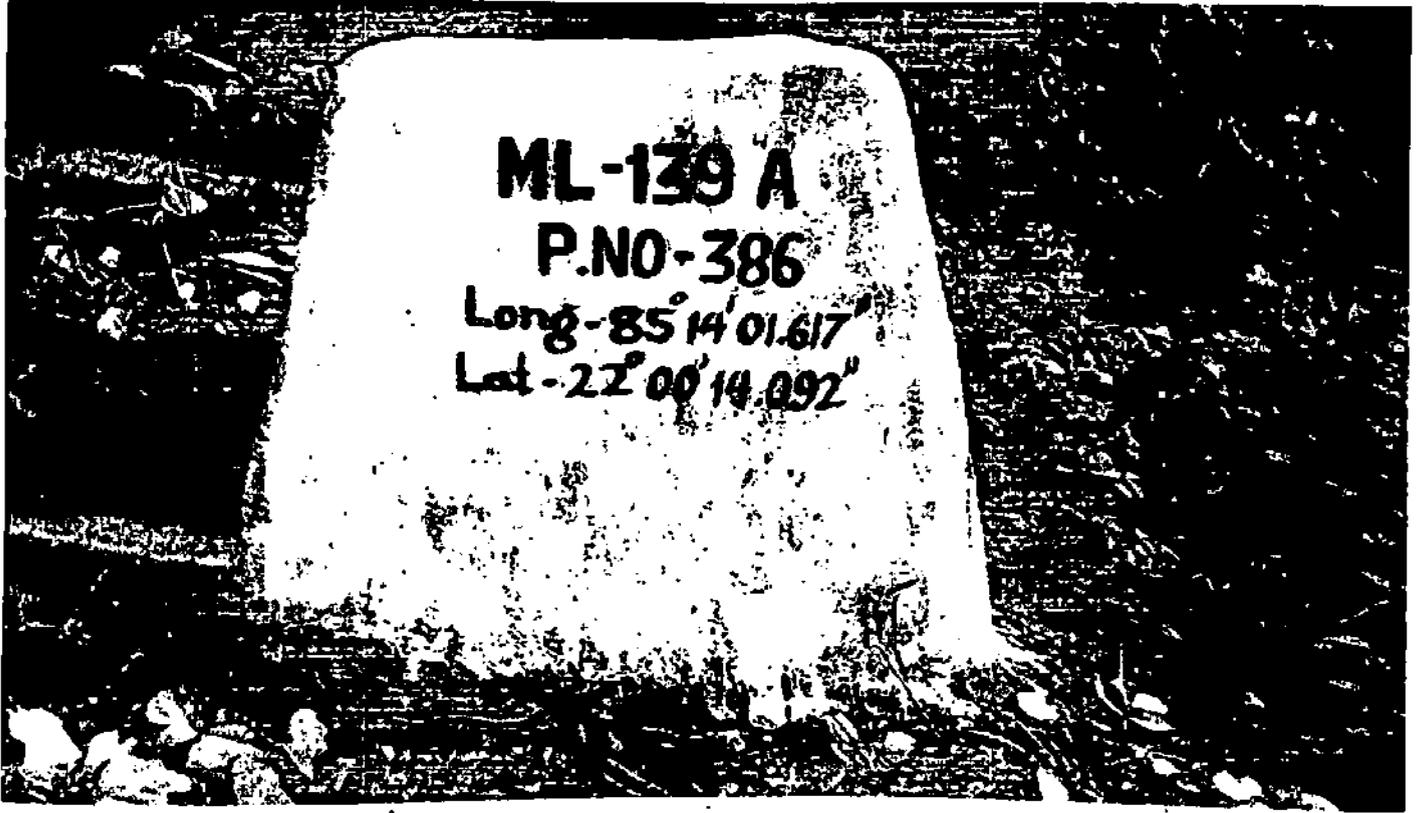
~~Signature
(Dr. R. K. Naik)~~



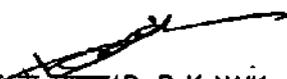
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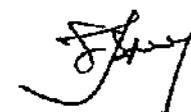

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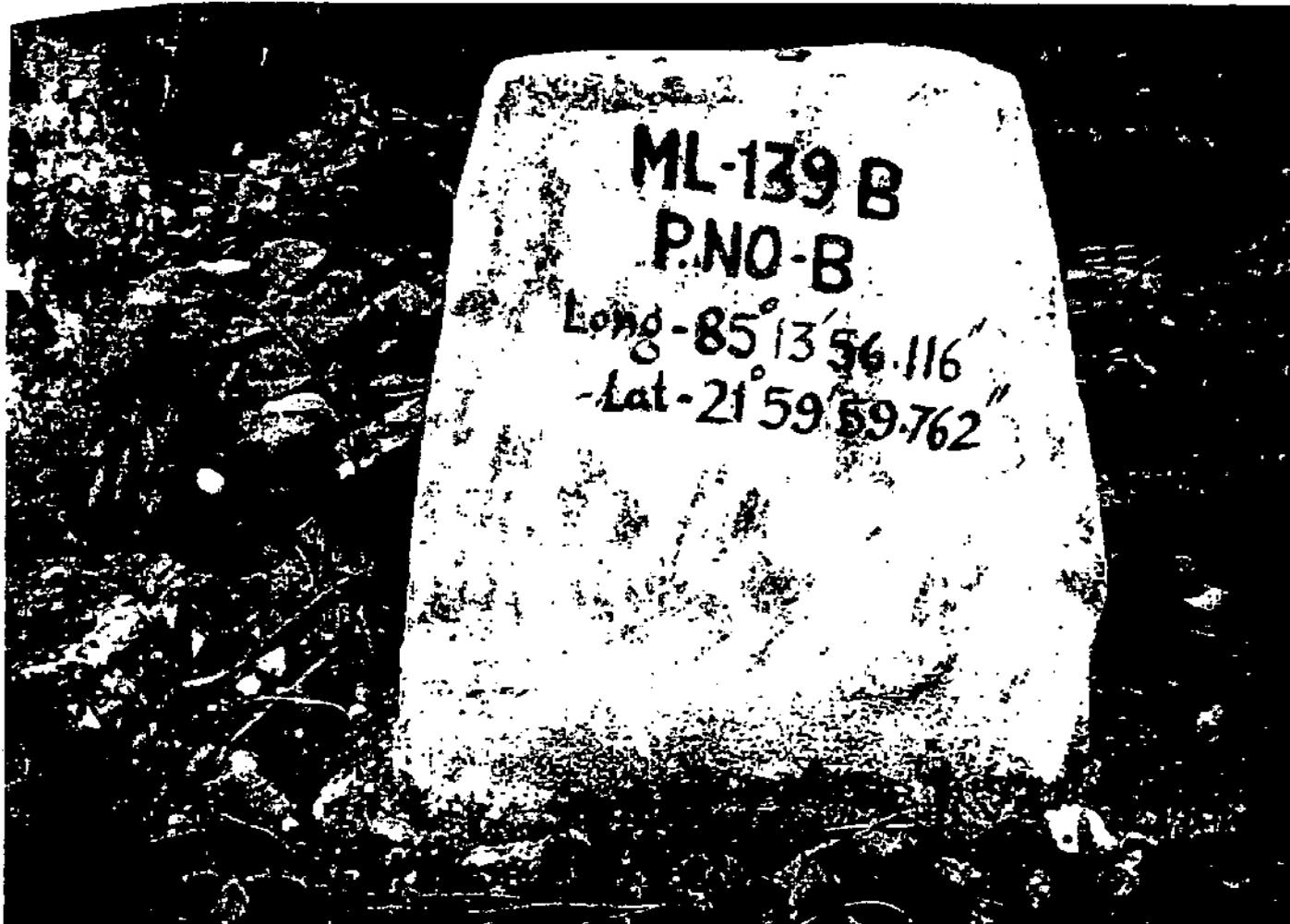

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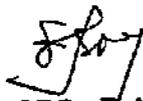

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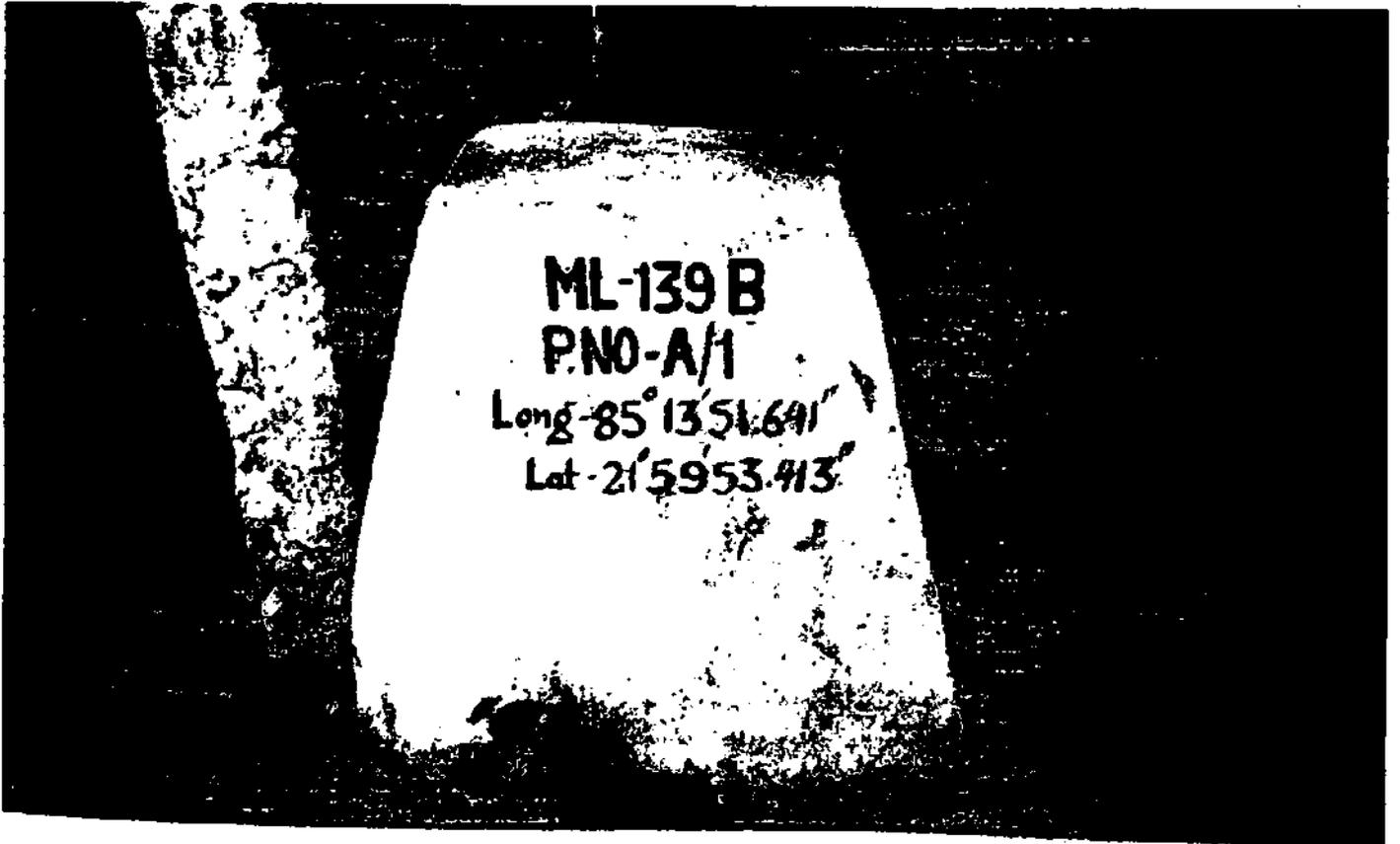

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LIST OF ANNEXURES

DESCRIPTION	ANNEXURE NO.	PAGE NO.
Copy of Lease Deed executed on 17.01.1975	I	1-40
Copy of Permission for surface operation	II	41
Copy of Approved letter of modification of approved mining plan	III	42-48
Certification of incorporation of SAIL and copy of Miscellaneous provision Act, 1978(16 of 1978) merging Hindustan Steel Limited in SAIL	IV	49-51
List of members of board of directors	V	52
Copy of List of Leases of SAIL	VI	53-55
Copy of Power of attorney	VII	56-58
Copy of Office order regarding nominated owner and Photo ID & address proof of nominated owner.	VIII	59-61
Copy of Renewal application of Mining Lease	IX	62-69
Order of Extension of Mining Lease period & Ext. of time for Execution by GoO Department of S&M	X	70-74
Copy of Chemical Analysis from NABL & copy of Bulk density analysis	XI	75-82
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Pre-feasibility Study Report	XIV	85-107
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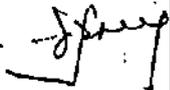
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 JHARSUA IRON MINES &
 RAJAHMUNDRAM IRON MINES

ANNEXURE - 1

M. L. DEED No. 139

MINING LEASE DATED 17.1.75 FOR IRON ORE
OVER 25981 HECTARES IN TODA RESERVE
FOREST IN BONAI SUB-DIVISION OF
SUNDARGARH DISTRICT, ORISSA

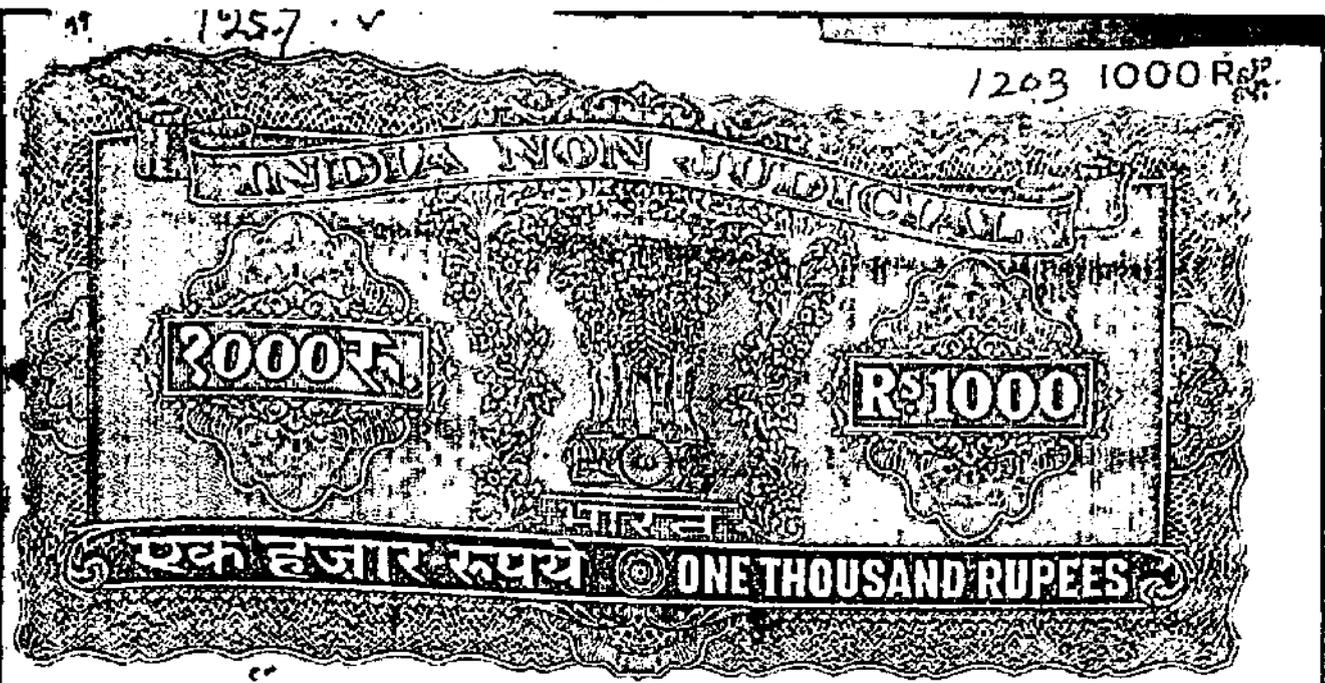
IN FAVOUR OF
HINDUSTAN STEEL LIMITED
ROURKELA STEEL PLANT
ROURKELA, ORISSA.


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 20. 50
 R. 110)

25 (4)
 25 (4)

20

Fee paid
 A.110) 3383. 00
 A.110) 66. 50
 A.110) 2. 00
 - A. 21 5. 00

 3481. 00

When the
 losses
 are a regi-
 stered
 company.

THIS INDEBTURE made this 17th
 day of January 1975 between the Governor of
Orissa (hereinafter referred to as the
 "State Government" which expression shall
 where the context so admits be deemed to
 include the successors and assigns) of
 the one part; and M/s. Hindustan Steel
Limited, Rourkela Steel Plant, Rourkela-1
(Through Shri S.K. De, Officer-In-Charge,
Prospecting Division, Ore Dress &
Quarries Department S/o. late Shri
Genal Chandrase, aged about 45 years
Profession Employee Power of Attorney
Holder) (Name of company) a company
registered under Indian Companies
Act, 1956 (Act under which incorporated)
and having its registered office at
Ranchi (Address) (hereinafter referred
to as the lossess which expression
shall where the context so admits be
deemed to include its successors and
permitted assigns) of the other part.

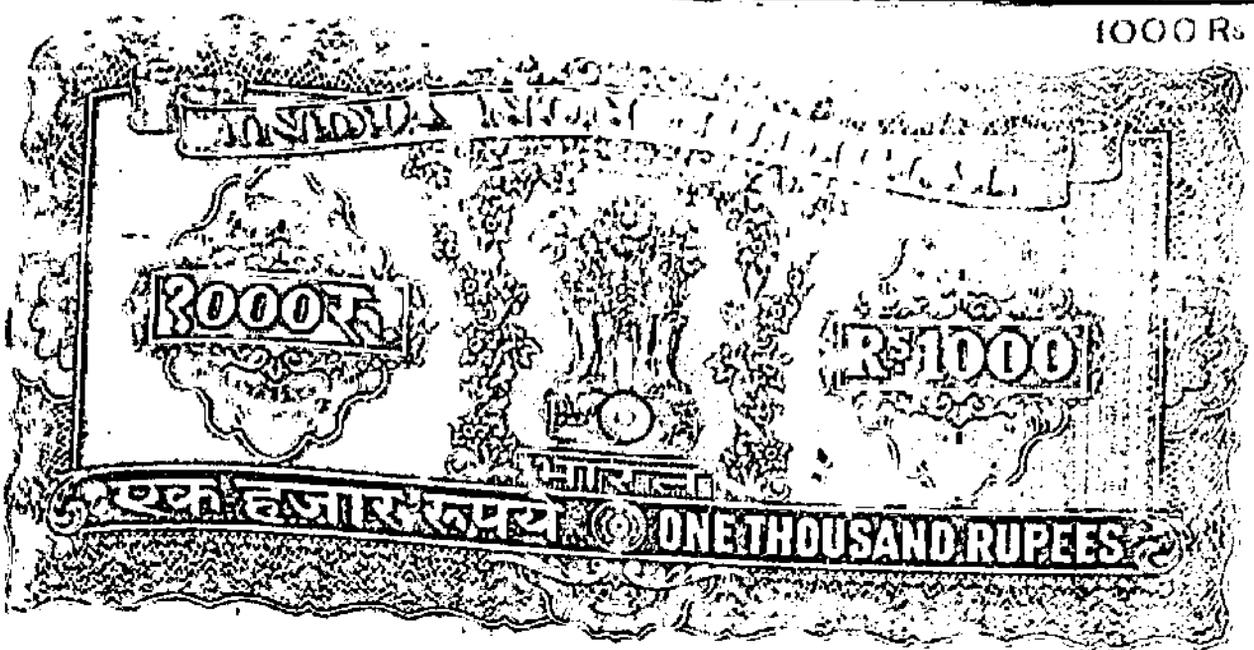


Dr. R. K. NAIK
 Senior Manager (Geo.) P & D
 SAIL, RMD, ROURKELA

P. N. ...
 1975

PETER DANG
 General Manager (Geology)
 SAIL, RMD, BIM & KIM
 BARSUA IRON MINES &
 KALTA IRON MINES

1000 Rs



-- 2 :-

WHEREAS MLR lessees have agreed to the State Government in accordance with the Mineral Concession Rules, 1960 (hereinafter referred to as the said Rules), for a mining lease for Iron Ore in respect of the land described in Part I of the Schedule hereunder written and have deposited with the State Government the sum of Rs. 1000/- as security and Rs. 500/- for meeting the preliminary expenses for a mineral lease; and WHEREAS the Central Government has approved the grant of the lease;



WITNESSETH that in consideration of the rents and royalties, covenants and agreements by and in the Schedule hereunder written reserved and contained and on the part of the lessees to be paid observed and performed, the State Government (with the approval of the Central Government) has granted and deposes into the said...

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Senior Manager (Geo.) P & D
सेल, आर.एम.डी. राउरकेला
SAIL, RMD, ROURKELA

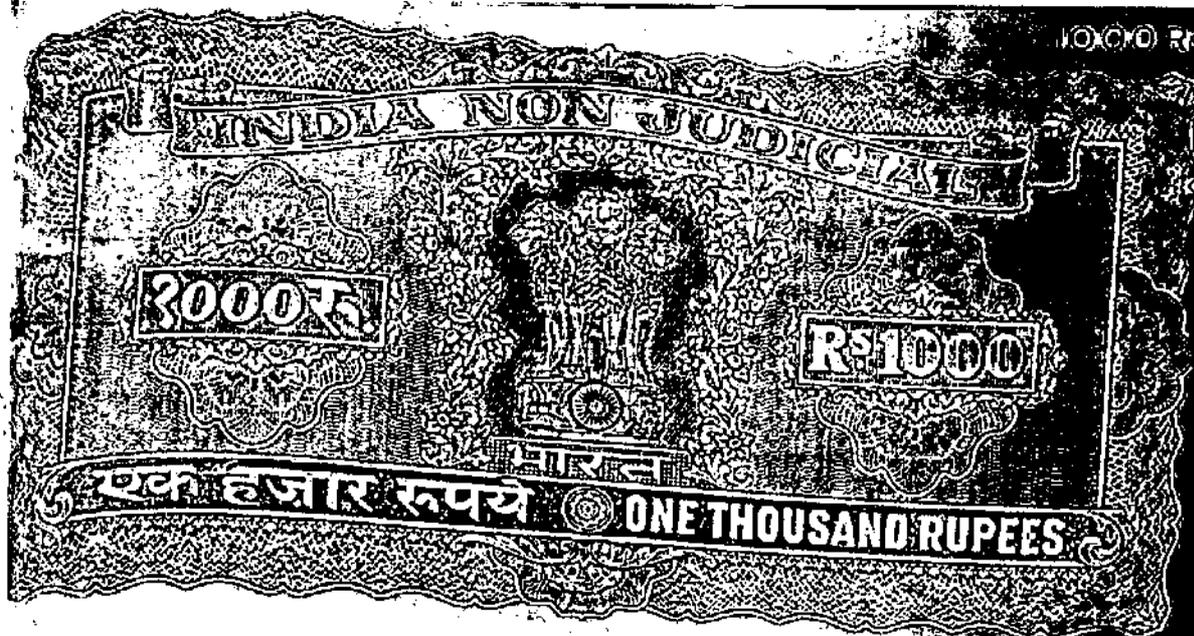
3

PETER DANG
General Manager (Geology)
SAIL, RMD, BIM & KIM
BARSUA IRCN MINES &
KAJTA IRON MINES

डॉ० आर. के. नाइक/ Dr. R. K. NAIK
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4

PETER DANG
General Manager (Geology)
SAIL, RMD, BIM & KIM
BAP
RCN MINES &
RCN MINES



:- 4 :-

with the lessees as in Part VIII of the said Schedule as expressed AND it is hereby mutually agreed between the parties hereto as in Part IX of the said Schedule is expressed.

IN WITNESS WHEREOF these presents have been executed in manner hereunder appearing the day and year first above written.

The Schedule above referred to

PART I

THE AREA OF THIS LEASE

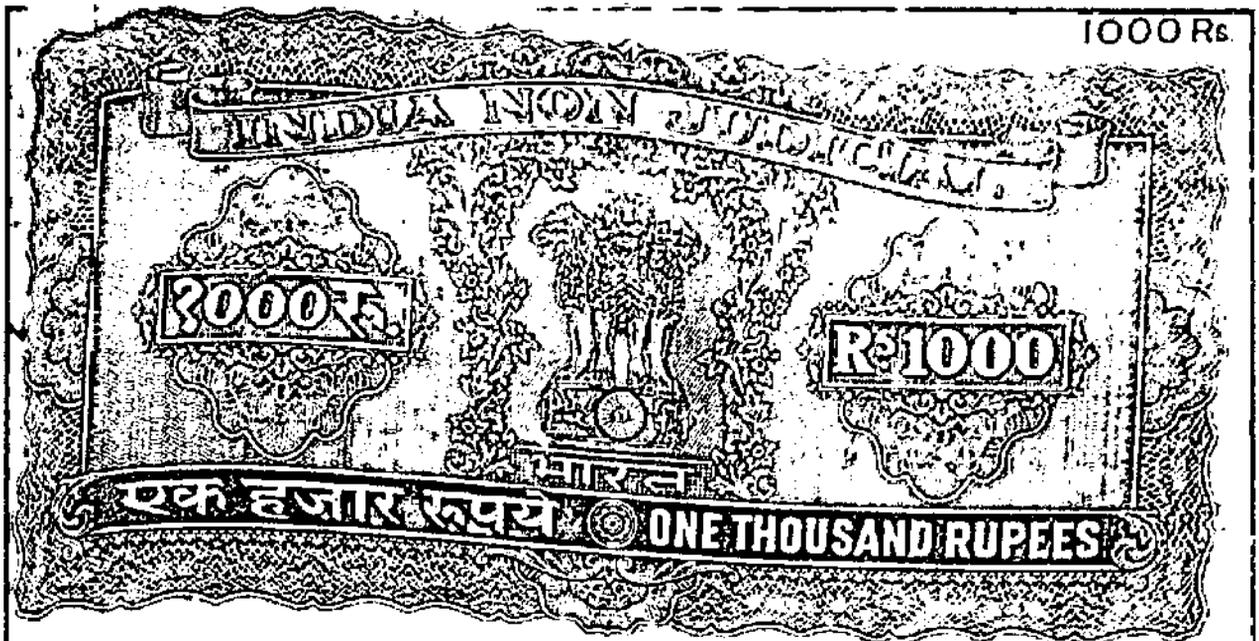
Location and area of the lease.

All that tract of lands situated in the Reserve Forest of Sundargarh District in Bonal Sub-division in the Registration district of Sundargarh Sub-division Bonal and Thana, bearing cadastral Survey No. 73 G/1 containing an area of 25,981 hectares or thereabouts, delineated on the plan hereto annexed and thereon coloured red out of the area of 33,132 hectares, which is bounded as follows, which contains a portion of the area measuring 12.20 hectares coming within Keonjhar District for which separate lease shall be executed.

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5

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 General Manager (Geology)
 SAIL, RMD, BIM & KIM
 BARSUA IRON MINES &



1000 Rs

-: 5 :-

Block 'A' over 56.83 acres or 23.0921 hectares.

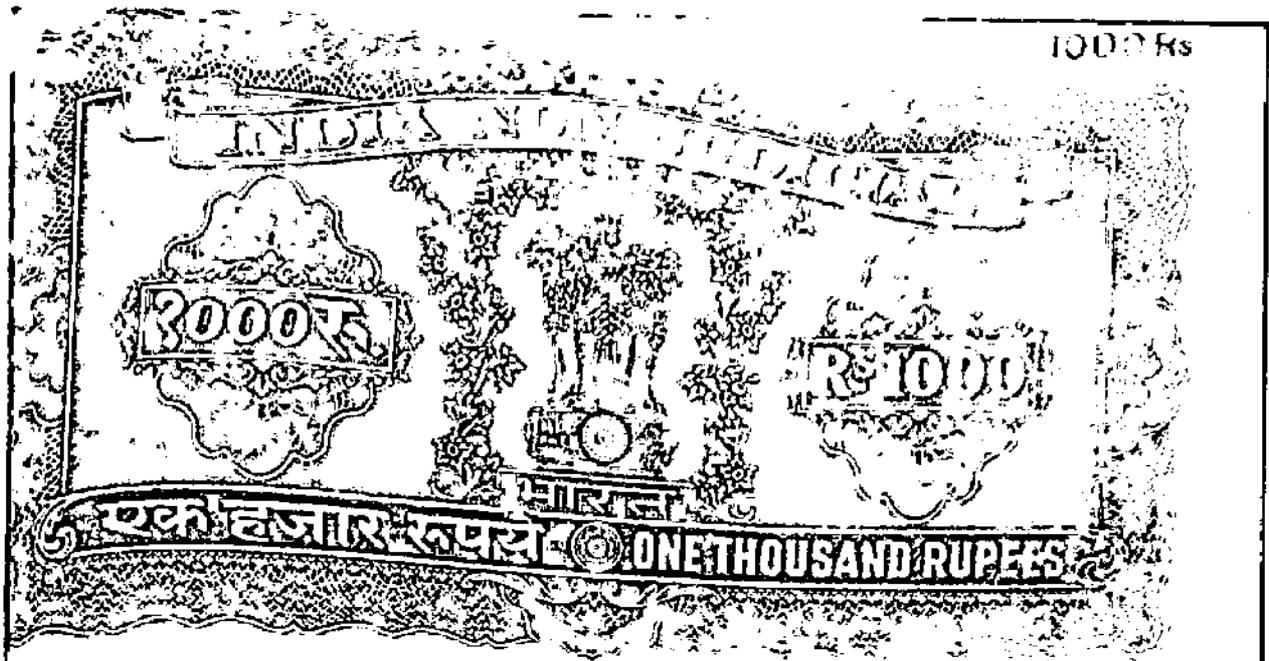
The station 'A' of this block is situated 760 ft. or 231.65 metres from the Orissa-Bihar State boundary pillar No. 1335 and the line joining State boundary pillar No. 1335 & station 'A' makes an angle of $353^{\circ}06'$ with line joining State boundary pillar No. 1335 & 1335.

Northern boundary:- Starts from station 'A' and runs upto station 'B' which is the State boundary pillar No. 1333 for a distance of 440.75 ft. or 134.24 metres making an angle of $271^{\circ}50'$ at station 'A' with the line joining station 'A' & State boundary pillar No. 1335. Then it runs upto station 'F' making included angle of $120^{\circ}-16'$ at station 'B', $203^{\circ}-22'$ at station 'C', $126^{\circ}-16'$ at station 'D' and $270^{\circ}00'$ at station 'E' and for the distances of 354.80 ft. or 99.07 metres, 294.05 ft. or 89.53 metres, 440 ft. or 134.11 metres and 231 ft. or 70.41 metres respectively.

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6

P. Lang
PETER LANG
General Manager (Geology)
SAIL, RMD, BIM & KIM
BARCILUKE MINES &



- : -

Western boundary:- Starts from station '1' and runs upto station '2' making included angles of 90°-00' at station '2', 170°-00' at station '3' or 270°-00' at station '3' for a distance of 247.00 ft. or 75.29 metres.

Southern boundary:- Starts from station '1' and runs upto station '4' making included angle of 90°-00' at station '4' with the line joining station '1' & '3' for a distance of 341.50 ft. or 256.49 metres.

Eastern boundary:- Starts from station '1' and runs upto station '5' making included angle of 90°-00' at station '5' for a distance of 2040 ft. or 621.27 metres.

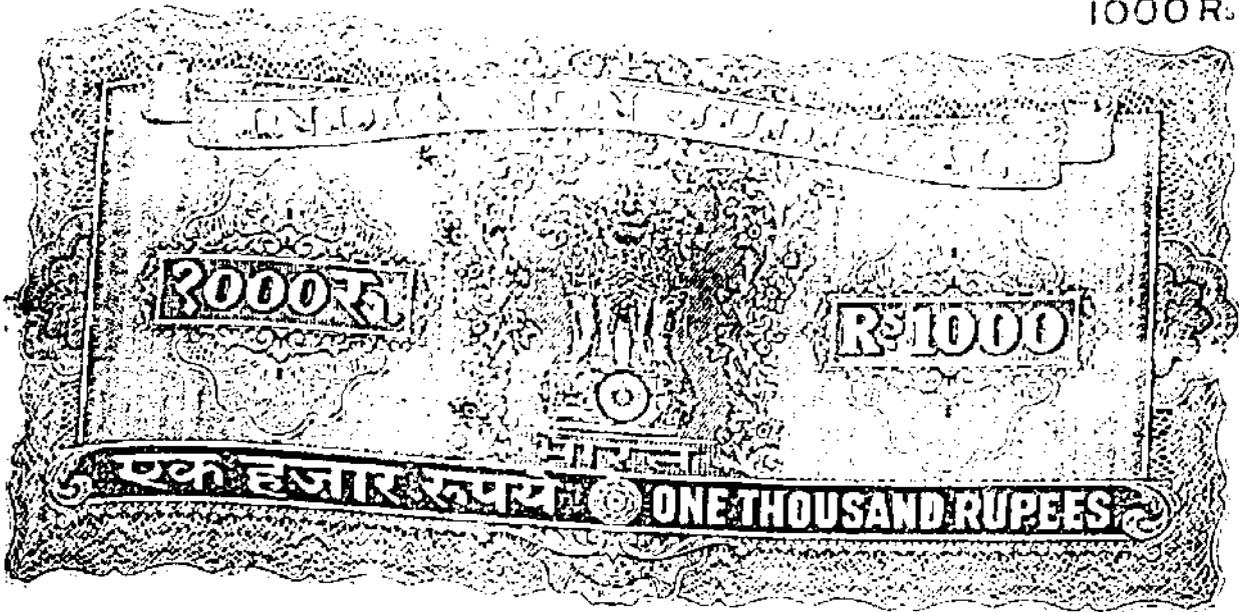
Lastly the included angle at station '1' formed by the lines '1-2' & '1-5' is 90°-00'.



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 BARSUA IRON MINES &
 MINES

1000 Rs



Black 1000 Rs notes on 21.10.80 pasted.

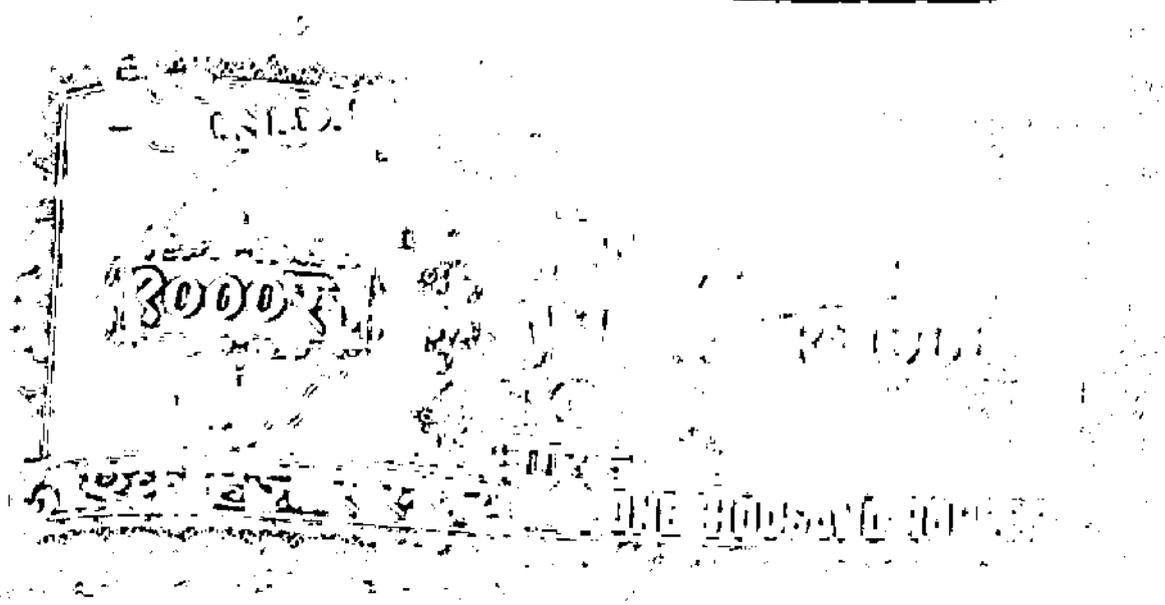
Northern boundary:- starts from station 'A' which is the boundary pillar No. 1/12 of the 9.6 sq. miles Iron Ore lease area of 1/3. N.S.I.L. and runs upto station 'B' making an angle of $149^{\circ}35'33''$ at station 'A' with line joining 'A' & 'C' of the 9.60 sq. miles Iron Ore lease area of 1/3. N.S.I.L. which is also common with the line A & C of this area, for a distance of 1076.65 ft. or 327.16 metres.



Northern boundary:- Starts from station 'B' and runs into station 'C' making an included angle of $90^{\circ}00'$ at station 'B' with the line joining station 'B' & 'A' for a distance of 910 ft. or 277.75 metres.

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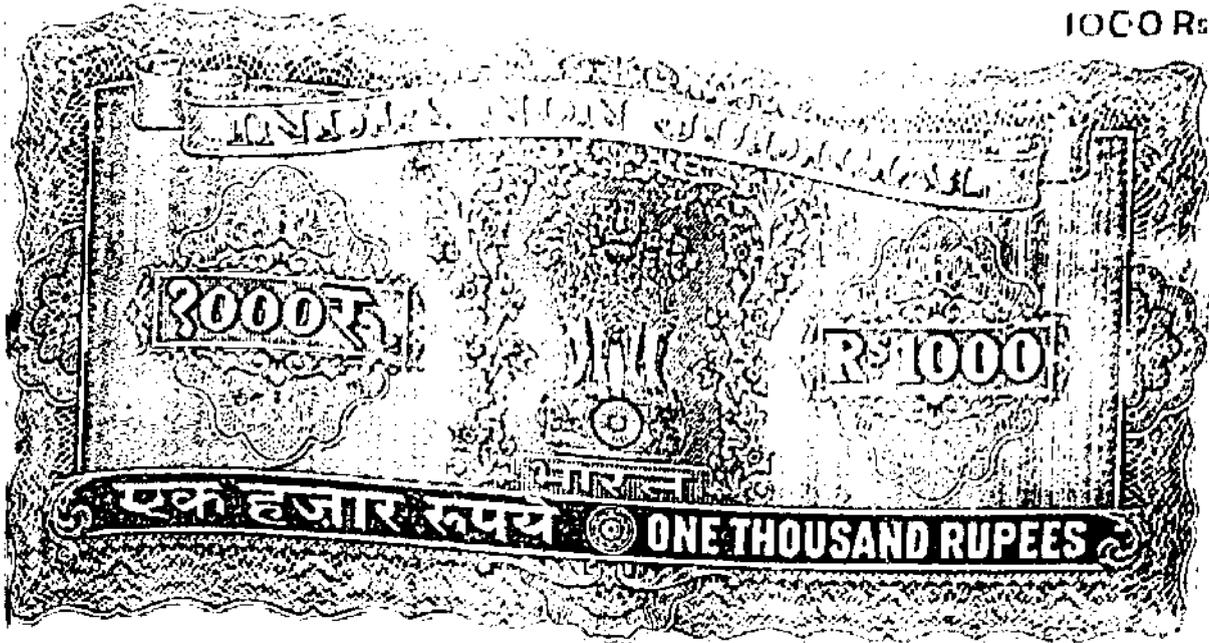


Personnel Department
of the Ministry of Coal
Government of India
New Delhi

Personnel Department
of the Ministry of Coal
Government of India
New Delhi

डॉ० आर. के. नाएक / Dr. R. K. NAIK
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MINES



Block 'A' Reserve forest Gonda District.	10,000 hectares.
Block 'B' Reserve forest Gonda District.	10,000 "
Block 'C' Reserve forest Gonda District.	10,000 "
Block 'D' Reserve forest Gonda District.	10,000 "



PART II

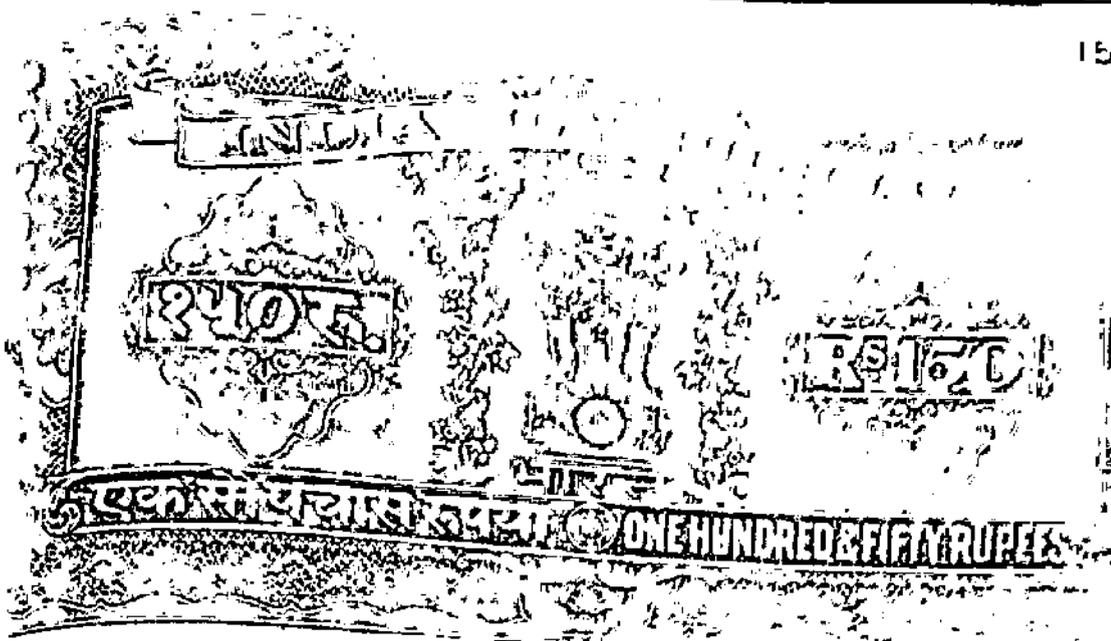
RESERVE FOREST AND PRIVILEGES...
 GRANTED BY ONE HUNDRED...

To enter upon land and search for minerals, etc.

1. Liberty and power at all times during the term of this lease to enter upon the land and to search for and, here, if, and, work and to convert any mineral.

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Peter Dang
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 SAIL, RMD, BIM & KM
 BARSUA IRON MINES &
 KA... MINES



-: 10 :-

To sink,
drive and
make pits,
shafts and
inclines
etc.

2. Liberty and power of the contractor with any of the parties mentioned in the part to erect, construct, maintain and use on or under the said lands, any and all machinery, plant dressing, furnaces, coke ovens, brick-kilns, worksheds, tool sheds, bungalows, houses, offices, godowns, buildings and other structures of the like nature (including the roads).

To bring
to use
machinery
equipment,
etc.

3. Liberty and power of the contractor with any of the parties mentioned in the part to erect, construct, maintain and use on or under the said lands, any and all machinery, plant dressing, furnaces, coke ovens, brick-kilns, worksheds, tool sheds, bungalows, houses, offices, godowns, buildings and other structures of the like nature (including the roads).

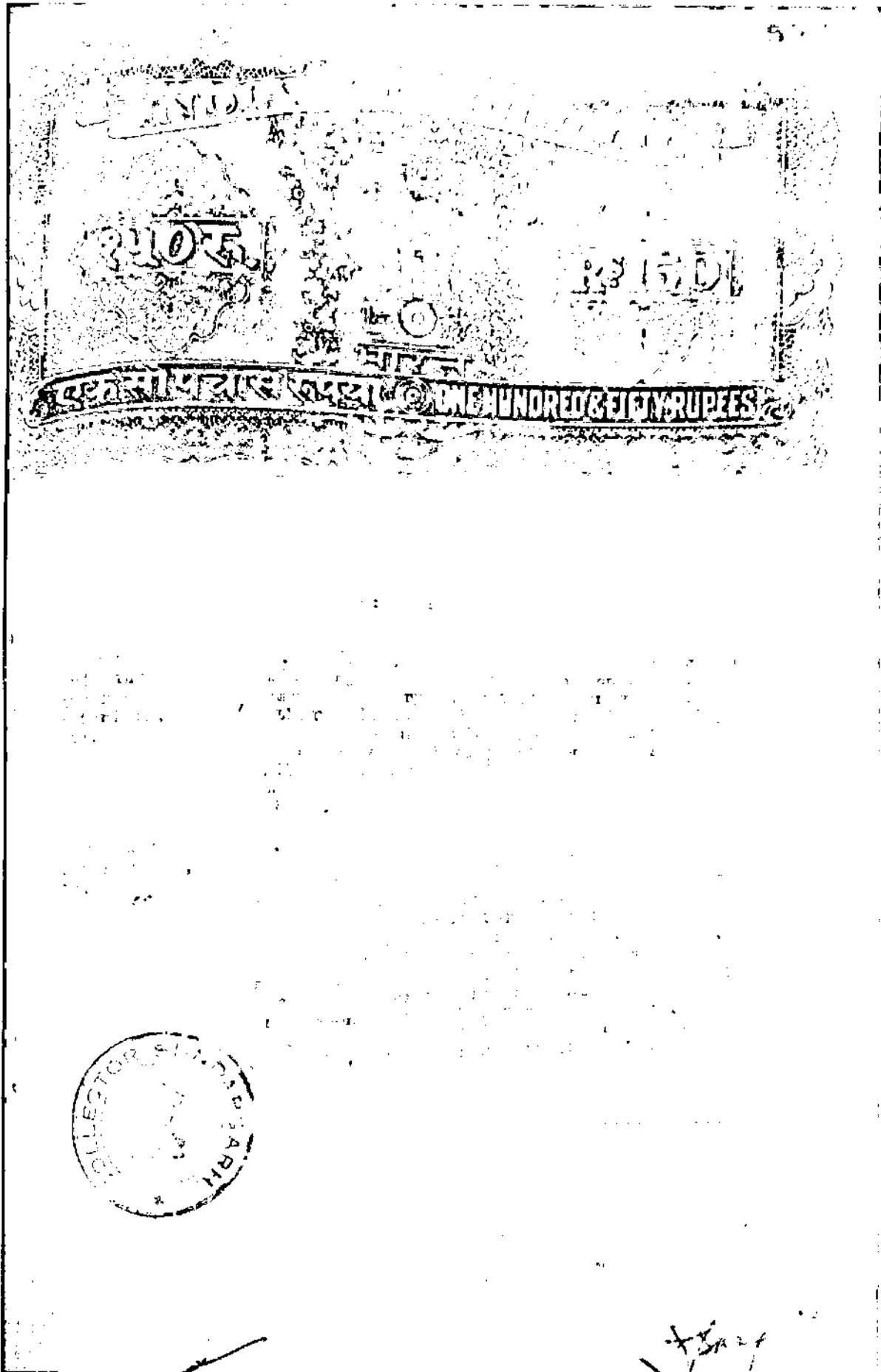
To make
roads and
ways etc.
and use
existing
roads and
ways etc.

4. Liberty and power of the contractor with any of the parties mentioned in the part to erect, construct, maintain and use on or over the said lands, any and all machinery, plant dressing, furnaces, coke ovens, brick-kilns, worksheds, tool sheds, bungalows, houses, offices, godowns, buildings and other structures of the like nature (including the roads).



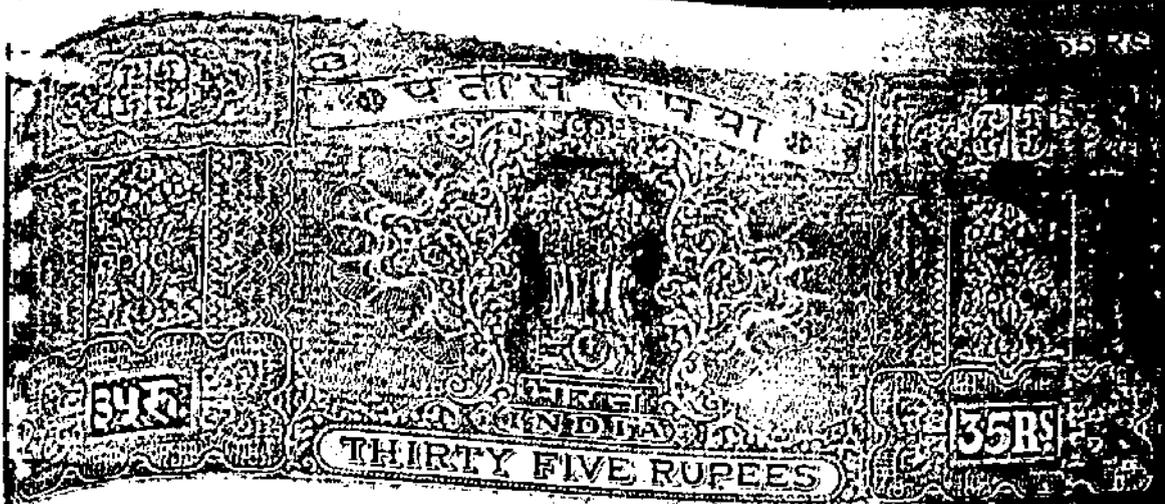
डॉ० आर. के. नाएक/ Dr. R. K. NAIK
वरिष्ठ प्रबंधक (भूविज्ञान) योजना एवं विकास
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X 3424
PETER DANG
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SAIL, RMD, BIM & KIM
BARSUA IRON MINES &
KALTA IRON MINES



... 12 ...
 ... will
 ... or ...
 ... stock of ...
 ... before accustomed ...
 ... or pollute any stream ...
 ... Provided that the lessee shall not
 ... interfere with the navigation in any
 ... navigable stream nor shall divert such
 ... stream without the previous written
 ... permission of the State Government.

To use
 land for
 stacking,
 heaping,
 depositing
 purposes.

7. Liberty and power to enter upon
 use a sufficient part of the surface
 the said lands for the purpose of ...
 heaping, storing or depositing therein
 produce of the mines or works carried on
 and any tools, equipment, earth and
 ials and substances dug or raised under
 the liberties and power mentioned in
 part.

Beneficia-
 tion and
 conveying
 away of
 production.

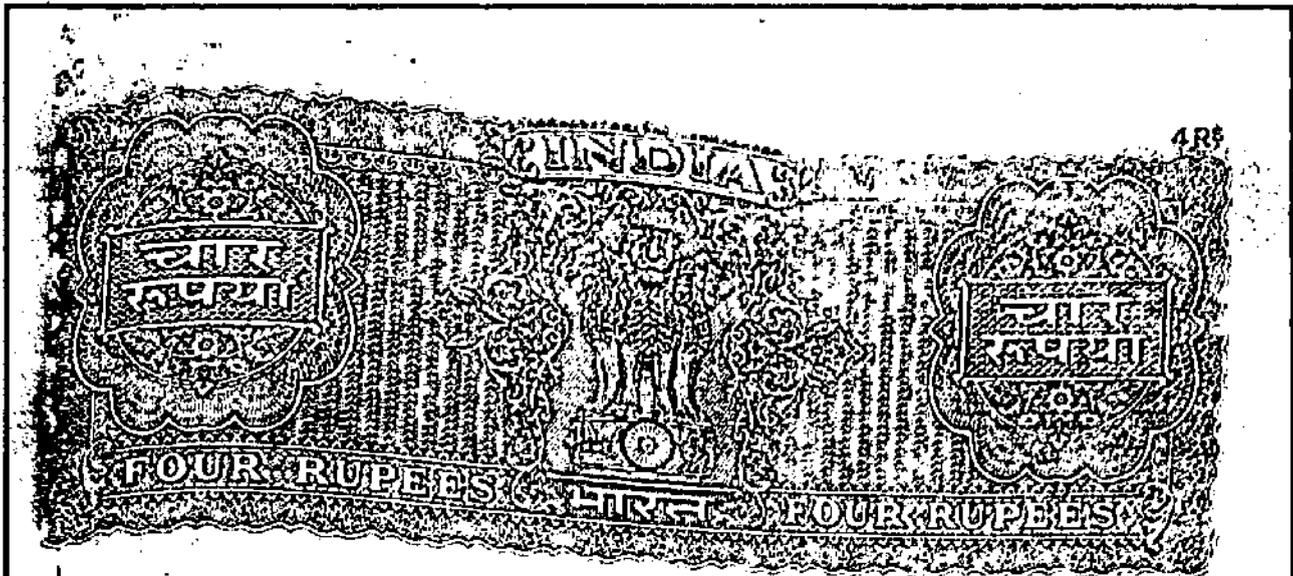
8. Liberty and power to enter upon
 use a sufficient part of the said
 to beneficiaries ...
 said lands and to carry away such
 ficiated ...



P. D. Dang

डॉ० आर. के. नाईक / Dr. R. K. NAIK
 वरिष्ठ प्रबंधक (भूविज्ञान) योजना एवं विकास
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 BARSUA IRON MINES &
 KAITA IRON MINES



To clear brushwood and to fell and utilise trees, etc.

8. Liberty and power, or in connection with any of the purposes mentioned in this part and subject to the existing rights of others and subject to the provisions of clause 3 of Part II of this Act, to clear undergrowth and to fell and to fell and utilise any trees or timber standing or found on the said lands provided that the State Government may ask the Lessee to pay for any trees or timber felled and utilised, by the State at the rates specified by the Collector or at its Government.

No building, etc. upon certain places.

1. No building or other structure, set up or placed and no surface operations shall be carried on in or upon any public pleasure ground, or private ground or place held sacred by any class of persons or any house or village site, public road or other place which the State Government may determine as public ground nor in such



.... 14 .../

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 BARSUA IRON MINES &
 KALTA IRON MINES



:- 14 :-

a manner as to injure or prejudicially affect any buildings works property or rights of other persons and no land to be used for surface operations which are already occupied by persons other than the State Government for works for purposes not included in this lease. The lessee shall not also interfere with any right of way, well or tank.

Permission for surface operations in a land not already in use.

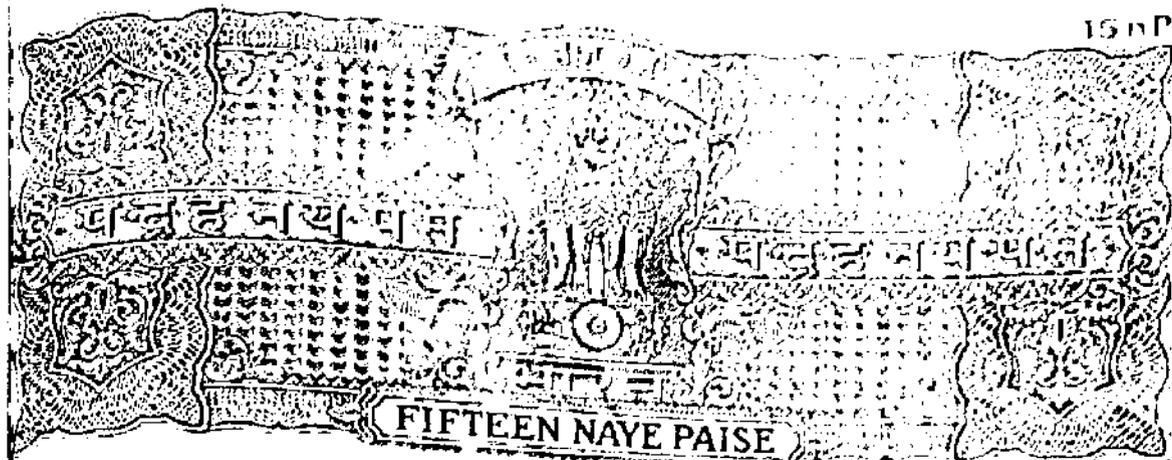
2. Before using for surface operations any land which has not already been used for such operations, the lessee shall give to Collector of the district at least 30 calendar months previous notice in writing, specifying the name or other description of the situation and the extent of the land proposed to be so used and the purpose for which the same is required and the said land shall not be so used if objection is issued by the Collector within two months after the receipt by him of such notice unless the objections so stated shall on reference to the State Government be found to be untenable.



Peter Dang

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 BARSUA IRON MINES &
 KAITA IRON MINES



To cut
traces in
unreserved
lands.

4. The lessee shall not be allowed to cut any trees or to do any other work on the said lands which may interfere with the forest or the operations of the forest department. The lessee shall be bound to observe the provisions of the Forest Act, 1927 and the rules made thereunder and to comply with the orders of the District Collector of the District.

To enter
upon
reserved
forests.

4. Notwithstanding anything in this lease who contained the lessee shall not enter upon any reserved forest included in the said lands without previous consent in writing of the District Forest Officer or any other officer authorized in this behalf by the District Forest Officer. Any breach of the provisions of this clause shall be deemed to be a breach of the lease and the lessee shall be liable to forfeit the lease.



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डॉ० आर. कृ० नाईक / Dr. R. K. NAIK
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सेल, आर.एम.डी. राउरकेला
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PETER DANG
General Manager (Geology)
SAIL, RMD, BIM & KIM
BARSUA IRON MINES &
MINES

No mining operations within 50 metres of public works, etc.

5. The losses shall not work or be allowed to be worked or carried on any mining operations at or to any point within a distance of 50 metres from any railway line except with the previous written permission of the Railway Administration concerned or under or beneath any rope way or any rope way trestle or station except under and in accordance with the written permission of the authority owning the rope way or under any reservoir, canal or other public works such as public roads and buildings or inhabited site except with the previous written permission of the Collector or other Officer authorised by the State Government in this behalf and otherwise than in accordance with such instructions, restrictions and conditions either general or special which may be attached to such permission. The said distance of 50 metres shall be measured in the case of railway, reservoir or canal horizontally from the outer toe of the bank or the outer edge or the cutting as the case may be and in case of a building horizontally from the plinth thereof. In the case of village roads no working shall be carried on within a distance of 11 metres of the outer edge of the cutting except with the previous permission of the Collector or any other officer duly authorised by the State Government in this behalf and otherwise than in accordance with such directions, restrictions and additions, either general or special, which may be attached to such permission.

Explanation: For the purpose of this clause the expression 'Railway Administration' shall have the same meaning as it is defined to have in the Indian Railway Act, 1890, clause (6) of section 3 of that Act. 'Public Road' shall mean a road which has been constructed by artificial surfacing as distinguished from a track resulting from repeated use. Village road shall include any track shown in the Revenue Survey as village road.



P. K. Naik

P. K. Naik
PETER BANIG
General Manager (Geology)
SAIL, RMD, BILIMORIA
BARSUA IRON MINES
KALTA IRON MINES

डॉ० आर. के. नाईक / Dr. R. K. NAIK
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Senior Manager (Geo.) P & D
सेल, आर.एम.डी. राउरकेला
SAIL, RMD, ROURKELA

to make
railways
and roads.

Government and power to the State
Government, or any person or person
and used for the purpose of or in
over the land, and to use the
travelling, and to use the land for
purpose of or in connection with
Part II of this Act, and to get
the said lands, stones, earth and
other material for the purpose of
repairing such railways, roads and
or any existing railways and roads
to go and repair at all times with or
horses, cattle or other animals, cars,
wagons, carriages, locomotives or other
cles over or along any such railways, tra
ways, roadlines and other ways for all
purposes and as occasion may require;
Provided that in the exercise of such
liberty and power no such other person
person no substantial hindrance or inter
ference shall be caused to or with the
liberties, powers and privileges of
lessees under these provisions, and that
compensation, as may be payable, shall
upon or in the event of discontinuance
be decided by the State Government, and
made to the lessees for all loss or damage
substantial hindrance or interference shall
be caused to or with the exercise by such
lessee or person of such liberty and power.

PART V

Rent and royalties reserved by the State

to pay land
rent or
royalty
whichever
is higher.

1. The lessees shall pay, for every year
except the first year of the lease, dead rent
as specified in clause 2 of this Part.

Provided that, where the holders of such
mining lease become liable under section 2 of
the Act, to pay royalty for any mineral
or consumed by them or by their agent, employee,
employee, contractor or sub-lessee from the
leased area, they shall be liable to pay the
such royalty or the dead rent in respect of
that area, whichever is higher.

Date and place
of signature of
the State Government.

2. Subject to the provisions of clause 1 of
this part, during the continuance of the lease
the lessees shall pay to the State Government
annual dead rent for the lands leased and
described in Part I of this Act, or later
for the time being specified in the Third
to the Act, in such manner as may be specified
in this behalf by the State Government.

..... 19 .../



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डॉ० आर. के. नाईक / Dr. R. K. NAIK
वरिष्ठ प्रबंधक (भूविज्ञान) योजना एवं विकास
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General Manager (Geology)
SAIL, RMD, BIM & KIM
BARSUA IRON MINES &
KALTA IRON MINES

with the
work of
payment of
royalty...

...Mineral rights of class 1 of this
...existing the existence of
...at such
...Government
...Mineral/
...by their
...sub-lessee
...the
...to the
... (Application and Development)

Payment of
surface rent
and water
rate...

...State
...the surface
...to time,
...the
...of
...not
...for
...at the rates
...per annum
...occupied or used
...more than a hectare
...of such
...cess
...to
...In 1957, each
...responsible in respect
...and use of the area compr-
...to which the public
...of access.

with the
work of
payment of
royalty...

...water-rate and royalty...
...paid
...Government
...State
...and
...and
...in
...of a
...included the
...and accepted by
...satisfaction of the
...mentioned in Part 2
...that amount.



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Peter D/NG
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General Manager (Geology)
SAIL, RMD, BIM & KIM
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KALTA IRON MINES

Mode of computation of royalty.

2. For the purpose of computing the said royalties the lessees shall keep a correct account of the mineral/minerals produced and despatched. The accounts as well as the weight of the mineral/minerals in stock or in the process of export may be checked by an officer authorized by the Central or State Government.

For the purpose of computing the said royalties the quality of the ore shall be ascertained as follows:-

The lessees shall, before despatch, whether the ore has been sold at site or not or before beneficiation shall grade the ore into such qualities as may be prescribed by the State Government and every consignment despatched or sent for beneficiation shall not contain ore of more than one such grade. The lessees shall produce evidence of analysis of each consignment despatched or sold or beneficiated by laboratory recognised in the trade for such analysis within two months of the sale, despatch or beneficiation and such analysis report which shall contain analysis of the various factors which the State Government may specify in this behalf shall be taken subject to the following proviso as the quality report for assessing quality of the Ore; PROVIDED that the lessor may take out samples of the ore sold, despatched or beneficiated and get the same analysed through a recognised ANALYST in case such ANALYST discloses a more favourable quality for the lessor, adopt such quality for computation of the said royalty and in addition, if such analysis report discloses a difference of one per cent or more in the quality of high grade ore, or two per cent or more in the case of low grade ore, the cost of such analysis by the lessor shall also be recoverable from the lessees.



Course of action if rents and royalties are not paid in time.

3. Should any rent, royalty or other sums due to the State Government under the terms and conditions of these presents be not paid by the lessees within the prescribed time, the same, together with interest due thereon at the rate as may be prescribed from time to time may be recovered on a certificate of such officer as may be specified by the State Government by general or special order, in the same manner as an arrear of land revenue.

P. N. D.

... 21 ...

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The Government of India reserves the right to vary the rate and conditions of the lease, subject to the provisions of the Mines Act, 1926 and the rules made thereunder.

1. The lessee shall, at their own expense, erect and at all times maintain and keep in repair boundary walls and pillars according to the directions to be given by the plan approved in this lease. Such walls and pillars shall be sufficiently clear of the surface and other obstructions as to allow easy identification.

2. Unless the State Government for special cause permits otherwise, the lessee shall commence operation within one year from the date of execution of the lease and shall thereafter at all times during the continuance of this lease employ such work and develop the said minerals wholly or voluntarily labour alone in a skilled and workmanlike manner and as prescribed under clause 12 hereinafter without delay or permitting to be done any unnecessary or avoidable damage to the surface of the said lands or the surface buildings, structures or other properties thereon. For the purposes of this clause, operations shall include the extraction of minerals having any quantity of mineral substance of a kind in connection with the mine.

3. The lessee shall, at their own expense, be responsible for the safety of the mine as may be required by law and in accordance with the law in force in the State.

4. The lessee shall, at their own expense, be responsible for the safety of the mine as may be required by law and in accordance with the law in force in the State.

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subject for all damage, loss or injury
which may be caused by the exercise
of the powers granted by this
lease and shall indemnify and keep in-
demnified fully and completely the State
Government against all claims which may
be made by any person or persons in respect
of any such damage, injury or disturbance
and all costs and expenses in connection
therewith.

we shall
keep open
mining pits,
shafts, etc.

5. The lessees shall during the subsis-
tence of this lease well and sufficiently
secure and keep open with timber or other
durable means all pits, shafts and workings
that may be made or used in the said lease
and make and maintain sufficient fences to
the satisfaction of the State Government
round every such pit, shaft or working
whether the same is abandoned or not and
shall during the said period keep all
workings in the said lease open such as
may be abandoned accessible from water
and road air as far as possible.

To strengthen
and support
the mine
necessary
extent.

6. The lessees shall strengthen and
support to the satisfaction of the Railway
Administration concerned of the State Govern-
ment, as the case may be, all the mine
which in its opinion requires such strengthen-
ing or support for the safety of any railway,
reservoir, canal, road and any other public
works or structures.

To allow
inspection
of workings.

7. The lessees shall allow any officer
authorized by the Central Government or the
State Government in that behalf to enter upon
the premises including any building, excava-
tion or land comprised in the lease for the
purpose of inspecting, or being, surveying,
prospecting and making any kind of sampling
and collecting any data. The lessees shall
with proper person employed by the lessees
and acquainted with the nature of the work effect-
ually assist the officers, agents, servants
and workmen in conducting every such inspec-
tion and shall afford them all facilities

... 23 ...



P. K. Naik

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... : -
... with the working of
... which they may reasonably require
... shall and will conform to and observe
... and Regulations which the Central
... Governments as the result of such
... or otherwise may from time to
... to impose.

To report
accident.

9. The lessees shall without delay send to
the Collector a report of any accident causing
death or serious bodily injury or serious
injury to property or seriously affecting or
endangering life or property which may occur
in the course of the operations under this

To report
discovery of
other minerals.

10. The lessees shall report to the Collector
the discovery in the leased area of
any mineral not specified in the lease within
... of such discovery along with full
... of the nature and position of each
... If any mineral not specified in the
lease is discovered in the leased area, the
lessees shall not win and dispose of such
... such mineral is included in the
lease or a separate lease is obtained therefor.

To keep records
and accounts
regarding pro-
duction and
employees, etc.

11. The lessees shall at all times during the
... or cause to be kept at an office
... situated upon or near the said lands
... intelligible books of accounts which
shall contain accurate entries showing from
time to time

(1) quantity and quality of the said mineral/
minerals realised from the said lands.

(2) quality of the various qualities of
ores beneficiated or converted (for
example coal converted into cokes).

(3) quantities of the various qualities of
the said mineral/minerals sold and
exported separately.

(4) quantities of the various qualities of the
said mineral/minerals stored or disposed of
... or ... of such disposal.



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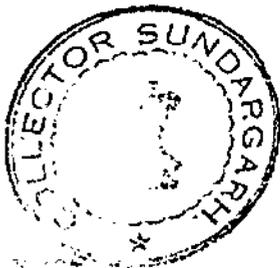
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- (5) The prices and all other particulars of all sales of said mineral/minerals.
- (6) The number of persons employed in the mine or works on the said lands specifying nationality, qualifications and pay of the technical personnel.
- (7) Such other facts, particulars and circumstances as the Central or the State Government may from time to time require and shall also furnish free of charge to such officers and at such times as the Central and State Governments may appoint true and correct abstracts of all or any such books of accounts and such information and returns to all or any of the matters aforesaid as the State Government may prescribe and shall at all reasonable times allow such officers as the Central Government or State Government shall in that behalf appoint to enter into and have free access to the said officers for the purpose of examining and inspecting the said books of accounts, plans and records and to make copies thereof and make extracts therefrom.

To maintain plans, etc.

11. The lessees shall at all times during the said term maintain at the mine office correct intelligible up-to-date and complete plans and sections of the mines in the said lands. They shall show all the operations, and workings and all the trenches, pits and drillings made by them in the course of operations carried on by them under the lease, faults and other disturbances encountered and geological data and all such plans and sections shall be amended and filled up by and from actual surveys to be made for that purpose at the end of twelve months or any period specified from time to time and the lessees shall furnish free of charge to the Central and State Governments true and correct copies of such plans and sections whenever required. Accurate records of all trenches, pits and drillings shall show -

- (a) The sub-soil and strata through which they pass
- (b) Any mineral encountered



.... 25 .../

P. N. Mishra

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KALTA IRON MINES

- 8 ११ -

The Manager shall also be responsible for the supervision and control of the work of the staff and for the maintenance of discipline and order in the office.

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[Signature]
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KAITA IRON MINES

... and the ... said ...
... and ...
... therewith in order to ascertain ...
... the same respectively the correct and ...
... repair and order ... such ...
... or testing ... such ...
... weights ...
... or order ... correct or ...
... the same ... put ...
... the ... and if ...
... other the same shall have been made, the ...
... Government may cause such weighing machine to ...
... to be adjusted, and the ... in order ...
... of so ... by the ...
... to the State Government ... and if ...
... upon ...
... as ...
... to ... State Go-
... shall ... having ...
... for three calendar months previous to the ...
... thereof or from the last occasion of so ...
... and testing the ... weighing machine and ...
... in case such occasion shall be within ...
... of three months ... rent and ...
... shall be paid ... accordingly.

... shall ...
... compensation ...
... disturbance of ... property which ...
... on the part of ... in exer-
... the liberties ... by these ...
... shall at all times be harmless and ...
... the State Government from and ...
... all ... which may be ...
... to and ... in ...
... disturbance.

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... or reasons ... obstruction ...
... to the ... working ...
... lands of ... and inclu-
... and ... afford ...
... the

... / ...

M. K. ...

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The Government of India, Ministry of Mines, New Delhi, has received a letter from the Government of West Bengal, dated 15.12.1964, regarding the proposed lease of land for the purpose of setting up a small scale iron and steel plant in the district of West Bengal. The Government of India has approved the proposal and has directed the Government of West Bengal to take the necessary steps to implement the same.

The Government of India has also directed the Government of West Bengal to ensure that the lease of land is granted on a non-exclusive basis and that the land is not alienated to any other person or body of persons.

- (1) The Government of West Bengal shall ensure that the land is not alienated to any other person or body of persons.
- (2) The Government of West Bengal shall ensure that the land is not used for any purpose other than the purpose for which it was leased.
- (3) The Government of West Bengal shall ensure that the land is not used for any purpose other than the purpose for which it was leased.

It is noted that the Government of West Bengal has agreed to the above conditions.

- (1) The Government of West Bengal shall ensure that the land is not alienated to any other person or body of persons.
- (2) The Government of West Bengal shall ensure that the land is not used for any purpose other than the purpose for which it was leased.
- (3) The Government of West Bengal shall ensure that the land is not used for any purpose other than the purpose for which it was leased.

The Government of India has also directed the Government of West Bengal to ensure that the lease of land is granted on a non-exclusive basis and that the land is not alienated to any other person or body of persons.

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(2) Without prejudice to the provisions of clause (1), the lessees may, subject to the conditions of the proviso to rule 2 of the said regulations, lease or any right, title or interest in the person holding a certificate of approval or an Income-Tax Clearance Certificate from the Income-tax Officer concerned, on payment of a fee of rupees one hundred to the State Government.

Provided that the lessees shall make arrangements to transfer the critical or certified areas of plans of abandoned workings in the area in a belt 65 metres wide surrounding it.

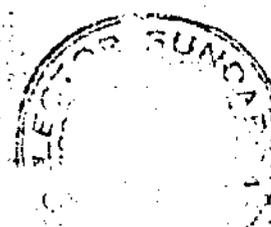
Provided further that where the lessees are an institution, Bank or a Corporation in Schedule V of the Rules, 1960, it shall be necessary for any such institution or Bank or Corporation to hold a certificate of approval and an Income-Tax Clearance Certificate.

(3) The State Government, may, by order in writing determine the lease at any time if the lessees have in the opinion of the State Government, committed a breach of any of the above provisions or have transferred the lease, right, title, title or interest therein otherwise than in accordance with clause (2).

Provided that no such order shall be made without giving the lessees a reasonable opportunity of stating their case.

not to be controlled by a Trust Corporation firm or person.

18. The lease shall not be controlled and the lessees shall not allow themselves to be controlled by any Trust, Syndicate, Corporation, firm or person except with the written consent of the Central Government. The lessees shall not enter into or make any arrangement, compact or understanding whereby the lessees or any of them, directly or indirectly, shall be or under which the lessees' operations or undertakings will or may be carried on directly or indirectly, by or for the benefit of or subject to the control of any Trust, Syndicate, Corporation, firm or person unless with the written sanction given prior to any arrangement compact or understanding being entered into or made of the Central Government and any of the lessees or every such arrangement, compact or understanding as aforesaid (entered into or made with such sanction).



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... relating to the price or any other term or other matters relating to the exercise of the options aforesaid, the point at dispute shall be referred to the State Government for decision provided further that, in case the lessees of said Hindustan Steel Limited (or other State) is still aggrieved by the decision of the Government on such point, the matter shall be referred to the Secretary to the Government of India in the Ministry of Mines and Fuel and the decision of the said Secretary or of any officer nominated by him for the purpose, as the case may be, shall be final and binding on all concerned.

employment of foreign technical.

22. The lessees shall not employ in connection with the mining operations any person who is not an Indian national except with the previous sanction of the Central Government.

recovery of expenses incurred by Government.

23. Any of the works or matters which in accordance with the covenants in that behalf hereinbefore contained are to be carried out or performed by the lessees be not so carried out or performed within the time specified in that behalf, the State Government may cause the same to be carried out or performed and the lessees shall pay the State Government out of their pockets all expenses which shall be incurred in such carrying out or performance of the same and the decision of the State Government as to such expenses shall be final.

furnishing of geophysical data.

24. The lessees shall furnish -
(a) all geophysical data relating to mining fields or engineering and ground water surveys, such as anomaly maps, sections, plans, structural geology maps, logging, collected by them during the course of mining operations to the Director General, Geological Survey of India, Calcutta and to the Director of Mines, Gwalior, Jabalpur and Bilaspur.
(b) all information pertaining to variations of radio active minerals collected by them during course of mining operations to the Secretary, Department of Atomic Energy, New Delhi and to the Director of Mines, Gwalior, Jabalpur and Bilaspur.



Data or information referred to above shall be furnished every year reckoned from the date of commencement of the period of the mining lease.

.... 33 ...

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PART VIII

The Covenants of the State Government.

... may
... and
... rights
... tly.

1. The lessees paying the rents, water-rate and royalties hereby reserved and observing and performing all the covenants and agreements herein contained and on the part of the lessees to be observed and performed shall and may quietly hold and enjoy the rights and powers hereby devised for and during the term hereby granted without any unlawful interruption from or by the State Government, or any person rightfully claiming under it.

... position
... land of
... rd parties
... compen-
... sation
... arsof.

2. In accordance with the provision of clause (f) of sub-section VII of this Act, the lessees shall not be allowed to pay to an occupier of the surface of any part of the said lands compensation for any damage or injury which may arise from the proposed operations of the lessees and the said occupier shall refuse his consent to the exercise of the right and powers reserved to the State Government and devised to the lessees by these presents and the lessees shall report the matter to the State Government and shall deposit with it the amount offered as compensation and if the Central/State Government are satisfied that the amount of compensation offered is fair and reasonable or if it is not so satisfied and the lessees shall have deposited with it such further amount as the State and the Central Government shall consider fair and reasonable the State Government shall order the occupier to allow the lessees to enter the land and to carry out such operations as may be necessary for the purpose of this lease. In assessing the amount of such compensation the State Government shall be guided by the principles of the Land Acquisition Act.

... renew.

3. Where the mining lease relates to any mineral not specified in the First Schedule to the Act, it shall be renewable for one period not exceeding the period specified in sub-section (2) of section 1, at the option of the lessees:

Provided that the State Government may for reasons to be recorded in writing reduce the area applied for.



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KAILASH IRON MINES

If the lease is renewed, it shall be subject to the provisions of the Act and the rules made thereunder.

It is hereby agreed that the lease shall be renewed for a period of 20 years from the expiration of the last term hereof and the State Government shall be deemed to have accepted the renewal of the lease if it does not, within the period specified in the Act, direct the lessee to vacate the lease. The State Government shall be deemed to have accepted the renewal of the lease if it does not, within the period specified in the Act, direct the lessee to vacate the lease. The State Government shall be deemed to have accepted the renewal of the lease if it does not, within the period specified in the Act, direct the lessee to vacate the lease.

Witness my hand and seal this 15th day of August 1960.

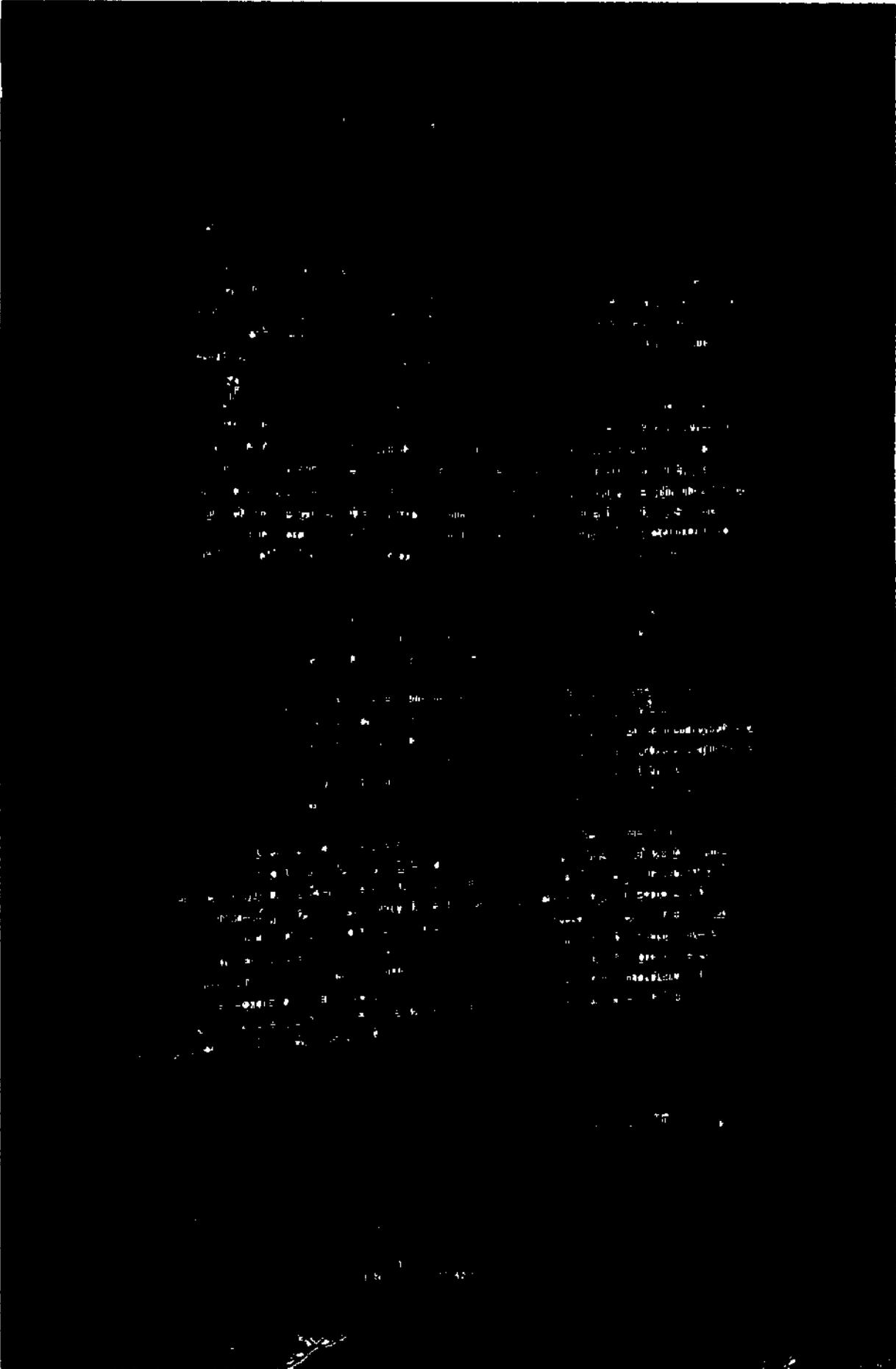
4. The lessee may at any time determine this lease by giving not less than 12 calendar months notice in writing to the State Government or to such officer or authority as the State Government may specify in this behalf and the expiration of such notice provided that the lessee shall upon such expiration hand over to the State Government all plants, tools, fixtures, fittings, etc. and other things which are on the lease.



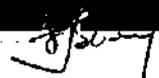
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Peter Dang
PETER DANG
General Manager (Geology)
SAIL, RMD, BIM & KIM
BARSLA IRON MINES &
KALHATI IRON MINES

the expiration of the term of the lease shall be determined by the State Government.

cases.

Community State Government liability to compensation.

6. If at the expiration of the term of the lease, the said term shall be determined by the State Government, clause 4 of Part VIII of this Schedule shall be effective there shall remain in or upon the land any engines, machinery plant, buildings, structures, tramway, railways and other erections and conveniences or other works are not required for the purposes of the operations in connection with the prospecting, mining or other operations on the lands held by the lessees, if not removed by the lessees within one month after notice in writing requiring removal has been given to the lessees by the Government, the Government shall be deemed to become the proprietor of the same in such manner as the State Government may deem fit without liability to pay any compensation or to account to the lessees in respect thereof.

7. Every notice by these presents to be given to lessees shall be given in writing to such person resident on the said lands as the lessees may appoint for the purpose of receiving such notices and if there shall have been no such appointment then every such notice shall be given to the lessees by registered post addressed to the lessees at the address recorded in this lease or such other address in India as the lessees may from time to time in writing to the State Government designate for the receipt of notices and every such service shall be deemed to be proper and valid service upon the lessees and shall not be questioned or challenged by them.

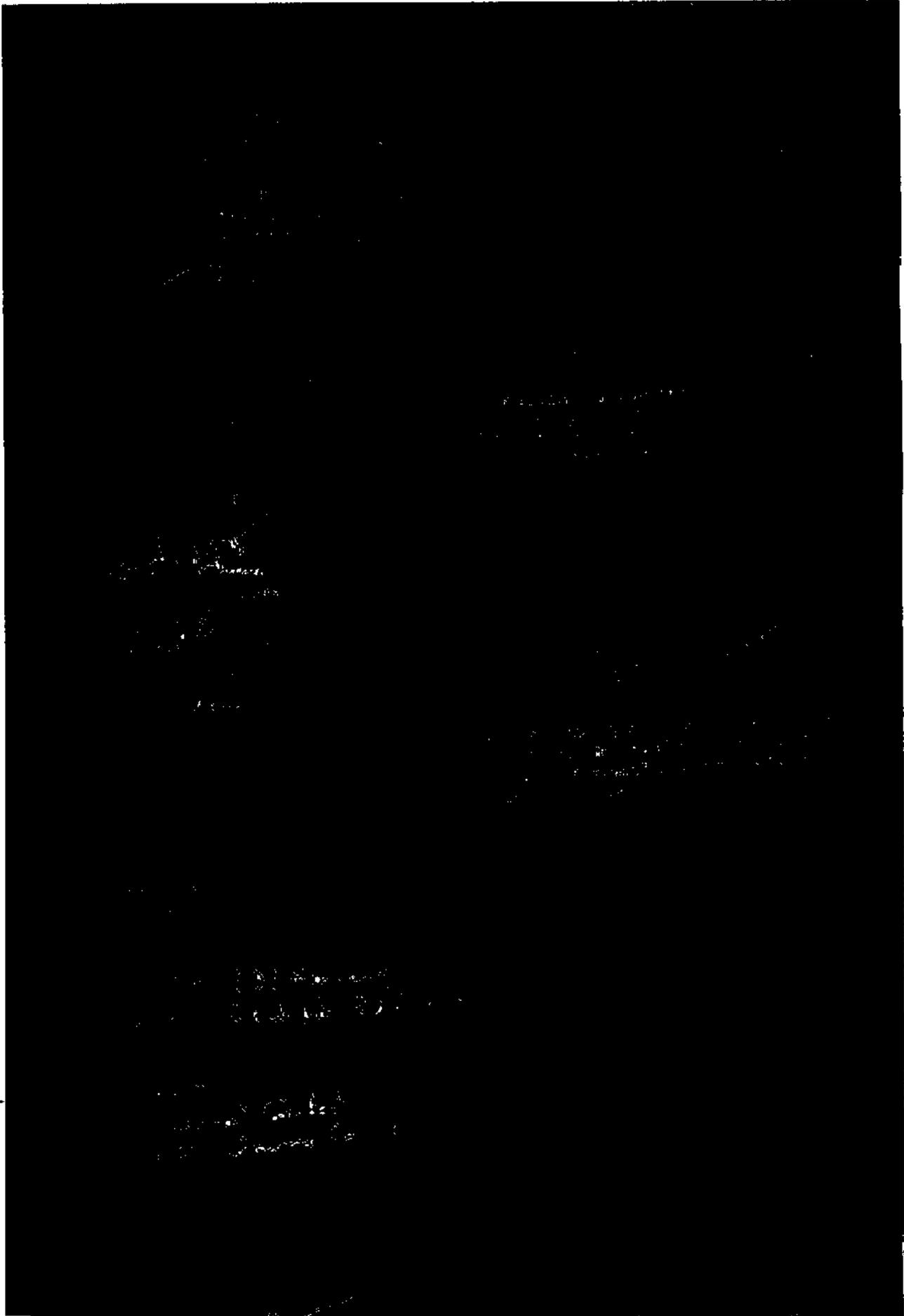
8. If in any event the orders of the State Government are revised, reviewed or cancelled by the Central Government in pursuance of the provisions under Chapter VII of the Mineral Concessions Rules, 1960, the lessees shall not be entitled to any compensation for any loss sustained by them in exercise of the powers and privileges conferred upon them by these presents.



P. N. Mishra

डॉ० आर. के. नाएक / Dr. R. K. NAIK
वरिष्ठ प्रबंधक (भूविज्ञान) योजना एवं विकास
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BARSUA IRON MINES &
The 77



डॉ० आर. के. नाएक / Dr. R. K. NAIK
— पर्यटक (भूविज्ञान) योजना एवं
— General Manager (Geology)
— आर.एम.डी. राउट
— SAIL, RMD, BARSUA

Peter Dang
PETER DANG
General Manager (Geology)
SAIL, RMD, BIM & KIM
BARSUA IRON MINES &
IRON MINES

DEPARTMENT OFFICE SUNDARGARH, JH.
MINING SECTION.

No. XII-101/75 728 dt. 7.7.75 139

The Manager,
Kahta Iron Mines,
P. O. Kahta via. Koirah (H. S. L., Rourkela.)
Dist. Sundargarh.

Sub:-

Permission for surface operation in two blocks of
Mining lease covering an area of 25.981 Hecs. in
Toda No. 1. in Bansi Sub-Division of Sundargarh
District.

Ref:-

Your letter No. 2106-08 dt. 7.3.75.

Sir,

Permission for surface operation over an area of
25.981 Hecs. in two blocks in Toda reserve forest is hereby granted
subject to deposit of compensation @ Rs 250/- per acre for
replantation of forest by the forest Deptt. falling charges and
royalty at four times of the schedule of rates for the trees
damaged or utilised during operation as contemplated in Govt.
(M & G Deptt.) resolution No. 4022 dt. 11.4.75. The amount has to be
deposited with the D.F.O, concerned before entrance by the party
to the area. Further the party is to pay Rs 2.50 per hectare per
annum towards surface rent from the date of issue of this letter.

Yours faithfully,

Collector, Sundargarh.

डॉ० आर. के. नाईक / Dr. R. K. NAIK
वरिष्ठ प्रबंधक (भूविज्ञान) योजना एवं विकास
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PETER DANG
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BARSUA IRON MINES &
KAHTA IRON MINES

Annexure-III

REGD. PARCEL

E- mail: ro.bhubaneswar@ibm.gov.in



भारत सरकार

खान मंत्रालय

भारतीय खान ब्यूरो

क्षेत्रीय खान नियंत्रक का कार्यालय

No. MS/OTFM/02-ORI/BHU/2016-17

Plot No. 149, Pokhariput

Bhubaneswar – 751 020

Date: 30.08.2016

To

✓ The General Manager
(Kalta Iron Mine)
M/s Steel Authority of India Ltd.
At/P.o – Tensa, Dist – Sundargarh
Odisha – 770042

Sub: Approval of Modification of approved Mining Plan of Kalta Iron Ore Mine (ML-139) along with Progressive Mine Closure Plan (PMCP), over an area of 25.981 ha in Sundargarh district of Odisha State, submitted by M/s Steel Authority of India Ltd under Rule 17(3) of Mineral Concession Rule, 2016.

Ref: - i) Your letter No. Nil dated 13.05.2016.
ii) This office letter of even no. dated 16.05.2016.
iii) This office letter of even no. dated 18.05.2016; addressed to the Director of Mines, Govt. of Odisha, copy endorsed to you.
iv) This office letter of even no. dated 06.06.2016.
v) Your letter No. RMD/K/E&L/16/218 dated 01.07.2016.
vi) This office letter of even no. dated 08.08.2016.
vii) Your letter No. KIM/GM/1598 dated 22.08.2016.

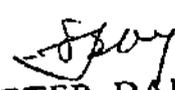
Sir,

In exercise of the power delegated to me under Rule 17 (3) of Mineral Concession Rules, 2016 vide Gazette Notification No. S.O. 1857(E) dated 18.05.2016, I hereby Approve the Modification to Approved Mining Plan including Progressive Mine Closure Plan of Kalta Iron Ore Mine (ML-139) over an area of 25.981 ha of M/s Steel Authority of India Ltd in Sundargarh district of Odisha State submitted under Rule 17 (3) of Mineral Concession Rules, 2016. This approval is subject to the following conditions:

- I. The Modification to Approved Mining Plan is approved without prejudice to any other law applicable to the mine area from time to time whether made by the Central Government, State Government or any other authority and without prejudice to any order or direction from any court of competent jurisdiction.
- II. The proposals shown on the plates and/or given in the document is based on the lease map /sketch submitted by the applicant/ lessee and is applicable from the date of approval.
- III. It is clarified that the approval of aforesaid Modification to Approved Mining Plan does not in any way imply the approval of the Government in terms of any other provision of Mines & Minerals (Development & Regulation) Act, 1957, or the Mineral Concession Rules, 2016

डॉ० आर.के. नाएक/ Dr. R. K. NAIK
वरिष्ठ प्रबंधक (भूविज्ञान) योजना एवं विकास
Senior Manager (Geo.) P & D
सेल, आर.एम.डी. राउरकेला
SAIL, RMD, ROURKELA

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PETER DANG
General Manager (Geology)
SAIL, RMD, BIM & KIM
BARSUA IRON MINES &
IRON MINES

and any other laws including Forest (Conservation) Act, 1980, Environment (Protection) Act, 1986 or the rules made there under, Mines Act, 1952 and Rule & Regulations made there under.

- IV. Indian Bureau of Mines has not undertaken verification of the mining lease boundary on the ground and does not undertake any responsibility regarding correctness of the boundaries of the leasehold shown on the ground with reference to lease map & other plans furnished by the applicant / lessee.
- V. At any stage, if it is observed that the information furnished, data incorporated in the document are incorrect or misrepresent facts, the approval of the document shall be revoked with immediate effect.
- VI. If this approval conflicts with any other law or court order/ Direction under any statute, it shall be revoked immediately.
- VII. The validity of this document is subject to the extension of Mining Lease by the State Government as per the provision of MMDR Amendment Act 2015.
- VIII. Next Financial Assurance shall be due for submission on 31.03.2020.

Encl: - One copy of approved Modification to Approved Mining Plan.

भवदीय / Yours faithfully,

(M BISWAS)

क्षेत्रीय खान नियंत्रक / Regional Controller of Mines

Copy for kind information to:-

1. Shri Chandrabhanu Das, Geo Consultants Pvt. Ltd, 853, Gobind Prasad (Medical Lane), Mahavir Nagar, Laxmisagar, Bhubaneswar - 751006.
2. The Director of Mines; Directorate of Mines, Government of Odisha, Heads of the Department Building, New Capital, Bhubaneswar- 751001, Odisha along with one copy of approved Modification to Approved Mining Plan by REGISTERED PARCEL.

(M BISWAS)

क्षेत्रीय खान नियंत्रक / Regional Controller of Mines

डॉ० आर. के. नाएक / Dr. R. K. NAIK
वरिष्ठ प्रबंधक (भूविज्ञान) योजना एवं विकास
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BARSUA IRON MINES &
KALTA IRON MINES

(vii) If anything is found to be concealed as required by the Mines Act in the contents of the scheme of mining and the proposal for rectification has not been made, the approval shall be deemed to have been withdrawn with immediate effect.

(viii) At any stage, if it is observed that the information furnished in the document are incorrect or misrepresent facts, the approval of the document shall be revoked with immediate effect.

(ix) The department does not undertake any responsibility regarding correctness of the boundaries of the lease shown on the ground with reference to lease map & other plans furnished by the applicant lessee.

(x) This approval is given for the received proposals as applicable from This date onwards.

(xi) The modifications to approved Mining Plan is approved without prejudice to any order or direction from any court of competent jurisdiction.

(xii) Your attention is invited to the Supreme Court interim order in W.P.(C) No.202, dated 12.12.96 for compliance. The approval is therefore, issued without prejudice to and is subject to the said directions of the Supreme Court as applicable in your case.

(xiii) An yearly report before 1st July of every year setting forth the extent of protective and rehabilitative works carried out as envisaged in the approved mine closure plan, and if there is any deviation, reasons thereof should be submitted to Regional Controller of Mines, Indian Bureau of Mines, Bhubaneswar under Rule 23 E (2) of MCDR, 1988.

(xiv) The Financial Assurance submitted for an amount of Rs 2,00,000/- (Rupees Two Lakh only) is valid up to 16.01.2015. A new bank guarantee is to be submitted on or before its expiry or before the expiry of plan period which ever is earlier.

(xv) A copy of Environmental clearance letter issued by MOEF should be submitted to IBM Bhubaneswar immediately after approval of EIA - EMP for record and information.

(xvi) The Environmental Monitoring Cell established by the company shall continue monitoring ambient air quality, dust-fall rate, water quality, soil sample analysis and noise level measurements at various stations established for the purpose both in the core zone and buffer zone as per requirement of Environment Guidelines and keeping in view IBM's circular No. 3/ 92 & 2/ 93 season-wise every year or by engaging the services of an Environmental Laboratory approved by MOEF/ CPCB. The data so generated shall be maintained in a bound paged register kept for the purpose and the same shall be made available to the inspecting officer, on demand.

(xvii) The provisions of circular No. 2/ 2010 of the Chief Controller of Mines, Indian Bureau of Mines, Nagpur issued vide letter No. N- 11013/ 3/ MP/ 90-CCOM Vol. VII dated 06.04.2010 shall be complied within a period of six (6) months of approval of this document.

(xviii) The approval of the above said modifications to approved Mining Plan is subject to the compliance of CCOM's Circular No 7/2011 and to fulfill the requirement of precise area as mentioned in para 4.2 of letter no F.No 7/60/2006/MIV dated 24.06.2009 of the Ministry of Mines. The mineral reserves/resources for which the Scheme of Mining is approved, shall be converted into proved reserves as per UNFC system at an appropriate cut off grade with the new threshold value within one year of the scheme period equivalent to minimum five years planned production, failing which no mining operation will be carried out/ commence further. The feasibility studies for the area shall be under taken to convert the resources into reserve. For the remaining unexplored part of the mining lease area, assessment of mineral reserves/resources under UNFC shall be as per the letter no F.No 10/75/2008-MV dated 23.12.2010 of the Ministry of Mines.

(xix) Validity of this approval shall expire alongwith the expiry of the mining lease on 16.01.2015.

Encl: One copy of approved modification to Mining Plan.

भवदीय / yours faithfully,


(M BISWAS)

देशीय खान नियंत्रक / Regional controller of Mines

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डॉ० आर. के. नाइक / Dr. R. K. NAIK
वरिष्ठ प्रबंधक (भूविज्ञान) योजना एवं विकास
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PETER DANG
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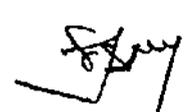
Copy for kind information to:

1. MECON Ltd, RM & Mining Section, PO-Daronda, Ranchi-2, Jharkhand, Pin-834002.
- 2 The Director of Mines Safety, Directorate General of Mines Safety, Chaibasa Region, At & Post Chaibasa, District – Singhbhum West along with one copy of the approved modification to Mining plan by REGISTERED PARCEL
- 3 The Director of Mines, Directorate of Mines, Government of Odisha, Heads of the Department Building, New Capital, Bhubaneswar- 751 001 Odisha along with one copy of approved modification to Mining Plan by REGISTERED PARCEL.

(M BISWAS)

क्षेत्रीय खान नियंत्रक / Regional controller of Mines

डॉ० आर. के. नाएक / Dr. R. K. NAIK
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भारत सरकार GOVERNMENT OF INDIA
खान मंत्रालय MINISTRY OF MINES
भारतीय खान ब्यूरो INDIAN BUREAU OF MINES
क्षेत्रीय खान नियंत्रक के कार्यालय
OFFICE OF THE REGIONAL CONTROLLER OF MINES



By. Regd. Parcel / E-mail
Phone: 0674-2352463;
Tele Fax: 0674-2352490;
eMail:
ro.bhubaneswar@ibm.gov.in
Plot No.149, Pokhariput
BHUBANESWAR-751020

No. MPM/OTFM/33-ORI/BHU/2018-19

Date: 29.03.2019

To

Shri Peter Dang, DGM Geology,
M/s Steel Authority of India Limited,
Raw Material Division, Kalta Iron Mines,
At/Post-Tensa, Dist-Sundargarh,
Odisha-770042.

Sub: Approval of Modification of Mining Plan of Kalta Iron Mine over an area of 25.981 ha in Sundargarh district of Odisha of M/s Steel Authority of India Limited submitted under Rule-17 (3) of MCR, 2016.

Ref: -

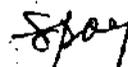
- Your letter no. KIM/Geo/2018-19/172 dated 13.02.2019 received on 18.02.2019.
- This office letter of even no. dated 18.02.2019.
- This office letter of even no. dated 18.02.2019 addressed to the Director of Mines, Govt. of Odisha, copy endorsed to you.
- This office letter of even no. dated 04.03.2019.
- Your letter no. RMD/RKL/P&D/2019/MMP-139/001 dated 16.03.2019 received on 18.03.2019.

Sir,

In exercise of the power delegated to me vide Gazette Notification No. S.O. 1857 (E) dated 18.05.2016, I hereby Approve the Modification of Mining Plan including Progressive Mine Closure Plan of Kalta Iron Mine over an area of 25.981 ha of M/s Steel Authority of India Limited in Sundargarh district of Odisha State submitted under Rule 17 (3) of Mineral Concession Rules, 2016. This approval is subject to the following conditions:

- The Modification of Mining Plan is approved without prejudice to any other law applicable to the mine area from time to time whether made by the Central Government, State Government or any other authority and without prejudice to any order or direction from any court of competent jurisdiction.
- The proposals shown on the plates and/or given in the document is based on the lease map /sketch submitted by the applicant/ lessee and is applicable from the date of approval.
- It is clarified that the approval of aforesaid Modification of Mining Plan does not in any way imply the approval of the Government in terms of any other provision of Mines & Minerals (Development & Regulation) Act, 1957, or the Mineral Concession Rules, 2016 and any other laws including Forest (Conservation) Act, 1980, Environment (Protection) Act, 1986 or the rules made there under, Mines Act, 1952 and Rule & Regulations made there under.
- Indian Bureau of Mines has not undertaken verification of the mining lease boundary on the ground and does not undertake any responsibility regarding correctness of the boundaries of the leasehold shown on the ground with reference to lease map & other plans furnished by the applicant / lessee.
- At any stage, if it is observed that the information furnished, data incorporated in the document are incorrect or misrepresent facts, the approval of the document shall be revoked with immediate effect.

डॉ० आर.के. नाईक/ Dr. R. K. NAIK
वरिष्ठ प्रबंधक (भूविज्ञान) योजना एवं विकास
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SAIL, RMD, ROURKELA


PETER DANG Contd. Page-2
General Manager (Geology)
SAIL, RMD, BIM & KIM
BARSUA IRON MINES &
KALTA IRON MINES

- VI. If this approval conflicts with any other law or court order/direction under any statute, it shall be revoked immediately.
- VII. Validity of this document shall expire on 31.03.2020.

भवदीय / yours faithfully,

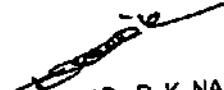
Encl: - One copy of approved
Modification of Mining Plan

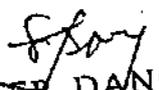

(HARKESH MEENA)
क्षेत्रीय खान नियंत्रक / Regional Controller of Mines

Copy for kind information to:-

1. The Director of Mines, Directorate of Mines, Government of Odisha, Heads of the Department Building, New Capital, Bhubaneswar- 751001, Odisha along with one copy of Modification of Mining Plan by REGISTERED PARCEL
2. Dr. R. K. Naik, Sr. Manager (Geology), Raw Material Division, M/s Steel Authority of India Limited, 02nd Floor, Modernization Building, Rourkela Steel Plant, Dist-Sundargarh, Odisha-769011.

(HARKESH MEENA)
क्षेत्रीय खान नियंत्रक / Regional Controller of Mines


डॉ० आर. के. नाइक / Dr. R. K. NAIK
वरिष्ठ प्रबंधक (भूविज्ञान) योजना एवं विकास
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(THE) PUBLIC SECTOR IRON AND STEEL COMPANIES (RESTRUCTURING) AND MISCELLANEOUS PROVISIONS ACT, 1978
(16 OF 1978)

[The text of the Act printed here is as on 31.7.1998]

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STATEMENT OF OBJECTS AND REASONS

There are at present six integrated steel plants in the country with a total installed capacity of 10.6 million tonnes of ingot steel. Of these, five steel plants with an aggregate capacity of 8.6 million tonnes are in the public sector. The plants at Bhilai, Durgapur and Rourkela are owned and managed by Hindustan Steel Limited and the plant at Bokaro by Bokaro Steel Limited, both the companies being wholly owned subsidiaries of Steel Authority of India Limited. The fifth plant at Burnpur is under the Indian Iron and Steel Company Limited whose majority shares were acquired by Government in July 1976. Bhilai and Bokaro Steel plants are being expanded and this will raise the total steel production capacity in the public sector to 12.4 million tonnes. Steel Authority of India Limited also has a number of other subsidiaries concerned with activities allied to steel production such as provision of consultancy, design and engineering services for ferrous and non-ferrous enterprises heavy construction erection work connected with steel and other sectors, development and operation of major mechanised iron ore mines to meet the demands for export and from steel plants, etc.

It is essential for proper development of the steel industry that public sector steel plants achieves maximum production and are managed with the greatest efficiency for this purpose, it would be advisable to bring these plants under the overall control of an Integral Company which should function, to the maximum extent possible as an integrated steel complex and all activities which are not directly related to steel production are kept outside its purview. Having regard to

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S. P. D. Singh
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SAIL, RMD, BIM & KIM
BARSUA IRON MINES &
KALTA IRON MINES

584 [Ss 1-2]

[The] Public Sector Iron & Steel Companies, etc. Act, 1978

the present nature of these activities and potentialities for the future, it would also be greatly advantageous if the units concerned therein function directly under Government. Accordingly the present set-up is being reorganised broadly as under:—

- (i) Hindustan Steel Limited, Bokaro Steel Limited, Salem Steel Limited, SAIL International Limited, Rihai Iron Limited, Rourkela Ispat Limited and Durgapur Mineral Ispat Limited, wholly owned subsidiaries of Steel Authority of India Limited (SAIL) will be merged in SAIL and will function as units of SAIL.
- (ii) The shares presently held by Government in Indian Iron and Steel Company Limited will be transferred to SAIL and it will become a subsidiary of SAIL.
- (iii) Metallurgical and Engineering Consultants (India) Limited, Hindustan Steel Works Construction Limited and National Mineral Development Corporation Limited, wholly owned subsidiaries of SAIL, will become independent companies under the direct administrative control of Department of Steel, Kiriburu and Meghaaiburu Iron Ores Mines of National Mineral Development Corporation Limited will be transferred to SAIL to serve as captive units of Bokaro Steel Plant.
- (iv) Bharat Refractories Limited, a wholly owned subsidiary of Bokaro Steel Ltd. will become an independent Company directly under the Department of Steel and other refractory units will also come under its control.

3. Restructuring as aforesaid is undertaken to secure better management of and greater efficiency in the working of public sector steel plants. The terms and conditions applicable to the employees would remain unaltered.

4. The Bill seeks to achieve the above objects.—S.O.R.—Gaz. of Ind. 22-12-1977 Part II, S. 2, Ext. P. 969

[THE] PUBLIC SECTOR IRON AND STEEL COMPANIES (RESTRUCTURING) AND MISCELLANEOUS PROVISIONS ACT, 1978

(16 OF 1978)

[30th April 1978]

An Act to provide for restructuring of the iron and steel companies in the public sector so as to secure better management and greater efficiency in their working and for matters connected therewith or incidental thereto.

BE it enacted by Parliament in the Twenty-ninth Year of the Republic of India as follows:—

1a] For Statement of Objects and Reasons, see Gaz. of India, 22-2-1977 Part II, S. 2, Ext. P. 969

CHAPTER I
PRELIMINARY

1. Short title and commencement.—(1) This Act may be called the Public Sector Iron and Steel Companies (Restructuring) and Miscellaneous Provisions Act, 1978.

(2) It shall come into force on such date as the Central Government may, by notification in the Official Gazette, appoint.

1a] 1-5-1978—See Gaz. of Ind., 30-4-1978, Part II, S. 3 (ii), Ext. P. 576

2. Definitions.—(1) In this Act, unless the context otherwise requires:

(a) "appointed day" means the date on which this Act comes into force;

(b) "Companies Act" means the Companies Act, 1956;

(c) "corresponding unit", in relation to—

(i) the Integral Company, means that unit of the Integral Company which corresponds to the unit of the dissolved company or the transferee company, in which the concerned officer or other employee was holding office before the transfer of the said unit;

(ii) a transferee company, means that unit of a transferee company which corresponds to the unit of the dissolved company, in which the concerned officer or other employee was holding office before the transfer of the said unit;

(d) "dissolved company" means a company specified in the First Schedule;

(e) "Integral Company" means the Steel Authority of India Limited, a company formed and registered under the Companies Act, having its registered office at New Delhi;

(f) "transferee company" means the company to which the undertakings of a dissolved company or of a transferred unit, as the case may be, stand transferred by virtue of the provisions of this Act;

डॉ० आर.के. नाएक/Dr. R. K. NAIK
वरिष्ठ प्रबंधक (भूविज्ञान) योजना एवं विकास
Senior Manager (Geo.) P & D
सेल, आर.एम.डी. रौरकेला
SAIL, RMD, ROURKELA

PETER DANG
General Manager (Geology)
SAIL, RMD, BIM & KIM
BARSUA-IRON MINES &
IRON MINES



STEEL AUTHORITY OF INDIA LIMITED
Ispat Bhawan, Lodi Road, New Delhi-110003

LIST OF DIRECTORS AS ON 30.08.2019

Sl. No.	Name	Address
1.	श्री अनिल कुमार चौधरी, Shri Anil Kumar Chaudhary	Chairman, Steel Authority of India Limited, New Delhi-110003.
2.	श्री सरस्वती प्रसाद, Shri Saraswati Prasad	Special Secretary & Financial Adviser to the Government of India, Ministry of Steel, Udyog Bhawan, New Delhi-110011.
3.	प्रो. अशोक गुप्ता, Prof. Ashok Gupta	Independent Director
4.	सी.ए. प्रमोद बिंदल, CA Parmod Bindal	Independent Director
5.	श्रीमती अंशु वैश्य, Smt. Anshu Vaish	Independent Director
6.	डा. जी. विश्वकर्मा, Dr. G. Vishwakarma	Director (Projects & Business Planning) with addl. charge of D(F) Steel Authority of India Limited, New Delhi-110003.
7.	डा. समर सिंह, Dr. Samar Singh	Independent Director
8.	श्री नीलान्जन सान्याल, Shri Nilanjan Sanyal	Independent Director
9.	श्रीमती सोमा मंडल, Smt. Soma Mondal	Director (Commercial) Steel Authority of India Limited, New Delhi-110003.
10.	सी.ए. कर्तार सिंह चौहान, CA Kartar Singh Chauhan	Independent Director
11.	प्रो. नरेन्द्र कुमार तनेजा, Prof. Narendra Kumar Taneja	Independent Director
12.	श्री अतुल श्रीवास्तव, Shri Atul Srivastava	Director (Personnel) Steel Authority of India Limited, New Delhi-110003.
13.	श्री पुनीत कंसल, Shri Puneet Kansal	Joint Secretary to the Government of India, Ministry of Steel, Udyog Bhawan, New Delhi-110011.
14.	श्री हरिनंद राय, Shri Harinand Rai	Director (Technical) Steel Authority of India Limited, New Delhi-110003.
15.	श्री कृष्ण कुमार गुप्ता, Shri Krishan Kumar Gupta	Independent Director
16.	श्री विवेक गुप्त, Shri Vivek Gupta	Director (RM&L) Steel Authority of India Limited, New Delhi-110003.

डॉ० आर. के. नाएक / Dr. R. K. Naik
वरिष्ठ प्रबंधक (भूविज्ञान) योजना एवं विज्ञान
Senior Manager (Geo.) P & D
सेल, आर.एम.डी. राउरकेला
SAIL, RMD, ROURKELA.

(Signature) 31/8/2019
एम. बी. बालाकृष्णन / M.B. Balakrishnan
कंपनी सचिव / Company Secretary
स्टील अथॉरिटी ऑफ इंडिया लिमिटेड
STEEL AUTHORITY OF INDIA LTD.
इस्पत भवन, लोदी रोड, नई दिल्ली-110003
Ispat Bhawan, Lodi Road, New Delhi-110003

(Signature)
PETER DANG
General Manager (Geology)
SAIL, RMD, BIM & KIM
BARSUA IRON MINES &
KALTA IRON MINES



STEEL AUTHORITY OF INDIA LTD.
RAW MATERIALS DIVISION
MANOHARPUR ORE MINES

Annexure - VI

Mineral-wise & State-wise details of Mining Leases held by Steel Authority of India Limited

State: Jharkhand

Sl. No.	Name of Lease	Area (ha)	Mineral	Location
1	Amalgamted Lease of Kiriburu-Meghahatuburu Iron Ore Mines	2897.499	Iron Ore	Post: Kiriburu Dist: West Singhbhum
Manoharpur Ore Mine, Chiria				
2	Budhaburu (McLellan)	823.617	Iron Ore	Post: Chiria Dist: West Singhbhum
3	Dhobil	513.036	Iron Ore	Post: Chiria Dist: West Singhbhum
4	Sukri Lutur	609.554	Iron Ore	Post: Chiria Dist: West Singhbhum
5	Ankua	67.178	Iron Ore	Post: Chiria Dist: West Singhbhum
6	Tatiburu	38.85	Iron Ore	Post: Chiria Dist: West Singhbhum
Gua Ore Mine				
7	Durgaiburu	1443.756	Iron Ore	Post: Gua Dist: West Singhbhum
8	Jhillingburu - I	210.526	Iron & Manganese Ore	Post: Gua Dist: West Singhbhum
9	Jhillingburu - II	30.44	Manganese Ore	Post: Gua Dist: West Singhbhum
10	Topailore	14.16	Iron Ore	Post: Gua Dist: West Singhbhum
Bhawanathpur & Tulsidamar Flux Mines				
11	Gorgaon	228.46	Limestone	Post: Bhawanathpur Dist: Garhwa
12	Ghagra	675.46	Limestone	Post: Bhawanathpur Dist: Garhwa
13	Saraiya	275	Limestone	Post: Bhawanathpur Dist: Garhwa
14	Tulsidamar	118.72	Dolomite	Post: Bhawanathpur Dist: Garhwa

डॉ० आर. के. नाएक / Dr. R. K. NAIK
बरीक प्रबंधक (भूविज्ञान) योजना एवं विकास
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STEEL AUTHORITY OF INDIA LTD.
RAW MATERIALS DIVISION
MANOHARPUR ORE MINES

Annexure - VI

State: Odisha

Sl. No.	Name of Lease	Area (ha)	Mineral	Location
Bolani Ore Mine				
15	5.1 Sq. Miles	1321.45	Iron Ore	Post: Bolani Dist: Keonjhar
16	6.9 Sq. Miles	1586.36	Iron & Manganese Ore	Post: Bolani Dist: Keonjhar
Barsua and Kalta Ore Mine				
17	ML - 130	2486.383	Iron Ore	Post: Tensa Dist: Sundergarh
18	ML No - 162	77.94	Non-Mineralized	Post: Tensa Dist: Sundergarh
19	ML No - 139	25.98	Iron Ore	Post: Kalta Dist: Sundergarh
20	ML No - 227	3.34	Iron Ore	Post: Kalta Dist: Sundergarh
Purnapani (Flux)				
21	Purnapani	230.523 Ha	Limestone	Post: Purnapani Dist: Sundargarh

State: Madhya Pradesh (MP)

Sl. No.	Name of Lease	Area (ha)	Mineral	Location
22	Left Bank Lease, Kuteshwar	91.14	Limestone	Post: Kuteshwar Dist: Katni
23	Right Bank Lease, Kuteshwar	944.89	Limestone	Post: Kuteshwar Dist: Katni
24	ML No. 1, Satna	745.15	Limestone	Post: Babupur Dist: Satna
25	ML No. 2, Satna	1106.41	Limestone	Post: Babupur Dist: Satna

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STEEL AUTHORITY OF INDIA LTD.
RAW MATERIALS DIVISION
MANOHARPUR ORE MINES

Annexure - VI

State: Chhattisgarh

Sl. No.	Name of Lease	Area (ha)	Mineral	Location
26	Baraduar (Chhattisgarh)	525.35	Dolomite	Post: Baraduar Dist: Bilaspur
27	Pandridalli, Rajhara Pahar	220.42	Iron Ore	Post: Baraduar Dist: Bilaspur
28	Rajhara Hills	719.60	Iron Ore	Rajhara
29	Dalli Forest Range	100.00	Iron Ore	Dalli
30	Mahamaya -Dulki	1522.67	Iron Ore	Mahamaya
31	Kalwar-Nagur	938.85	Iron Ore	Kalwar
32	Deorjhal, Ahirwara, Pitora, Nandini-Kundini	526.34	Limestone	Nandini, Durg
33	Pendidih, Chatona & Badarsa	128.77	Dolomite	Hirri, Bilaspur
34	Rowghat Deposit F	2028.797	Iron Ore	North Bastar (Kanker) Narayanpur

डॉ० आर. के. नाएक / Dr. R. K. NAIK
वरिष्ठ प्रबंधक (भूविज्ञान) योजना एवं विकास
Senior Manager (Geo.) P & D
खेला, आर.एम.डी. राउरकेला
SAIL, RMD, ROURKELA

55

PETER DANG
General Manager (Geology)
SAIL, RMD, BIM & KIM
BARSUA IRON MINES &
KALTA IRON MINES



GENERAL POWER OF ATTORNEY

KNOW ALL MEN BY THESE PRESENTS that I, Vivek Gupta, Executive Director (Projects & Operations), Raw Materials Division (RMD), Steel Authority of India Limited have been given the General Power of Attorney on 7th March, 2019 by the Director (Technical) with additional charge of Director (Raw Materials & Logistics), Steel Authority of India Limited, a Govt. Company having its registered office at Ispat Bhawan, Lodi Road, New Delhi-110 003.

In exercise of the power conferred on me as per Clause 11 of the said General Power of Attorney to delegate any or all such powers to any of the officers of the company, I do hereby re-delegate and appoint Shri Anand Kumar, Dy General Manager (Mines), Kalta Iron Mines, Raw Materials Division, Steel Authority of India Limited as true and lawful Attorney on behalf of Steel Authority of India Limited, Raw Materials Division, to execute or to do all or any of the acts or things in so far as the same relates to Kalta Iron Mines of Raw Materials Division namely:

1. To institute, conduct, defend, compound, compromise and abandon or withdraw suits, appeals or other legal proceedings by or against the company or its officers or otherwise concerning the affairs of the company.

Contd to p/2..

23/03/19
PADMA DAS
 NOTARY
 Regn. No. 13771/18
 C.M.M's Court
 Kolkata-700 001

22-MAR 2019

Peter Dang
PETER DANG
 General Manager (Geology)
 SAIL, RMD, BIM & KIM
 BARSUA IRON MINES &
 KALTA IRON MINES

[Signature]
 डॉ० आर. के. नाएक / Dr. R. K. NAIK
 बरिष्ठ प्रबंधक (भूविज्ञान) योजना एवं विकास
 Senior Manager (Geo.) P & D
 सेल, आर.एम.डी. राउरकेला
 SAIL, RMD, ROURKELA

Serial No. 72709
Name.....
Address.....
71, Park St.
Kolkata 700017
STEEL AUTHORITY OF INDIA LIMITED
Raw Materials Division
Industry House (4, 5, 6 Floor)
10/ Camac Street, Kolkata-700017

19 JAN 2019

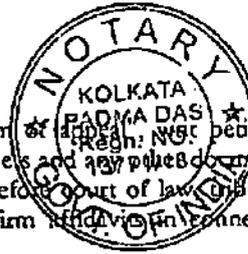
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~~Dr. R. K. NAIK~~
डॉ० आर. के. नाएक/ Dr. R. K. NAIK
वरिष्ठ प्रबंधक (भूविज्ञान) योजना एवं विकास
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USA/RMD, ROURKELA

Peter Dang
PETER DANG
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SAIL, RMD, BIM & KIM
BARSUA IRON MINES &
KALTA IRON MINES

(2)



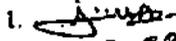
2. To sign and verify plaints, written statements, memorandum of applications, revisions, statements, counter-statements, rejoinders and papers required to be filed in connection with case(s) before Court of law, arbitrators, umpires or other authorities and swear and affirm in connection thereto.
3. To sign and execute Vakalatnamas, warrants of attorney and letter of authority for filing, prosecuting, conducting or defending any suit, appeal or other legal proceedings.
4. To execute and sign contracts, agreements, deeds and instruments including instruments of lease but excluding those requiring affixation of the Common Seal of the Company under the Companies Act, 1956 / Companies Act, 2013.
5. To present deeds and instruments, whether executed by the Attorney or any other authorized person on behalf of the company for registration before Registrar, Sub-Registrar or any other registering officer and admit execution thereof on behalf of the company.
6. To sign and execute indemnity bonds, bid bonds, performance bonds, cheques and other negotiable instruments and acceptances and endorsements.
7. To recover money, refunds and receive moneys, payment on behalf of Steel Authority of India Limited, Raw Materials Division and to give valid discharge and execute receipts.
8. To make payments, to deposit moneys on behalf of Steel Authority of India Limited, Raw Materials Division and to obtain valid discharge or receipts for the same.
9. To deal with banks, licensing authorities, tax departments, etc. and to correspond with them in regard to bank accounts, licenses etc. held by Steel Authority of India Limited, Raw Materials Division as may be necessary or ancillary or as may be required in the exercise of the functions under this Power of Attorney.

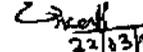
And I agree and undertake to ratify whatever the said Attorney shall lawfully do by virtue of power conferred on him by these presents.

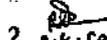
IN WITNESS WHEREOF, I, Vivek Gupta, Executive Director (Projects & Operations), Raw Materials Division, Steel Authority of India Ltd, 10, Camac Street, Kolkata-700017 hereunto set and subscribe my signature on this 22 day of March, 2019.

SIGNED AND DELIVERED AT KOLKATA

In the presence of:

1. 
MALLA SRINIVASU
 DGM (R&L), SAIL, RMD
 INDUSTRY HOUSE, 10, CAMAC ST
 KOLKATA-17

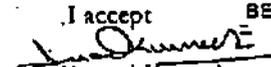

 22/3/19
 (Vivek Gupta)
 Executive Director (Projects & Operations)
 Raw Materials Division
 Steel Authority of India Ltd

2. 
 R.K. Nair (Advocate)
 SAIL RMD, Industry House
 10 Camac St Kolkata-17.

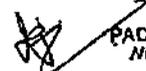
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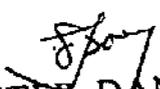
PADMA DAS
 NOTARY
 Regn. No. 13771/18
 C.M.M.'s Court
 Kolkata-700 001

I accept

 (Anand Kumar)
 DGM (Mines),
 Kalta Iron Mines
 Raw Materials Division, SAIL

ATTESTED SIGNATURE ONLY BEFORE ME ON IDENTIFICATION


PADMA DAS
 NOTARY

22 MAR 2019


PETER DANG
 General Manager (Geology)
 SAIL, RMD, BIM & KIM
 BARSUA IRON MINES &
 KALTA IRON MINES

डॉ० आर.के. नायक / Dr. R. K. NAIK
 वरिष्ठ प्रबंधक (भूविज्ञान) योजना एवं विकास
 Senior Manager (Geo.) P & D
 सेल, आर.एम.डी. राउरकेला
 SAIL, RMD, ROURKELA



TO WHOMSOEVER IT MAY CONCERN

This is to certify that the Board of Directors of M/s Steel Authority of India Limited (SAIL) in the 382nd meeting held on 29th May, 2012 has nominated Director (Raw Materials & Logistics) as "Owner" of SAIL mines and Collieries as per the Mines Act, 1952 and as "Occupier" of explosive magazines and explosive vans of SAIL mines and collieries as per the Explosive Rules, 2008.

This is further to certify that Shri Vivek Gupta is holding the charge of Director (Raw Materials & Logistics), SAIL with effect from 27th March, 2019. Signature of Shri Vivek Gupta is attested below:

Signature of Shri Vivek Gupta
Director (Raw Materials & Logistics)

Above signature of Shri Vivek Gupta, Director (Raw Materials & Logistics) is attested.

(M. C. Jain)
Secretary

भारतीय अथॉरिटी ऑफ इण्डिया लिमिटेड
मार्ग निदेशक (एन एंड सी) एवं कंपनी सचिव
Executive Director (F. & A.) & Company Secretary
स्टील अथॉरिटी ऑफ इण्डिया लिमिटेड
STEEL AUTHORITY OF INDIA LIMITED
इस्पत भवन, लोदी रोड, नई दिल्ली-110003
ISPAT BHAWAN, LODHI ROAD, NEW DELHI-110003

डॉ० आर.के. नाएक/ Dr. R. K. NAIK
वरिष्ठ प्रबंधक (भूविज्ञान) योजना एवं विकास
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BARSUA IRON MINES &
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(M. C. Jain)
Secretary

भारतीय अथॉरिटी ऑफ इण्डिया लिमिटेड
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STEEL AUTHORITY OF INDIA LIMITED
इस्पत भवन, लोदी रोड, नई दिल्ली-110003
ISPAT BHAWAN, LODHI ROAD, NEW DELHI-110003



नाम : विवेक गुप्त
Name : VIVEK GUPTA
पदनाम : निदेशक(रॉय मैटेरियल एवं लॉजिस्टिक्स)
Designation : DIRECTOR (RAW MATERIALS & LOGISTICS)
निर्देशांक No. : F000163
कर्मक रूप/Em. Gr. : B+

आधार नं./Aadhar No. : 823081416882

आपके हस्ताक्षर
Card Holder's Signature

पारितोषा (Issuing Authority)



स्टील अथॉरिटी ऑफ इण्डिया लिमिटेड
STEEL AUTHORITY OF INDIA LIMITED

(भारत सरकार का उपनिवेश / Govt. Of India Enterprise)
इस्पॉर्ट भवन, लोदी रोड, नई दिल्ली-110003 फोन : 24367481
Isport Bhawan, Lodhi Road, New Delhi-110003, Ph. : 24367481

60

डॉ० आर.के. नाइक / Dr. R. K. NAIK
वरिष्ठ प्रबंधक (भूविज्ञान) योजना एवं विकास
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सेल, आर.एम.डी. राउरकेला
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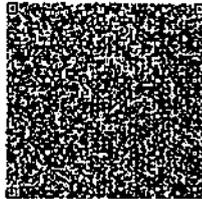
भारत सरकार
Unique Identification Authority of India

नामांकन क्रम/ Enrolment No.: 0667/00428/43323

To
शिवक गुप्ता
Vivek Gupta
C/O Nand Lal Gupta
B5-1202 GH-001
SECTOR 46
NOIDA
GARDENIA GLORY
Gautam Buddha Nagar **
Noida
Gautam Buddha Nagar Uttar Pradesh - 201301
9434776837

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आपका आधार क्रमांक / Your Aadhaar No. :

9230 6141 5962
VID : 9187 5902 5811 2951

मेरा आधार, मेरी पहचान



शिवक गुप्ता
Vivek Gupta
जन्म तिथि/DOB: 06/07/1960
पुरुष/ MALE



9230 6141 5962
VID : 9187 5902 5811 2951

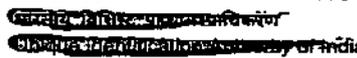
मेरा आधार, मेरी पहचान

- सूचना**
- आधार पहचान का प्रमाण है, नागरिकता का नहीं।
 - पहचान का प्रमाण ऑनलाइन ऑथेंटिकेशन द्वारा प्राप्त करें।
 - यह एक इलेक्ट्रॉनिक प्रक्रिया द्वारा बना हुआ पत्र है।

INFORMATION

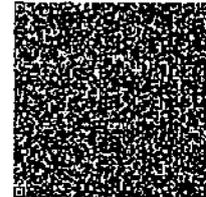
- Aadhaar is a proof of identity, not of citizenship.
- To establish identity, authenticate online.
- This is electronically generated letter.

- आधार देश भर में मान्य है।
- आधार भविष्य में सरकारी और गैर-सरकारी सेवाओं का लाभ उठाने में उपयोगी होगा।
- Aadhaar is valid throughout the country.
- Aadhaar will be helpful in availing Government and Non-Government services in future.



पता:
C/O नन्द लाल गुप्ता, बी5-1202 जी गेप-001, सेक्टर 46,
गार्डनिया ग्लोरी, नोएडा, गौतम बुद्ध नगर **, नोएडा,
उत्तर प्रदेश - 201301

Address:
C/O Nand Lal Gupta, B5-1202 GH-001,
SECTOR 46, GARDENIA GLORY, NOIDA,
Gautam Buddha Nagar **, Gautam Buddha
Nagar,
Uttar Pradesh - 201301



QR Code with Photograph

9230 6141 5962
VID : 9187 5902 5811 2951

VID : 9187 5902 5811 2951

डॉ० आर. के. नाएक / Dr. R. K. NAIK
वरिष्ठ प्रबंधक (भूविज्ञान) योजना एवं विकास
Senior Manager (Geo.) P & D
सेल, आर.एम.डी. राउरकेला
SAIL, RMD, ROURKELA

PETER DANG
General Manager (Geology)
SAIL, RMD, BIM & KIM
BARSUA IRON MINES &
KALTA IRON MINES

FORM D

ANNEXURE VI

(RECEIPT OF THE APPLICATION FORM PL/ML/RML)

(See Rule 10(4) of MC Rules, 1960)

GOVERNMENT OF ORISSA

No. 7 / (Mining) / Date 04.01.2014

Serial No. 188 / Dated 04.01.2014 of RMD Register

Receipt of the application with the following enclosures for RML application of Steel Authority of India Ltd., Raw Material Division, Kalta Iron Mines, Dist. Sundargarh on dated 04.01.2014 for about 25.981 hectrs. of land located in village(s) Toda R.F. under Bonar Sub-Division of Sundargarh District for Iron Ore.

1. Treasury Challan of Rs. 2500/- towards application fee. (Including Original) 6 Copies
2. Cadastral Map in 16 = 1 mile scale, Location Map with field note and Topo Sheet of the applied area. 6 Copies
3. Copy of General Power of Attorney. 6 Copies
4. Copy of certificate of Incorporation. 6 Copies
5. Copy of List of Directors. 6 Copies
6. Copy of MDCC. 6 Copies
7. Affidavit regarding Income Tax, mineral details and holding of ML/ PL (two nos.). 6 Copies
8. Copy of Mining lease deed. 6 Copies
9. Copy of approved mining Plan. 6 Copies

[Signature]
Deputy Collector, Mining
Collectorate, Sundargarh

[Signature]
डॉ० आर. के. नाएक / Dr. R. K. NAIK
वरिष्ठ प्रबंधक (भूविज्ञान) योजना एवं विचार
Senior Manager (Geo.) P. & D
सेल, आर.एम.डी. राउरकेला
SAIL, RMD, ROURKELA

[Signature]
PETER DANG
General Manager, (Geology)
SAIL, RMD, BIM & KIM
BARSUA IRON MINES &
KALTA IRON MINES

COLLECTORATE SUNDARGARH
(Mining Section)

No. 8 / (Mining) Dt. 04.01.2014

The Director of Mines,
Orissa, Bhubaneswar.

RML application No.188, Dated 04.01.2014 filed by Steel Authority of India Ltd., Raw Material Division, Kalta Iron Mines Dist. Sundargarh for Iron Ore over an area of 25.981 hec. in Village Toda R.F. under Bonal Sub-Division of Sundargarh District.

I am directed to forward herewith the above RML application along with the following enclosures for your advance information and necessary action:

1. Treasury Challan of Rs. 2,500/- towards application fee
2. Cadastral Map in 16"=1 mile scale, Location Map with field note and Topo Sheet of the applied area
3. Copy of General Power of Attorney
4. Copy of certificate of Incorporation
5. Copy of List of Directors
6. Copy of MDCC
7. Affidavit regarding Income Tax, mineral details and holding of ML/ PL (two nos.)
8. Copy of Mining lease deed
9. Copy of approved mining Plan

Yours faithfully,


Deputy Collector, Mining
Collectorate, Sundargarh


डॉ० आर. के. नाएक / Dr. R. K. NAIK
वरिष्ठ प्रबंधक (भूविज्ञान) योजना एवं विचार
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सेल, आर.एम.डी. राउरकेला
SAIL, RMD, ROURKELA

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SAIL, RMD, BIM & KIM
BARSUA IRON MINES &
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RML - 188 / 21-04-01-2014 (194)

FORM J

(To be submitted in duplicate)

APPLICATION FOR RENEWAL OF MINING LEASE

[See rule 24A]

GOVERNMENT OF Odisha
Received at Deputy Collector on 24.1.2014
Initial of the Receiving Officer Mining, collectorate Sundergarh. Dated the 24 day of January 2013

To
The Commissioner-cum-Secretary (Steel & Mines)
Department of Steel & Mines
Govt. of Odisha,
Bhubaneswar.

Through: The District Collector, Sundergarh, Odisha

Sir,

We request for renewal of our Mining Lease under the Mineral Concession Rules, 1960. A sum of Rs.2,500 being the application fee payable under sub-rule (3)(i)(a) of rule 22 of the said rules has been deposited.

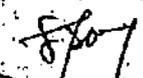
2. The required particulars are given below:-	
(i) Name of the applicant with complete address	Steel Authority of India Limited Raw Materials Division Kalta Iron Mines, Kalta District: Sundergarh, Odisha (Power of Attorney of applicant is enclosed as Annexure-1).
(ii) Is the applicant a private individual/private company/public company/firm or association?	Public Sector Undertaking (A Govt. of India Enterprise)
(iii) In case applicant is:	Not Applicable
(a) an individual, his nationality,	Certificate of Incorporation, Details of Board of Directors etc. is enclosed as Annexure- II.
(b) a company, an attested copy of the certificate of registration shall be enclosed	
(c) Omitted.	

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Senior Manager (Geo.) P & D
सेल, आर.एम.डी. राउरकेला
SAIL, RMD, ROURKELA

Peter Dang
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General Manager (Geology)
SAIL, RMD, BIM & KIM
BARSUA IRON MINES &
KALTA IRON MINES

	(d) a firm or association, the nationality of all the partners of the firm or members of the association.	Not applicable
(iv)	Profession or nature of business of applicant	Mining Iron & Steel Making
(v)	(Omitted)	
(vi)	(Omitted)	
(vii)	No. and date of the valid clearance certificate of payment of mining dues (copy enclosed)	Copy Enclosed (Annexure-III)
(viii)	an affidavit, that up-to-date Income Tax returns, as prescribed under the Income Tax Act, 1961, have been filed, and the tax due including the tax on account of self-assessment has been paid.	Affidavit enclosed as Annexure-IV
(viii)	(a) Particulars of the Mining Lease of which renewal is desired.	Name of Lease: ML-139 Kalta Iron Mines, Kalta Lease Area: 25.981 Hais Toda R.F., Bonai Forest Division, District Sundergarh Location plan & Key Plan showing the area applied for renewal of Mining lease is enclosed as Annexure V
	(b) Details of previous renewal granted, if any	Lease was granted with effect from 17.01.1975 for 20 years period, which was valid till 16.01.1995. Application for first RML was submitted on 16.02.1994 for renewal of the lease for 20 years period. Lease is under deemed extension under the provision of section 24A(6) of MCR 1960. (Lease deed agreement) is enclosed as Annexure-VI
(ix)	Period for which renewal of mining lease is required	20 Years (from 17.01.2015 to 16.01.2035)
(x)	Whether renewal is applied for the whole or part of the leasehold	Applied for the total lease area of 25.981 Hais
(xi)	(a) Does the applicant continue to have surface rights over the area of the land for which he requires renewal of the mining lease	The total lease area over 25.981 Hais forest land of the application for grant of forest clearance under the provisions of Forest (Conservation) Act, 1980 submitted to State Forest Department is under

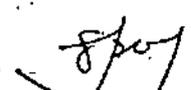
डॉ० आर. के. नाएक / Dr. R. K. NAIK
 वरिष्ठ प्रबंधक (भूविज्ञान) योजना एवं विकास
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	(b) If not, has he obtained the consent of the owner and occupier for undertaking mining operations. If so, the consent of the owner and occupier of the land obtained in writing be filed.	consideration Not applicable
(xB)	Particulars of the areas mineral-wise in each State duly supported by affidavit for which the applicant or any person joint in interest with him.	Affidavit Enclosed as Annexure-VII
	(a) already holds under mining lease;	
	(b) has already applied for but not granted; or	
	(c) being applied for simultaneously;	
(xC)	a mining plan which shall include-	Mining Plan along with Progressive Mine Closure Plan has been prepared and same has been approved by the Indian Bureau of Mines vide letter no. MPM/OFM/17-ORI/BH/O/2012-13 dated 21.06.2103.
	(a) the plan of the area showing the nature and extent of the mineral body, spot or spots where the excavation is to be done in the first year and its extent, a detailed cross-section and detailed plan of spot(s) of excavation based on prospecting data gathered by the applicant, a tentative scheme of mining for the first five years of the lease;	Copy of Mining Plan is enclosed as Annexure-VIII
	(b) the details of geology and lithology of the area, the extent of manual mining and through machines;	
	(c) annual programme and plan for excavation for five years; and	
	(d) the plan of the area showing natural water courses; limit of reserved and other forest areas and density of trees, assessment of impact of mining activity on Forest Land, surface and Environment including air and water pollution, and details of the scheme for afforestation and reclamation use of pollution control devices	
(xD)	Is the mineral going to be used in his own industry? If so, give full details (for own industry see Explanation under Rule 24B)	The mineral will be used in own industry i.e. Steel Plants of SAIL, particularly in Rourkela Steel Plant.
(xi)	In case the renewal applied for is only for part of the lease hold	

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 Senior Manager (Geo.) P & D
 सेल, आर.एम.डी. राउरकेला
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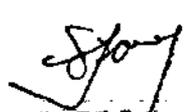
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(a) the area applied for renewal,	
(b) description of the area applied for renewal (description should be adequate for the purpose of demarcating the plot),	
(c) particulars of map of the leasehold with area applied for renewal clearly marked on it (attached),	
(d) Particulars of existing or created dumps of ore, if any.	
xii) Means by which the mineral is to be raised, i.e., by hand, labour or mechanical or electric power.	By Mechanical Means
xiii) Manner in which the mineral raised is to be utilised:	
(a) for manufacture in India,	For manufacture of iron and steel in Steel Plants of SAIL in India.
(b) for exports to foreign countries,	Not Applicable
(c) in the former case the industries in connection with which it is required, should be specified. In the latter case, the countries to which the mineral will be exported and whether the mineral is to be exported after processing or in raw form should be stated.	The lease is captive source of iron ore for the Steel Plants of SAIL. The mineral will be used for manufacture of iron & steel in Steel Plants of SAIL, particularly in Rourkela Steel Plant (RSP).
xiv) Details of output during the last three years and phased programme for production during the next three years along with a layout plan for development, if any.	The lease is non-working for want of Statutory Clearances.
xv) In case of coal, details of existing railway transport facility available and additional transport facility, if any, required.	Not Applicable
xvi) Any other particulars which the applicant wishes to furnish.	The lease is captive source of Iron Ore to the Steel Plants of SAIL for manufacture of iron and steel in the country. As per the provisions of Rule 24 B of MCR 1960, SAIL is entitled for renewal of the lease

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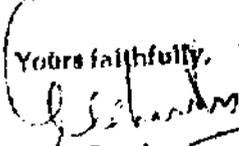
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PETER DANG
General Manager (Geology)
SAIL, RMD, BIM & KIM
BARSUA IRON MINES &
KAITA IRON MINES

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We do hereby declare that the particulars furnished above are correct and am/are ready to furnish any other details, including accurate plans as required by you before the grant of renewal of the lease.

Place: Kalta
Date: 3-04-2014

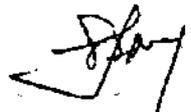
Yours faithfully,

- (H. Bara)

General Manager (Mines)
Kalta Iron Mines

N.B. - If the application is signed by an authorised agent of the applicant, Power of Attorney should be attached.

हिलरियस दांग / HILARIOUS DANG
महा प्रबंधक (खादान)
General Manager (Mines)
सेल, आर.एम.डी. बी.आर.एम, के.आर.एम.
SAIL, RMD, BIM, KIM


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BARSUA IRON MINES &
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The Director of Geology, India
 Office of the Director of Geology,
 10, B. Road, Calcutta 7.

No. 111 / 1095 / 1

The Director of Geology, India,
 Office of the Director of Geology,
 10, B. Road, Calcutta 7.

Subject: Application for grant of 10% ad-hoc pay to certain employees of SAIL Rourkela
for the year 1974-75.

Reference: 1000/1095/1

In the above mentioned case, the following points are to be considered:

1. Necessary provision for grant of 10% ad-hoc pay to certain employees of SAIL Rourkela for the year 1974-75.
2. Boundary description of the applied area.
3. Land schedule of the applied area.
4. Applied area plan to be submitted.
5. Land revenue details.
6. Income tax details.
7. Details of the employees to be granted 10% ad-hoc pay.
8. Details of the employees to be granted 10% ad-hoc pay.

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 SAIL, RMD, ROURKELA

PETER DANG
 General Manager (Geology)
 SAIL, RMD, BIM & KIM
 BARSIIA IRON MINES &

ANNEXURE

GOVERNMENT OF ODISHA
STEEL & MINES DEPARTMENT

No. III (B) SM-10/2012

1287

SM Bhubaneswar

10.8.2012

Extension of validity period of Mining lease of M/s SAIL for Iron ore over an area of 25.981 Ha in Toda R.F. under Bonai Sub-division of Sundargarh district.

ORDER

Whereas a Mining Lease for Iron ore over an area of 38.182 covering Sundargarh and Keonjhar district in two separate blocks was granted in favour of M/s SAIL for 20 years from 17.01.1975 to 16.01.1995.

Whereas 1st RML application was filed on 16.02.1994 over an area of 25.981 Ha in Toda R.F. under Bonai Sub-division of Sundargarh district including the area of 12.201 hec. of Keonjhar district beyond the stipulated period under rule 24A (1) of M.C. Rules 1960.

Whereas M/s SAIL filed application dated 17.11.1994 for condonation of delay in filing the 1st RML application.

Whereas the State Government have been pleased to allow condonation of delay in filing the 1st RML application.

Whereas the Mineral (Mining by Government Company) Rules 2015 have been notified by Ministry of Mines Govt. of India on 03.12.2015.

Whereas the Rule 3 (1) of Mineral (Mining by Government Company) Rules 2015 dated 03.12.2015 of Ministry of Mines Govt. provides as follows:

1) All mining leases for minerals granted to a Government Company or Corporation before the date of commencement of the Mines and Minerals (Development & Regulation) Amendment Act, 2015 (10 of 2015) namely the 12th January, 2015 shall be deemed to have been granted for a period of fifty years.

Whereas original mining lease was granted for 20 years from 17.01.1975 to 16.01.1995.

Therefore, the State Government are hereby pleased to order that in terms of rule 3(1) of Mineral (Mining by Government Company) Rules 2015 dated 03.12.2015, the period of the original lease is deemed to be granted for 50 years i.e. from 17.01.1975 to 16.01.2025 subject to execution of supplementary lease deed for the period from 17.01.1995 to 16.01.2025.

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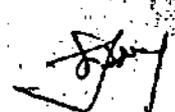
obtaining all statutory clearances, payment of requisite dues as per Act and Rules within three months.

The above extension of the lease is subject to following further conditions.

1. The lessee will furnish an undertaking that he will make the payment of the demand raised or to be raised under section 21(5) of the MMDR Act in accordance with the directions of Hon'ble Supreme Court (applicable for Fe and Mn Ore only)/ competent forum within 60 days of such disposal or such other time as may be decided by the competent forum before executing the supplementary lease deed. This undertaking will also form part of the supplementary mining lease deed as a Special condition.
2. The extension of validity is without prejudice to ongoing proceedings if any, for lapsing or determination of lease which have been initiated or may be initiated in accordance to the provisions of MMDR Act 1957 or rules framed thereunder.
3. The extension of validity is without prejudice to any action under the provisions of the Environment (Protection) Act, Odisha Forest Act or any other law for the time being in force in respect of any violations committed by the lessee during the original period of lease or the period of deemed extension till the date of extension of validity period of lease.
4. The extension of validity period of lease is subject to the result/ outcome of the case Writ Petition (Civil) 114/2014 (Common cause vrs Union of India and others) pending in Hon'ble Supreme Court of India, where the Shah Commission Report and CEC Report are under active consideration (applicable for Fe and Mn Ore only).
5. The extension is subject to condition that any terms and conditions of the original lease, if not complied so far, shall be complied by the lessee within such period as may be specified by a competent authority and the lessee shall furnish an undertaking to such effect.

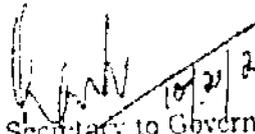
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वरिष्ठ प्रबंधक (भूविज्ञान) योजना एवं विकास
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- The lease is subject to condition that the lessee shall not enter upon any forest of any category to which the provisions of the Forest (Conservation) Act, 1980 are applicable without previous sanction of the competent authority nor fell, cut and use any timber or trees without obtaining the sanction of that authority and otherwise than in accordance with such conditions as the State Government may prescribe.
7. The lessee/lessees shall not undertake mining operation except under and in accordance to the approvals under the Forest (Conservation) Act, 1980 and the Environment (Protection) Act, 1986 and rules framed thereunder.
 8. The lessee will comply with the conditions imposed in G.O., Ministry of Mines vide letter dated 23.12.2010 within the time period specified there in.
 9. The lessee will execute a supplementary lease deed for the extended period and the above conditions and undertakings will form part of such deed.

By Order of the Governor


Additional Secretary to Government

Memo No. 1288 /SM

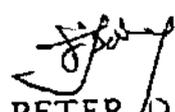
Date 10-2-2016

Copy forwarded to M/s SAIL, ISPAT Bhawan, 271-Bidyut Marg, Unit-4
Bhawanwar for information and necessary action.


Additional Secretary to Government

~~डॉ० आर. के. नाईक~~
डॉ० आर. के. नाईक/Dr. R. K. NAIK
वरिष्ठ प्रबंधक (भूविज्ञान) योजना एवं वि. अ.
Senior Manager (Geo.) P & I
सेल, आर.एम.डी. राउरकेला
SAIL, RMD, ROURKELA

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PETER DANG
General Manager (Geology)
SAIL, RMD, BIM & KIM
BARSUA IRON MINES &

Memo No. 1289 /SM

Copy forwarded to the Director, Mines, Odisha, Bhubaneswar
Collector, Sundargarh / DDM, Koira for information and necessary action

Date 10.2.2016


Additional Secretary to Government

Memo No. 1290 /SM

Copy forwarded to the Special Secretary, Forest & Environment
Department / Member Secretary, SPCB, Bhubaneswar for information and necessary action
Regional Controller of Mines

Date 10.2.2016


Additional Secretary to Government

डॉ० आर. के. नाईक / Dr. R. K. NAIK
वरिष्ठ प्रबंधक (भूविज्ञान) योजना एवं विकास
Senior Manager (Geo.) P & D
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SAIL, RMD, ROURKELA

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BARSUA IRON MINES &
BARSUA IRON MINES

GOVERNMENT OF ODISHA
DEPARTMENT OF STEEL AND MINES

No- 4975 /SM. Bhubaneswar, Dtd. 15-7-2019
III (B) SM-10/2012

From

Smt M. Swain
Joint Secretary to Government.

To

The General Manager (Mines)
M/s Steel Authority of India Ltd,
Raw Material Division,
Kalta Iron Mine,
At/Po-Kalta,
Dist-Sundargar, -770052.

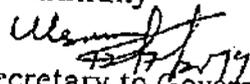
Sub: Request for extension of time for execution of Supplementary Lease deed in respect of mining lease over 25.981 hecets in village Toda R.F of Sundargarh district of M/s SAIL.

Ref: Your letter No: RMD/K/RP&E/19/108 Dated 29.04.2019.

Sir,

I am directed to invite a reference to the letter and subject cited above and to intimate that Government in Steel & Mines Department has been pleased to grant further time of one year up to 08.05.2020 for execution of Supplementary Lease deed in respect of mining lease of M/s SAIL over 25.981 hecets in village Toda R.F of Sundargarh district.

Yours faithfully


Joint Secretary to Government

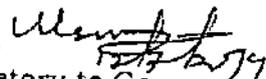
Memo No-

4976

dated

15-7-2019

Copy forwarded to the Director of Mines, Odisha, Bhubaneswar/Forest and Environment Department/DDM Koira for information and necessary action


Joint Secretary to Government


डॉ० आर. के. नाईक / Dr. R. K. NAIK
वरिष्ठ प्रबंधक (भूविज्ञान) योजना एवं विकास
Senior Manager (Geo.) P & D
सेल, आर.एम.डी. राउरकेला
SAIL, RMD, ROURKELA


PETER DANG
General Manager (Geology)
SAIL, RMD, BIM & KIM
BARSUA IRON MINES &



NABL
National Accreditation Board for Testing and Calibration Laboratories
(An Autonomous Body under Department of Science & Technology, Government of India)

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CHEMICAL TESTING

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Certificate Number T-2470

Issue Date 01/04/2015

This certificate remains valid for the Scope of Accreditation as specified in the annexure of this certificate, provided continued satisfactory compliance to the above standard & the additional requirements of NABL is maintained.

Dr. R. K. NAIK
Senior Manager (Geo.) P & D
SAIL, RMD, ROURKELA

Anil Rella
Director

(Signature)
General Manager (Geo.)
SAIL, RMD, ROURKELA



Dr. R. K. NAIK
Senior Manager (Geo.) P & D
SAIL, RMD, ROURKELA

PETER DANG
General Manager (Geology)
SAIL, RMD, BIM & KIM
BARSUA IRON MINES &
KAITA IRON MINES



Test Report



Sample No : BM16-000172.001
JOE No : BM16-000172

Certificate No. : 2476
Print Date : 22/04/2016
Report Control No. : BM16-000172-001

Sample Described by Customer as : IRON ORE
Customer Name : Steel Authority of India Ltd.
Customer Address : Raw Material division Kaila Iron Ore Mines, Po Kaila
City : Sundargarh
Sample Mark : KIM/139(A)/Pit-1(ROM)
Sample Qty. : Apprx 50g
Sample Size : Pulp
Sample Condition : Unsieved
Sample Received Date : 21/04/2016
Test Start Date : 21/04/2016

Sample not Drawn by Laboratory

Registration Date : 21/04/2015
Test End Date : 22/04/2015

Test Name	Test Protocol	Test Results
Total Iron as Fe (on dry basis) %	SGS/IN-LAB/BBSR-WI 01 (IHM)	55.70
Alumina as SiO2 %	SGS/IN-LAB/BBSR-WI 03 (IHM)	1.48
Alumina as Al2O3 %	SGS/IN-LAB/BBSR-WI 02 (IHM)	5.11

Per Pro SGS India Private Ltd.

V. Tharaka Ram
Lab Executive
Authorized Signatory

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वरिष्ठ प्रबंधक (भूविज्ञान) योजना एवं विकास
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SAIL, RMD, ROURKELA

PETER DANG
General Manager (Geology)
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BARSUA IRON MINES &
KAILA IRON MINES



Test Report



Certificate No. 12470

Print Date : 22/04/2016

Report Control No : BMR000011008

Sample not Drawn by Laboratory

Sample Described by Customer as : IRON ORE
 Customer Name : Steel Authority of India Ltd.
 Customer Address : Raw Material division Katta Iron Ore Mines, Po, Katta
 City : Sundargarh
 Sample Mark : KIM/139(B)/Pit-1(ROM)
 Sample Qty. : Apprx 50g
 Sample Size : Pulp
 Sample Condition : Unsealed
 Sample Received Date : 21/04/2016
 Test Start Date : 21/04/2016

Registration Date : 21/04/2016
Test End Date : 22/04/2016

Test Name	Test Protocol	Test Results
Iron Ore	SGS/IN-LAB/IBSR-WI 01 (IIM)	58.90
Iron Ore	SGS/IN-LAB/IBSR-WI 03 (IIM)	3.88
Iron Ore	SGS/IN-LAB/IBSR-WI 02 (IIM)	5.48

"End of Report"

Per Pro SGS India Private Ltd.

V. Tharaka Ram
 V. Tharaka Ram
 Lab Executive
 Authorised Signatory

Page 1 of 1

The accuracy of the results is dependent on the accuracy of the information provided by the Client. The Company accepts no liability with regard to the origin or source of the sample(s) analysed. The results are for the sample(s) analysed only and do not represent the whole lot.

The Company is not responsible for the results of the analysis if the sample is not representative of the whole lot. The Company is not responsible for the results of the analysis if the sample is not properly prepared or if the sample is not analysed under the same conditions as those stated in the report.

The results of the analysis are for the sample(s) analysed only and do not represent the whole lot. The Company is not responsible for the results of the analysis if the sample is not representative of the whole lot.

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 SAIL, RMD, ROURKELA

P. L. Dang
 P. L. DANG
 General Manager (Geology)
 SAIL, RMD, BIM & KIM
 BARSUA IRON MINES &
 KALTA IRON MINE

STEEL AUTHORITY OF INDIA LIMITED
(A Govt. of India Enterprise)
Regd. Office: ISPAT BHAWAN
Lodi Road, New Delhi-110001



RAW MATERIAL DIVISION
KALTA IRON MINE
PO: KALTA
DIST. SUNDARGARH-770052
PH-06625-234062
Mob: 8895502203
Email: kirkalta@rediffmail.com

Ref No. KIM/OGM(GEO)/2016-17

To
The Earth & Environment Laboratory
Plot No-652, Ekamra Villa, IRC Village, Nayapali
Bhubaneswar-751015

date: 11.06.2016

Sub: Bulk density analysis of Iron Ore ML-139 & ML-227 in respect of Kalta Iron Mines,
SAIL-RMD

Quotation No.: EEL-84/16

Date: 02.06.2016

Dear Sir,

This has Reference to your quotation vide above cited letter in connection with bulk density analysis of Iron Ore of ML-139 & ML-227 in respect of Kalta Iron Mines, SAIL-RMD

11(Eleven) no. of samples with details of sample no are given below.

Sl. No	Name of Sample
1	ML-139(A)-FLO
2	ML-139(B)-FLO
3	ML-139(A)-SLO
4	ML-139(B)-SLO
5	ML-139(A)-LO
6	ML-139(B)-LO
7	ML-139 - Blue dust
8	ML-227(I)-FLO
9	ML-227(II)-FLO
10	ML-227(I)-LO
11	ML-227(II)-LO

The receipt of this same may please be acknowledged

Thanking you

Yours Faithfully

For SAIL-RMD

Peter Dang 11/6/16

(Peter Dang)

DGM (Geology)

Kalta Iron Mine

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वरिष्ठ प्रबंधक (भूविज्ञान) योजना एवं विकास
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80

Peter Dang
PETER DANG
General Manager (Geology)
SAIL, RMD, BIM & KIM
BARSUA IRON MINES &
KALTA IRON MINE

Earth & Environment Laboratory

NABL Accredited Laboratory
 Empanelled With State Pollution Control Board, Odisha ("A" Grade)
 Plot No. 652, Ekamra Villa, IRC Village
 Bhubaneswar-751015



TEST REPORT

TR# : EEL/131/16

DATE : 18.06.2016

Name & Address of Customer : Raw Material Division Kalta Iron Mine
 PO-Kalta
 Dist-Sundargarh-770052
 State-Odisha.

Sample Drawn By : Customer
 Sampling Location : NA
 Sample Registration No : 471-481/V16
 Date of sample received : 17.06.2016
 Date of Performance : 17.06.2016 to 18.06.2016

Description of Sample : Eleven nos. of Iron Ore sample quantity 15 kg each were received in tacked condition.

TEST RESULT

Test Parameters	Analysis Result											Units	Test Protocol	Remarks
	ML-137(I)	ML-137(II)	ML-227(I)	ML-227(II)	ML-139(A)	ML-139(B)	ML-139(A)	ML-139(B)	ML-139(A)	ML-139(B)	ML-139(A)			
Moisture	1.55	1.48	2.45	2.41	3.56	3.42	3.16	3.12	2.47	2.39	3.00	tonnes/m ³	EEL/SOP/RY-01 Issue No 00. Dt.02.04.2014	---



Ms. Ranjita Mishra
 Authorized Signatory

This report shall not be reproduced partially or fully without written approval of the laboratory. In the court of Law.
 The results relates only to the items tested.
 The tests marked with an asterisk are not accredited by NABL.

Rev. No. 01
 Date: 09.05.2016

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 वरिष्ठ प्रबंधक (भूविज्ञान) योजना एवं विचार
 Senior Manager (Geo.) P & D
 सेल, आर.एम.डी. राउरकेला

PETER DANG
 General Manager (Geology)
 SAIL, RMD, BIM & KIM
 BARUDA IRON MINES &

ANNEXURE XI

Assessment of Tonnage factor of Laterite at ML-139 Lease of Kalta

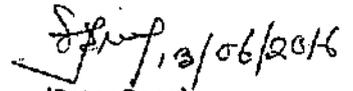
In order to establish Tonnage factor of laterite at ML-139 of Kalta Iron Mine, following procedures were adopted.

1. Six (6) Nos. of pits in lateritic zone, having dimension 1 X 1 X1 (L X W X D) were dug.
2. The collected samples from each pit were spread and dried about 48 Hrs.
3. The dried material obtained from each pit were weighed separately and average of material obtained from each pit has been worked out for determining the average tonnage factor of laterite.

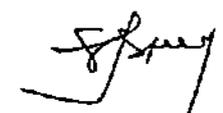
The results are furnished in the table given below:

Sample No.	Lithotype	Tonnage/Cu.M
1	Laterite	2.398
2	Laterite	2.415
3	Laterite	2.389
4	Laterite	2.391
5	Laterite	2.407
6	Laterite	2.398
Average		2.400

Thus the average tonnage factor from field is established as 2.40 Te/Cu.M.


(Peter Dang)
DGM (Geology), KIM


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BARSUA IRON MINES &
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REGISTERED

GOVERNMENT OF INDIA
MINISTRY OF LABOUR
DIRECTORATE GENERAL OF MINES SAFETY

No. Exam/Exemp/SVR/132/60 / Dated, Dhanbad, the 18/3/1968.

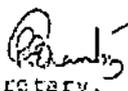
To
Shri Shri Bijoy Katar Mahli,
A, Palla Iron Mines, P.O. Palla,
Dist. Sundargarh, (Orissa) PIN- 755052

MEMORANDUM

Ref:- His application dated 7.10.67

By virtue of Government Notification No. 712(S) dated 13.12.67
Shri Bijoy Katar Mahli S/O. Dubraj Mahli,
of Village Bhogabati Thana Betnoti District Nowrangpur
State Orissa (born on 05.03.1964) Record March Fifteen Sixtyfour possessing
a Diploma in Mining Engineering ~~XXXXXX~~ Suzoxying approved under
Regulation 17 of the Metalliferous Mines Regulations, 1961 and on
completion of the prescribed experience has become eligible to
work in a capacity requiring possession of Surveyor's Certificate
in a Metal Mine having opencast workings only.

This Certificate is effective from 10.11.66 till the above
notification remains in force.


Secretary,
Board of Mining Examinations &
Director of Mines Safety (Exam.).



Encl.:- 4

1. Diploma Certificate.
2. S.S.C./Metric Certificate.
3. First-Aid Certificate.
4. ~~Other documents~~


डॉ० आर. के. नाळक / Dr. R. K. NALIK
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KALTA IRON MINES

CERTIFICATION

This is to certify that the following production figures of Iron ore from the year 1976-77 to 1987-88 of ML-139 over an area of 25.981 Ha in respect of M/s SAIL, RMD, Kalta Iron Mines in village Toda RF in Sundargarh District since inception of mine to till date submitted by the Mines Manager of the said mines is verified with the records as available in this office and found to be authentic. Presently the mine is not working.

Year	Production (in Mt)
1976-77	55629.00
1977-78	94,463.00
1978-79	44,737.00
1979-80	38,828.00
1980-81	35,003.00
1981-82	12,185.00
1982-83	0.00
1983-84	41,290.00
1984-85	35,236.00
1985-86	48,473.00
1986-87	78,680.00
1987-88	45,467.00
1988-2018	NIL

Memo No. 1826 /Mines, dt. 24-4/2018

Copy forwarded to the General Manager (Mines) Kalta Iron Mines, M/s SAIL for kind information as desired vide his letter No.KIM/GM/ML-139/05 dt.06.04.2018 and KIM/ E&L/ DRP-139/2018-19/88, dt.24.04.2018.

Behe
24/4/2018
DEPUTY DIRECTOR OF MINES
KOLTA, Dist Sundargarh

Behe
डॉ० आर. के. नाएक/ Dr. R. K. NAIK
वरिष्ठ प्रबंधक (भूविज्ञान) योजना एवं विप.रा
Senior Manager (Geo.) P & D
सेल: आर.एम.डी. राउरकेला
SAIL, RMD, ROURKELA

Peter Dang
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BARSUA IRON MINES &
KALTA IRON MINES

**PREFEASIBILITY STUDY REPORT OF KALTA IRON ORE MINES (ML-139)
OVER AN AREA OF 25.981 Ha. DISTRICT- SUNDARGARH, ODISHA**



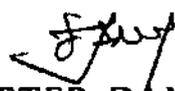
INTRODUCTION

ML 139 lease under Kalta Iron Mine is owned by Steel Authority of India Limited (SAIL), Raw Materials Division (RMD). The Block-B of ML 139 is in geographical & geological continuity with ML 130. The lease was worked as a part of Kalta Iron Mine in the latter half of the seventies, though the main production of the mine comes from ML 130 mining lease which is adjacent and contiguous to ML 139. The lease was granted on 17.01.1975 for a period of 20 years by Govt. of Odisha to Hindustan Steel Ltd. Copy of lease deed annexed as Annexure I. Afterwards as per Miscellaneous Provisions Act, 1978 (16 of 1978) of Govt. of India, Hindustan Steel Ltd got merged in SAIL (Annexure XIX). Therefore the present lessee of the ML area is SAIL. The mining lease hold area of ML 139 comprises of 25.981 ha. and the entire area comes under forest land.

The profile of the lease area from the date of execution till date is summarised below.

SL. NO	STATUS
1	Mining lease was granted for mining of iron ore which was executed on 17.01.1975 for a period of 20 years over 25.981 ha. The original granted area was 38.182 ha spread over two blocks namely Block-A of 22.9982 ha and Block-B of 15.1838 ha totaling 38.182 ha. However, during execution a portion of 12.201 ha located at the northern side of the leasehold and coming within the district of Keonjhar was deducted from the total area keeping the area of the lease to 25.981 ha. The executed area is located in two blocks namely Block-A of 10.7972 ha and Block-B of 15.1838 ha aggregating to 25.981 ha.
2	The date of expiry of the lease was 16.01.1995.
3	Application for 1 st renewal of the mining lease has been done on 16.02.1994 for 20 years w.e.f 17.01.1995 (Copy of renewal application annexed as Annexure IX). The mining plan has been approved by IBM vide letter No. CAL/SG/FC/MP-400 dated 28.03.1996 and was valid up to 2014-15. Successively the approved mining plan was modified to include Progressive Mine Closure plan and was approved by IBM, Bhubaneswar vide letter No. MPM/OTFM/17-ORI/BHU/2012-13 Dt. 21.06.2013 (Annexure III). Subsequently, application for 2 nd renewal of the mining lease has also been done on 04.01.2014 for 20 years w.e.f 17.01.2015. However, as per the provisions of Mines and

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**PREFEASIBILITY STUDY REPORT OF KALTA IRON ORE MINES (ML-139)
OVER AN AREA OF 25.981 Ha. DISTRICT- SUNDARGARH, ODISHA**



	<p>Minerals (Development & Regulation) Amendment Act, 2015 of Govt. of India, the mining lease would be extended up to 16.01.2025. To this effect Department of Steel and Mines, Govt of Odisha has issued a letter (Letter No.III (B) SM-10/2012/1287/SM, Bhubaneswar Dated 10.02.2016) (Annexure X) extending the lease period up to 16.01.2025. Thereafter modified mining plan was submitted for the period from 2015-16 to 2019-20 and was approved by IBM Bhubaneswar vide letter No. MS/OTFM/02-ORI/BHU/2016-17/1473 Dt. 30.08.2016 (Annexure III). Further, the approved Modified Mining Plan has been modified to incorporate DGPS surveyed lease map in addition to granted mining lease map over 25.981 ha area in village Kalta., transformation of plans and sections as per DGPS surveyed UTM grid, to rectify year of temporary closure of mine due to want of statutory clearances and to modify the waste dumping plan generate during the plan period 2019-20 and approved by IBM Bhubaneswar vide letter No. MPM/OTFM/33-ORI/BHU/2018-19 Dt. 29.03.2019 (Annexure III).</p> <p>Supplementary lease deed for the period from 17.01.1995 to 16.01.2025 could not been executed as per the condition stated in extension of validity of lease due to want of statutory clearances. However, Department of Steel and Mines, Govt of Odisha vide letter no- 4975 /SM. Bhubaneswar, Dtd. 15.07.2019 granted an extended period i.e up to 08.05.2020 to execute supplementary lease deed (Annexure X). Obtaining statutory clearances for the lease is under progress.</p>
4	The present Review of mining plan is submitted now for five years i.e. from 2020 -21 to 2024-25.
5	The Block-B of ML 139 is in geographical & geological continuity with ML 130.
	Forest and Environmental Clearance
6	<p>The entire lease area of 25.981 ha. comes under forest land.</p> <p>For obtaining forest clearance, diversion proposal was submitted in online on 22.07.2015.</p> <p>Towards obtaining Environmental Clearance, MoEF & CC has issued ToR (Terms of Reference) on 11.09.18 for conducting EIA study for production of 49701 TPA iron ore. (Annexure XVIII)</p>
	SURFACE RIGHT AREA
7	The surface right for the entire lease has been granted by collector, Sundargarh vide


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PREFEASIBILITY STUDY REPORT OF KALTA IRON ORE MINES (ML-139)
OVER AN AREA OF 25.981 Ha. DISTRICT- SUNDARGARH, ODISHA



	letter No XII/101-75-728 dated 01.07.1975 (Annexure II).
	Mining Operation
8	Mining operations were started in the area soon after obtaining permission for surface operation i.e. on 01.07.1975. Mining under the lease was continued till 1987-88. Since then mining operations under the lease have been temporarily closed for want of statutory clearances. Production data from the lease since inception of mine is given below. (Copy of the certificate in respect of production is placed at Annexure XIII)

1.2 NEED OF SUCH REPORT

This report is prepared in order to have a technical back up on the feasibility study while codifying the reserves and resources in this document as per the United Nations Framework Classifications (UNFC). Attempts have been made to reflect the current status of the deposits providing a detailed and accurate up to date statement on the reserves and the remaining resources. Based on the above facts and figures the economic viability considering a sustainable and eco-friendly mine environment has been addressed at the current market scenario and the latest technology available to achieve the goal.

1.3 LOCATION AND ACCESSIBILITY

a) Lease Details (Existing Mine)

Name of the mine- ML.-139 (Kalta Iron Mine)

Date of grant of lease- 17.01.1975 Period/ Expiry Date-16.01.2025

Name of lease holder-Steel Authority of India Ltd / IBM/5662/2011

Nominated owner- Shri Vivek Gupta

Steel Authority of India Ltd

Raw Materials Division

Kalta Iron Mine

A/Po- Tensa,

Dist-Sundargarh

Odisha-770042

E-mail:kimkalta@rediffmail.com

Registered Office:

Ispat Bhavan, Lodi Road,

New Delhi – 110 003.

Phone: 24367481-86

Fax: 24367015

Website: www.sail.co.in

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वरिष्ठ प्रबंधक (भूविज्ञान) योजना एवं विकास
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**PREFEASIBILITY STUDY REPORT OF KALTA IRON ORE MINES (ML-139)
OVER AN AREA OF 25.981 Ha. DISTRICT- SUNDARGARH, ODISHA**



b) Details of applied / lease area with location map (fresh area/mine)

Non-Forest (ha)	Forest (ha)	
Nil	Reserve Forest	25.981

Total lease area/ applied area-25.981 ha

District and state-Sundargarh and Odisha

Taluk –Bonai

Village-Kalta

Whether the area falls under Costal regulation Zone (CRZ)? If yes, details there of –
Not applicable.

Existence of public road/railway line, if any nearby and approximate distance- All weather motorable roads exists to the lease area. The area is approachable only through the Kalta Iron Ore Mine; in fact Block- B adjoins the main lease ML-130 along its northern boundary. NH-215 connecting Barbil through State highway No. 10 at Bhadrasahi and with NH-23 at Rajamunda, passes through the Kalta Mine which lies at a distance of about 110 km from Rourkela (through Rajamunda) and 47 km from Barabil. Roxi Railway Station, which is the rail head of Kalta Mine, will be used for dispatching ML-139 ore to the Rourkela Steel Plant which is situated approx 120 km from the leasehold via the Kalta Mine. A location map showing lease area, access routes etc. has been shown in Plate No. I.

ML 139 is situated in the Bonai sub-division of Sundargarh district of Odisha state and is covered by survey of India toposheet no. 73 G/1 and 73 F/4. The leasehold comprises of two blocks, Block- B which adjoins ML-130 of the Barsua – Kalta Iron Ore Mine and Block- A which lies further north, with some intervening non leased area.

1.4 PHYSIOGRAPHY & DRAINAGE

The area under reference is almost an undulating hilly terrain. The highest altitude of 860 m is noted in northern part of the lease area (Block-A) and lowest altitude of 760 m at the western part of the lease area (Block-B). The maximum gradient of the area is 1 in 2 and minimum is 1 in 13. ML-139 is located north of the Majumachan Pahar, immediately to the north of the Kalta end of ML-130. The NE – trending elongated narrow hill range is a prominent drainage barrier between the western rugged terrain and the eastern undulating & plain country. The gullies along the scarp slopes in the western part give rise to numerous nalas which join to from

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streams. The latter discharge into the kurhadinadi, which originates in the south-eastern side of the Dandrahah Pahar and, after girdling it, takes a north-westerly course. The Barsua Township of SAIL-RMD is located in a valley of this river.

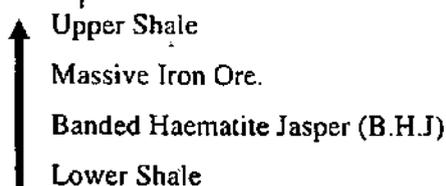
1.5 GEOLOGY

a) Regional geology

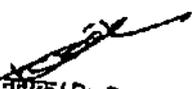
The Iron Ore bearing and associated suites of rocks in the area are belongs to Precambrian meta-sedimentary sequence of the Bonai-Keonjhar belt (BIF-III) of Iron Ore Super Group. It has now been generally accepted that the Iron Ore Super Group was deposited on the denuded edges of older metamorphic suites. The ore bodies are associated with banded hematite-quartzite of the iron-ore Group. The original rocks consisted of alternating ribbons of quartz jasper and haematite, from which silica was leached out and iron-ore bodies formed by the secondary processes of replacement & concentration of iron oxides & hydroxides.

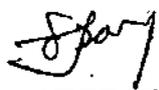
b) Local Geology

The sequence of rocks in the Barsua – Taldih – Kalta belt is as follows:



The Upper Shale forms the central shale and clay band in the whole of Barsua Block and in a part of Taldih 'A' Block, after which it gradually swings to the east and passes along the eastern margin of the ore-body in the Kalta block. Upper shales are not present in ML-139. Banded Haematite Jasper, a hard and resistant rock, constitutes the dominant litho-type of the hill range. In the peaks areas, it is generally capped by iron-ore, while in the lower areas, laterite blanketing is common. BHJ exposures are generally seen at the escarpment faces of the hill. Massive Iron Ore in ML-139 occurs as capping of the two hills, separated by BHJ in the lower elevation in the between. The two occurrences identified as Blocks 'A' and 'B'. Lower shales are associated with phyllites and volcanic tuffs in the Barsua area. In ML-139, lower shales (without tuffs) are generally present in the lower slopes on the western side. The general strike of the formation in the area is NNE-SSW, with a dip of 80° on the western flank and 45° on the eastern slopes. The general direction of the dip is westerly. Several structural features in the area exerted their influence on the form and extension of the ore bodies. Local folds and


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slips are common. Two sets of joints, one parallel and the other transverse of the hill range, are prominently marked.

Description of the ore body: The lease area ML-139 is situated adjacent to working lease ML-130 in the north side. Being a contiguous part in the strike direction the physical and chemical properties of ore types are very much similar to the adjacent working Kalta Iron Mines. The different ore types exposed in the surface and in faces of old working within lease area are highly lateritised. The iron ore bodies in the area generally occur in the higher area of the hill range, as capping. The mode of occurrence of iron-ore in the area supports the general conception of ore-formation by secondary processes of leaching, replacement and concentration of iron oxides and hydroxides by the action of circulating meteoric water under structural and geochemical controls. Lateritisation which adversely affected the ore horizons at places also resulted from the same processes. In ML-139, iron ore is found in two areas separated by BHJ exposures. The southern ore zone has been identified as Block 'B' and the northern one as Block 'A'. In both blocks, iron ore is found as capping on higher ground, while the break in the continuity of the ore horizons has been caused by exposures of BHJ on comparatively lower ground in between. Thus, the disposition of the two ore bodies in ML-139 is a geo-morphological expression rather than any structural discontinuity.

c) Reserve/Resources

MT= Metric Ton

Classification	Code	Quantity in MT	Grade
Total mineral resource (A+B)		21,86,913	Fe%
A. Mineral Reserves			
Proved Mineral Reserves	111	----	
Probable Mineral Reserves	121 122	---- 2,58,736	>58%
B. Remaining Resources			
Feasibility mineral resources	211	----	
Pre-feasibility mineral resource	221 222	---- 4,10,386 (Blocked) + 46,221 (Mineral Reject) =4,56,607	> 45%
Measured mineral resources	331	----	
Indicated mineral resources	332	----	
Inferred mineral resources	333	14,37,014	> 45%
Reconnaissance mineral resources	334	----	

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1.6 MODE OF WORKING

The mode of occurrence of iron ore within the lease hold has persuaded the lessee to work by open cast mining method on single shift basis. As such, during the course of operation in the previous years, the lessee has opened up a single quarry in Block-B. The ML 139 lease comes under Category – A (Other than fully mechanized category) as per the IBM guidelines.

For the five year plan period (2020-21 to 2024-25) it is proposed to continue the mining operation with the same practice in the block-B for sustainable development because 1) the ore body has been delineated through detail mapping and pitting, 2) The different types of ore body has been exposed in the existing quarry benches which facilitate proper blending for mineral conservation with consistent finished quality and 3) easy accesses for development of the block as Block-B is adjacent to existing operational mine pit (Kalta C-Block) of Mi-130.

The deposit will be worked by opencast mining method with formation of benches by drilling and blasting. The working benches will be of 6 m height and 10 m wide. 100 mm diameter holes will be drilled with the help of wagon drills to a depth of 6.6 m with 10% sub-grade drilling at a spacing and burden of 3 m x 2.5 m in ore, mineral reject and waste. For primary blasting 83 mm, 2.78 kg slurry/ emulsion explosive cartridges will be used whereas secondary blasting will be done by plaster shooting. The blasted boulders will be manually sized and sorted to around 300 mm average size. The sorted boulders will be thereafter stacked for measurement and loaded into trucks of 10t capacity. The area offered favorable topography for developing approach road up to the pit excavation site. Machineries like excavator, pay loader, tipper and wagon drill were being deployed in the mine. The ore produced from the mine will be transported by tippers. Part of the waste generated during excavation will be transported by tippers for peripheral development and rests will be dumped in the dumping site. OTFM-A method of mining on single shift basis will be practiced in the lease area during the mining plan period. Mine approach roads having suitable gradient i.e. 1 in 16 to 1 in 20 are to be developed for smooth and safe transportation of ores and waste material. Steps are to be provided within benches for easy movement of workers. The individual benches faces will be maintained at around 70° or less and the overall slope will be maintained at less than 45°. Backfilling of iron ore quarries cannot be commenced unless it is exhausted from the lease area.


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QUANTUM OF PRODUCTION

MT= Metric Ton

YEAR	PIT NO.	TOTAL EXCAVATION (m ³)	TOP SOIL (m ³)	OB/SB/IB (m ³)	ROM (m ³)		ORE (MT)	MINERAL REJECTS	ROM/WASTE RATIO (MT/m ³)
					ORE (m ³)	MINERAL REJECTS (m ³)			
2020-21	Iron pit	24,423	0	10,115	14,308	0	49,935	-	1:0.20
2021-22	Iron pit	17,108	0	2,912	14,196	0	49,544	-	1:0.06
2022-23	Iron pit	1,7190	0	2,940	14,250	0	49,733	-	1:0.06
2023-24	Iron pit	21,220	0	6,942	14,278	0	49,830	-	1:0.14
2024-25	Iron pit	15,079	0	848	14,231	0	49,666	-	1:0.02
TOTAL		95,020	0	23,757	71,263	0	248,708	-	1:0.10

Note: Tentative tonnage of the saleable material has been arrived by computing approximate bulk density and recovery factor as these data are variable and are to be established on time series.

2.0 EXPLORATION

a) Details of the exploration already carried out

The lease area is located north of ML 130 Kalta end and is in geological continuity with working mine Kalta C-Block of ML 130 having similar nature of ore bodies. The lease area was first geologically mapped and then the extent of mineralization investigated by pitting in 1970. Based on outcome of this exploration, 25.981 Ha were earmarked and mining lease (ML-139) has been obtained. The following exploration activities were carried out in the lease area-

Surveying: ML-139 area being the northern extension of Kalta sector of ML-130, the grid and R.L survey developed for ML-130 was adopted. A baseline, with reference to the MajurnachanPahar peak of Kalta Sector, was drawn with a rough alignment along the hill range near its eastern boundary. The major part of the mining area is located on the western side of the baseline. The entire area was covered by grid intervals of 50m x 50m.

Pitting: In view of the geo-morphological setup of the ore-body in the area, exploration carried out in 1970 was based on pitting rather than drilling. On the basis of available geological maps a few pits were dug (upto a depth of about 5m from the surface) in promising areas to examine the extent of the ore-body. Pit locations were selected on a staggered grid pattern along the strike and dip directions.

Out of these pits a total of 23 pits (11 in Block- A and 12 in Block- B) comes within the leasehold area of ML 139.

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The surface plan of the lease area has been prepared on a scale of 1:2000 with contour interval of maximum 10 meter and the area is duly marked by grid lines showing all existing surface features. Plate No. IV.

Geological information has been collected from the existing 23 pits & quarry excavation, outcrops of different litho units for preparation of this document. From the available data of existing quarry and pits, the geological Plan has been prepared on a scale of 1:2000 (Plate No. V) an Geological sections have been prepared on natural scale of geological plan i.e. 1:2000 at suitable interval across the lease area from boundary to boundary Plate No. V (A).

The applicant has surveyed the area in detail based on which the present modification to the mining plan has been prepared. The details of the investigation undertaken are summarized as follows.

1. Grid lines with an interval of 50 m along N-S and E-W have been drawn to know the quarry configuration and topography of the area.
2. Contouring and geological mapping in 1:2000 scale with contour intervals of 10 m have been undertaken for preparation of surface plan and geological plan.
3. 12 nos. of geological cross sections on 1: 2000 scale along the dip direction passing through sub-surficial openings have been prepared.

b) Future exploration programme

Based on the available quarry & pit data and geological investigation the present Review of mining plan has been prepared. However, to explore the lease area upto G1 level as per UNFC, a total of 45 nos. boreholes are proposed to be undertaken in the first two years of plan period. The proposed boreholes are located on the cross-sectional lines (Plate No. V).

The details of proposed exploration to be carried out are as follows.

Year	No of Boreholes	Type of Boreholes	Grid Interval	Total meterage	No. of pits, Dimensions & Volume	No. of Trenches, Dimensions & Volume
2020-21	27	Core	100X50	8100	Nil	Nil
2021-22	18	Core	100X50	5400	Nil	Nil

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The details of the proposed boreholes are as mentioned below.

Year of drilling	Section No	Proposed BH no	Northing	Easting	Collar RL	Core/R C/DTH	Proposed Depth	Inclination	Forest/Non Forest/Diver ted Forest area	Surface right/Non surface right area
2020 2021	G6	PBH-1	2433520.40	317088.26	796	Core	300/ or till the discontinuance of ore body	90°	Forest area	surface right area
	G5	PBH-2	2433603.60	317143.73	810	-do-	-do-	-do-	-do-	-do-
	G4	PBH-3	2433686.81	317199.20	810	-do-	-do-	-do-	-do-	-do-
	G3	PBH-4	2433770.01	317254.67	810	-do-	-do-	-do-	-do-	-do-
	G2	PBH-5	2433853.22	317310.14	824	-do-	-do-	-do-	-do-	-do-
	G1	PBH-6	2433936.42	317365.61	827	-do-	-do-	-do-	-do-	-do-
	G5	PBH-07	2433575.85	317185.31	823	-do-	-do-	-do-	-do-	-do-
	G4	PBH-08	2433659.05	317240.78	822	-do-	-do-	-do-	-do-	-do-
	G3	PBH-09	2433742.26	317296.24	824	-do-	-do-	-do-	-do-	-do-
	G2	PBH-10	2433825.46	317351.71	831	-do-	-do-	-do-	-do-	-do-
	G1	PBH-11	2433908.67	317407.18	826	-do-	-do-	-do-	-do-	-do-
	G4	PBH-12	2433631.34	317282.41	826	-do-	-do-	-do-	-do-	-do-
	G3	PBH-13	2433714.54	317337.88	833	-do-	-do-	-do-	-do-	-do-
	G2	PBH-14	2433797.75	317393.35	836	-do-	-do-	-do-	-do-	-do-
	G1	PBH-15	2433880.95	317448.82	822	-do-	-do-	-do-	-do-	-do-
	G6	PBH-16	2433548.25	317046.71	782	-do-	-do-	-do-	-do-	-do-
	G5	PBH-17	2433631.45	317102.18	790	-do-	-do-	-do-	-do-	-do-
	G4	PBH-18	2433714.66	317157.65	795	-do-	-do-	-do-	-do-	-do-
	G3	PBH-19	2433797.86	317213.12	795	-do-	-do-	-do-	-do-	-do-
	G2	PBH-20	2433881.07	317268.59	804	-do-	-do-	-do-	-do-	-do-
	G1	PBH-21	2433964.27	317324.06	810	-do-	-do-	-do-	-do-	-do-
	G6	PBH-22	2433575.87	317005.06	757	-do-	-do-	-do-	-do-	-do-
	G5	PBH-23	2433659.07	317060.53	772	-do-	-do-	-do-	-do-	-do-
	G4	PBH-24	2433742.28	317116	777	-do-	-do-	-do-	-do-	-do-
	G3	PBH-25	2433825.48	317171.47	775	-do-	-do-	-do-	-do-	-do-
	G2	PBH-26	2433908.69	317226.94	780	-do-	-do-	-do-	-do-	-do-
	G1	PBH-27	2433991.89	317282.41	795	-do-	-do-	-do-	-do-	-do-

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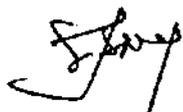


2021	G12	PBH-28	2434382.81	317663.20	824	-do-	-do-	-do-	-do-	-do-	
	G11	PBH-29	2434466.01	317718.67	821	-do-	-do-	-do-	-do-	-do-	
	G10	PBH-30	2434549.22	317774.14	820	-do-	-do-	-do-	-do-	-do-	
	G9	PBH-31	2434632.42	317829.61	824	-do-	-do-	-do-	-do-	-do-	
	G8	PBH-32	2434715.63	317885.08	842	-do-	-do-	-do-	-do-	-do-	
	G10	PBH-33	2434521.69	317815.31	805	-do-	-do-	-do-	-do-	-do-	
	G12	PBH-34	2434410.29	317621.62	825	-do-	-do-	-do-	-do-	-do-	
	G11	PBH-35	2434493.50	317677.09	832	-do-	-do-	-do-	-do-	-do-	
	G10	PBH-36	2434576.70	317732.56	838	-do-	-do-	-do-	-do-	-do-	
	2022	G9	PBH-37	2434659.91	317788.03	845	-do-	-do-	-do-	-do-	-do-
		G8	PBH-38	2434743.11	317843.50	853	-do-	-do-	-do-	-do-	-do-
		G7	PBH-39	2434826.57	317898.95	860	-do-	-do-	-do-	-do-	-do-
		G11	PBH-40	2434521.48	317635.47	825	-do-	-do-	-do-	-do-	-do-
		G10	PBH-41	2434604.69	317690.94	836	-do-	-do-	-do-	-do-	-do-
		G9	PBH-42	2434687.89	317746.41	847	-do-	-do-	-do-	-do-	-do-
G8		PBH-43	2434771.10	317801.88	850	-do-	-do-	-do-	-do-	-do-	
G11		PBH-44	2434544.4	317600.14	810	-do-	-do-	-do-	-do-	-do-	
G8		PBH-45	2434792.40	317769.47	840	-do-	-do-	-do-	-do-	-do-	

As indicated above, all the 45 numbers of boreholes have been proposed to be drilled for exploration of iron ore during the period 2020-21 and 2021-22 (27nos of bore holes drilled in 2020-21 and 17nos of boreholes in 2021-22). Out of 45 nos. of coring boreholes 07 nos. of boreholes have been proposed to be drilled in the BHJ zone to prove the barrenness. All the boreholes have been proposed to drill in 100 m x 50m grid interval in iron ore zone to prove the extension and occurrence of ore bodies. Boreholes will be drilled upto a maximum depth of 300 m or till the discontinuance of ore body and meter wise representative core/sludge samples would be collected and analysed for Fe (T), SiO₂ and Al₂O₃. In addition to for Fe (T), SiO₂ and Al₂O₃, Chemical analysis for S, P, CaO, MgO, Na₂O, K₂O and Mn will be done to samples from the ore zone. Out of total samples collected from mineralized zone more than 10% of analysed samples will be consider for check samples and will be analysed in from third party NABL accredited laboratory or other government laboratory. This is to be undertaken only after commencement of mining operation.

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3.0 RESERVE ASSESSMENT

a) Geological reserve

The computed geological reserve is summarized as follows.

MT=Metric Ton

Grade	Proved (G1) MT	Probable (G2) MT	Inferred (G3) MT	Total (MT)
Saleable (>58% Fe)	---	6,69,122	11,74,781	18,43,903
Mineral rejects (45 -58 %Fe)	---	46,221	2,62,233	3,08,454
Total	---	7,15,343	14,37,014	21,52,357

b) Mineable reserve

Mineable reserve in probable category has been calculated deducting the reserve that would be blocked under the pit slope and within the safety zone. The mineable reserve within the area thus is as follows.

MT=Metric tonnes

Grade	Probable (G2) MT
Saleable (>58 % Fe)	2,58,736
Mineral Reject (45 -58 %Fe)	0
Total	2,58,736

The mineable reserve of iron ore is 2,58,736 MT

Grade: Grade wise reserve could not be ascertained as detailed exploration is yet to be carried out. Iron ore of > 58% Fe is considered as good and marketable grade. The reserve in between 45-58% Fe has been taken as Mineral reject.

The average content of Fe is more than 58% as revealed from the chemical analysis (Annexure XD).

c) UNFC Classification

As per the above parameters, the resources as per UNFC codification are as follows:

Classification	Code	Quantity in MT	Grade
Total mineral resource (A+B)		21,86,913	Fe%
A. Mineral Reserves			
Proved Mineral Reserves	111	----	
Probable Mineral Reserves	121 122	---- 2,58,736	>58%
B. Remaining Resources			
Feasibility mineral resources	211	----	
Pre-feasibility mineral resource	221 222	---- 4,10,386 (Blocked) + 46,221 (Mineral	

**PREFEASIBILITY STUDY REPORT OF KALTA IRON ORE MINES (ML-139)
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		Reject) =4,56,607	> 45%
Measured mineral resources	331	-----	
Indicated mineral resources	332	-----	
Inferred mineral resources	333	14,37,014	> 45%
Reconnaissance mineral resources	334	-----	

4.0 PRODUCTION SCHEDULE

The mine will be developed by benches having maximum 6.0 m height and minimum 10.0m width. The overall slope will be maintained at less than 45°. The mine working is proposed to be restricted within the influence zone of section lines. As ML-139 consists of very small non-mineralised area, it is not possible to dump all the waste material within the dump. Therefore it is proposed to utilise the waste material of first three years of the ensuing plan period in peripheral development work. Accordingly, the generated waste will be utilise in void filling and levelling of broken safety zone, making roads etc. Waste produced from the lease area in the last two years of the ensuing plan period will be dumped at the selected site covering 0.9 ha in the north western part of the block-B area after proving the barrenness. The detail lay out of the proposed quarries and sections are shown in plate -VI. Mine approach roads having suitable gradient i.e. 1 in 16 to 1 in 20 are to be developed for smooth and safe transportation of ores and waste material. Steps are to be provided within benches for easy movement of workers.

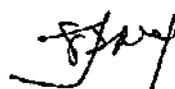
The Year wise Development for the planned period is as follows

MT= Metric Ton

YEAR	PIT NO.	TOTAL EXCAVATION (m ³)	TOP SOIL (m ³)	OB/SB/IB (m ³)	ROM (m ³)		ORE (MT)	MINERAL REJECTS	ROM/WASTE RATIO (MT/m ³)
					ORE (m ³)	MINERAL REJECTS (m ³)			
2020-21	Iron pit	24,423	0	10,115	14,308	0	49,935	-	1:0.20
2021-22	Iron pit	17,108	0	2,912	14,196	0	49,544	-	1:0.06
2022-23	Iron pit	1,7190	0	2,940	14,250	0	49,733	-	1:0.06
2023-24	Iron pit	21,220	0	6,942	14,278	0	49,830	-	1:0.14
2024-25	Iron pit	15,079	0	848	14,231	0	49,666	-	1:0.02
TOTAL		95,020	0	23,757	71,263	0	248,708	-	1:0.10

Note: Tentative tonnage of the saleable material has been arrived by computing approximate bulk density and recovery factor as these data are variable and are to be established on time series.

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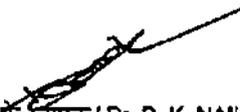
5.0 METHOD OF MINING

It is planned to adopt the "OTFM A" open-cast mining method in plan period. The height of the individual benches shall be made and maintained at 6m and width of minimum 10 m. 100 mm diameter holes will be drilled with the help of wagon drills to a depth of 6.6 m. with 10% sub-grade drilling at a spacing and burden of 3 m x 2.5 m. The overall bench slope will be maintained at 45°. For primary blasting 83 mm, 2.78 kg slurry/ emulsion explosive cartridges will be used whereas secondary blasting will be done by plaster shooting. Blasting will be generally carried out once in a week. The blasted boulders will be manually sized and sorted to around 300 mm average size. The sorted boulders will be thereafter stacked for measurement and loaded into trucks of 10t capacity. Hence, "OTFM" opencast method of mining is proposed to be continued. The mine working is proposed to be restricted within the influence zone of section lines. The detail lay out of the proposed quarries and sections are shown in Plate No. VI. Mine approach roads having suitable gradient i.e. 1 in 16 to 1 in 20 are to be developed for smooth and safe transportation of ores and waste material. Steps are to be provided within benches for easy movement of workers.

It is proposed to operate the mines on single shift basis. Keeping in view of holidays, stoppage of work due to rain and other un-foreseen circumstances 300 days per year have been considered for effective mining operation. The blasted boulders will be manually sized and sorted to around 300 mm average size. The sorted boulders will be thereafter stacked for measurement and loaded into trucks of 10t capacity. The boulders will be subjected to manual breaking and sizing. The lumps (-40+10mm) and fines (-10mm) will be segregated, which will in turn be transported to the Roxy railway siding at a distance of around 22 km by 20t trucks. Overburden/ Inter-burden will be loaded through 0.9-1.0 cum excavator into 10 t/ 20t dumpers for its disposal in the proposed dump. Rock breakers will be used in case of large size boulders.

6.0 BENEFICIATION

No mineral beneficiation will be carried out in the mine. Total RoM of iron ore produced from the mine will be subjected to manual sorting and sizing up to +300mm. Then these lump will be manually crushed and screened to produce +10mm to -40mm lump and -10 mm fines. The sized ore will be stored in the earmarked stack-yards.


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7.0 END USE OF THE MINERAL

The entire production from ML -139 lease, will be supplied to all the integrated steel plants of SAIL. The chemical & physical specifications for lump & fine ores are given below:-

Parameters	Lumps	Fines
Fe%	63.00	63.00
SiO ₂ %	2.00	2.50
Al ₂ O ₃ %	2.70	3.00
Lumps	+10-40 mm	
Fines	-10 mm	

8.0 INFRASTRUCTURE

a) Site services

All services provided at the Kalta Iron Ore Mine (KIM) will be common for ML – 130, 139 & 227 leases.

b) Industrial Services:

Power: Electric power supply is received through a 11 KVA feeder from the Odisha State Electricity Board Sub-Station at Tensa. It is stepped down to 440 V in two sub-stations. One 500 KVA transformer is located in the Colony sub-station, while one 500 KVA and two 250 KVA transformers, are located at the Mining sub-stations at the hill top.

Workshop Facilities: The Kalta Mine has a Field Maintenance and Repair Shop for routine jobs. Major repairs are undertaken at neighbouring Barsua Mine of the Company.

Water Supply: For meeting water requirements at Kalta Complex, the management have created a 1,500 m³ impoundment by constructing a weir in the Najkura Nala (which flows near the property). Water requirement for the mine to the tune of 47 KLD can be met from the existing source.

Other Support Facilities: All the Services and facilities required under the Mine Act (and the regulations, Rules and Bye-laws made there under) have been provided at the Kalta Mine. These include a Vocational Training Centre, Rest Shelters, First Aid Stations, a Canteen, an Explosive Magazines, etc. In addition, a site office and public conveniences are also provided.

c) Township and Municipal Facilities:

A small township spread over 33.9 ha of land outside the mining lease area of ML - 130 has been developed in the Kalta Valley. It has 163 pucca houses and 102 temporary units (making 265 residential units in all), and has been provided with all municipal facilities. The township

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has its own marketing centre, in addition to the weekly hatia, a co-operative store is also functioning in the colony. Medical facilities are provided through an 18 bed hospital, staffed with three doctors and 23 para-medical & public health personnel. There are two schools in the township, one high School and one Middle School.

For recreation, a Community Centre and a Multi-Purpose Centre have been provided besides a cable T.V network. Public utility services in the township include a bank, a post office, the Odisha State Transport buses. For cultural encouragement, the management patronizes the only cultural group in the area, Bhanja-Kala Parisad. As has been mentioned earlier, water requirements of the mine and the township are met through (besides a artesian well in the locality) water pumped from a local perennial NajkuraNala. About 250 kL of water per day is pumped daily. Water for human consumption is supplied after treatment at water treatment plant, through an overhead tank and a network of pipes. Treatment of sewage is through septic tanks provided in every building.

9.0 ENVIRONMENTAL ASPECTS

a) Environmental Base line information

Mining under the lease was continued till 1988. Since then mining operations under the lease have been temporarily closed for want of statutory clearances. Environmental Quality monitoring around the Kalta Iron Mine is being done through Corporate Environment Management Division, SAIL and the impact has been assessed based on the same. Environmental Quality reports for the period from March, 2019 to May, 2019 are placed at Annexure XVI

i) Existing Land Use pattern

SL.No.	Description	Total Forest Land (Ha)
1	Pits inclusive of roads (prior to 1980)	7.01
	Total	7.01

ii) Water Regime

There is no perennial nala or water course on the hill top. All the rain water falling on ML-139 area drains down the steep hill slopes in a very short time, and there is no accumulation of water in the leasehold area even after heavy rains, except for accumulated water in small local

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depressions. Even this water percolates down through the floor strata and flow out from the hill sides. It is to be noted that the existing groundwater levels on the hill top are well below the ore-body floor, expectedly more than 40 m underneath the surface level. These would therefore remain unaffected by mining operations.

iii) Air Quality

Although mining operation are already in progress in the locality since long no recorded noticeable adverse impact on the quality of air was observed. As such atmospheric fresh air exists in the locality till date.

iv) Noise Level

The noise level recorded in and around Kalta Iron Mine is recorded quarterly and found no noticeable adverse record.

For preparation of separate Environmental Management Plan a detailed programme for monitoring of air and water quality will be taken up after commencement of mining operation.

v) Flora and fauna

Flora

The area supports a variety of local species; the major species include Sal (Shorea robusta), Palash (Butea frondosa), Kusum (Seheleicheratijug), Kadamba (Anthocephalus Cadamba), Seesum (Delbergialatifolia) and Bija (Pterocarpus marsupium). In addition, fruit trees like, Jackfruit (Artoicarpus lakocha), Mango (Mangifera indica), Guava (Psidium guava), Jamun (Syzygium cumini), etc are also found.

Fauna

As the area adjoins running mines, wild animals are not seen within and around the area. The available species include Wild Bear (Cuscipiststus), Jackal (Canis avruss), Fox (Vulpus bengalensis), etc. Avi-Fauna of the area includes Red Jungle Fowl (Gallus gallues), Cuckoo (Cuculus Indiane), common Hawk (Falcon), Common Myna (Ancridotheres Tristis), Jungle Crow (Dicrusous Macrocerus) etc.

Aquatic Fauna

No perennial river flows within the lease area. Perennial rivers and streams nearby to the area contain small and large species of fish, the principal ones being Rohu, Mirikala, Bhakur, Sala, Serula, Balia etc.



b) Climatic Condition

The climate of the area is sub-tropical. Barsua Mine of ML 130 has been maintaining daily record of rainfall, temperature and humidity almost since its inception in 1960. The average annual rainfall over the past 28 year period (1967-1994) was 2,155 mm. The maximum rainfall during this period was 3,047 mm (1971), and the minimum 1,373 mm (1992). The area enjoys very high precipitation. The weather conditions are not extreme. Summer is not very hot, due to forest cover in the area. The maximum temperature, during summer exceeds 40°C only for a few days during the year. The minimum temperature, during winter, rarely goes below 07°C. As might be noted, April and May are the hottest months and December and January the coolest ones.

The relative humidity in the area is generally high due to the high level of precipitation. The maximum humidity is usually above 60%, even during summer. The minimum humidity is generally 30%, except in April and May when it goes below 20%. Wind direction in the area does not vary too widely in this area, from season to season. The area experiences very high percentage of calm days.

c) Human settlement

No village or basti is located within the leasehold area. The buffer zone has 07 villages, with a total of 1,233 households and population of 5,342, including 2,870 males and 2,472 females. Overall literacy in the buffer zone is 31.13%, composed of male literacy 42.6% and female literacy 17.84%. Schedule caste constitutes 8.08% of the population and schedule tribes 76.5%. Vocational data of the buffer zone is given below:

Type	Buffer zone
Cultivator	8.24%
Agriculture Labourers	5.05%
Household industry,	1.95%
Other workers	18.74%
Total Main Workers	33.98%
Marginal Workers	4.14%
Non-Worker (mainly Women and Children)	61.88%

Approach to two villages is by pucca road while 05 villages can be approached by kutchra road only. One village, namely kalta, is on the bus route. The nearest market is at a distance of less than 05 km from 04 villages, one village is 05-10 km distant from the nearest market and the remaining two villages are located more than 10 km away from the nearest market. Kalta


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village has a primary health center, while 03 villages are within 05 km of medical facility; the remaining 03 villages are more than 10 km away from such facility. Drinking water is drawn from wells in all the villages; and one village has a tube well. Village Kalta has a post and telegraph office. Rice and Maize form the staple food of villagers.

d) Public Buildings, Temples, places, monuments in the area

There is no place of archaeological or religious importance within 5 km of the lease.

9.1 ENVIRONMENTAL IMPACT ASSESSMENT (EIA)

a) Area likely to be degraded

A total of 9.628 ha land is likely to be degraded due to proposed mining and construction of road and site services at the end of the plan period. This would naturally create a change in topography. These topographical changes would be of the following order:

Type of land Use	At present (ha)	Additional area during the plan period (ha)	Total (ha)
Area under excavation	6.91	0	6.91
Overburden Dump	0	0.9	0.9
Mineral storage	0	0.45	0.45
Storage for top-soil	0	0	0
Mineral reject storage	0	0	0
Infrastructure (rest shelter etc.)	0	0.002	0.002
Township	0	0	0
Roads	0.10	0.34	0.44
Ancillary activities including float mining	0	0	0
Retaining wall, garland drain & settling tank around dump, Plantation, etc.	0	0.9148	0.9148
Filling of disturbed/void areas in safety zone with wastes and subsequently covered with plantation.	0	0.0112	0.0112
Total	7.01	2.618	9.628

b) Air quality

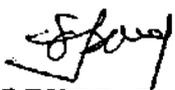
Mining activities will have the impact on the air environment because various operations like quarrying, sizing, sorting, deploying of tippers and diesel operated machineries and blasting

Corrective measures

Monitoring

It is proposed to monitor air samples at 5 locations (Plate No. VIII) at least once in each month during the present plan period both within the core and buffer zones. Lessee has got the


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Environment Management Division as a nodal agency for carrying out monitoring operations in respect of the environmental parameters periodically.

Management

Suitable measures for dust suppression are being proposed through spraying water at dust generating points and haul roads. Emission of noxious gas from vehicles can be controlled by regular maintenance. Water sprinkling with plantation along the safety zone will be done in the lease area for dust suppression. Regular air samples will be analysed. Air sample stations have been proposed to be constructed around the core and buffer zone of the lease area. Dust extractors will be used in drill units for dust suppression. The year wise programme of afforestation in the safety zone area is given below:

Year	Area (Ha)	Type of saplings	No. of saplings	Distance between saplings(m x m)
2020-21	0.5	Mangiferaindica	250	2.5 x 2.5
2021-22	0.5	Psidiumguajava	250	2.5 x 2.5
2022-23	0.5	Mangiferaindica	250	2.5 x 2.5
2023-24	0.5	Psidiumguajava	250	2.5 x 2.5
2024-25	0.46	Mangiferaindica	250	2.5 x 2.5
Total	2.46		1250	

c) Water quality

Existing surface water bodies

There is no perennial nala existing within the lease area. Two seasonal nalas exist, one in each block.

Existing ground water bodies

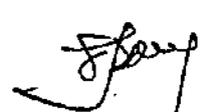
Dug well serves as drinking and other domestic needs in the area. Water table in the adjoining area seems to be at a depth of 10 to 15 m below the general surface level. Since mining is carried out in hilly area water table will not be intersected as ground water table is at deeper level.

Water quality management

There will be least chance of pollution of the surface and groundwater due to surface mining. In rainy season there may be a chance of surface water pollution due to contamination

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of suspended and dissolved solids those are mostly expected from the out slopes of the mine excavation and slopes of waste dumps. It is general practice that before starting the monsoon, a deep drain is being cut all around the top surface of quarry to check the rain water entering into the quarry. It is also proposed to construct a boulder wall and garland drain all around the foot of the dump and will be provided with settling tanks to minimize the suspended particulates entering the river. The settling tank will be cleaned periodically so as to avoid over flowing of the tank. The water thus released to the natural drainage will be analyzed periodically to check the quality of water. It is proposed to monitor the water quality monthly once in four stations planned in both core and buffer zone to know its quality.

As the lease area is part of the undulating hill, the pumped out and the surface run-off water will be channelized through the existing two seasonal nalas, one in Block A and the other in Block B. To arrest the suspensions of the flowing water, check dams made up of cement concrete have been proposed within the nala course in a staggered pattern.

d) Measures to minimize noise level

Provision to keep machineries in good condition: This will help keep noise level within 90 dBA and also help in reducing vibration level. Muffle blasting will be undertaken so as to reduce fly rock movements. Noise monitoring stations are proposed in 3 locations (Plate No. VIII) to monitor the noise level monthly once and to take proper precautions to keep the noise within the prescribed limit. Plantation as proposed in the safety zone will help minimize noise level.

e) Measures to minimize vibration

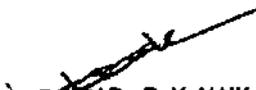
Provision of delay detonators: This will help keep noise level within 90 dBA and also help in reducing vibration level. Muffle blasting will be undertaken so as to reduce fly rock movements. The ground vibration to be generated due to blasting at ML 139 lease will be quite low and will require no ameliorative action, as the charge per delay is limited.

f) Water regime

It is to be noted that the existing groundwater levels on the hill top are well below the ore-body floor. These would therefore remain unaffected by mining operations.

g) Acid mine drainage

Not applicable as no noxious gas is released in the course of mining.


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h) Surface subsidence

The quarries are proposed to be developed through well maintained benches. Hence surface subsidence is ruled out. Also, these openings are proposed to be backfilled after exhaustion of ore in the conceptual period.

i. Socio economics

The Kalta Mine as a whole (including ML-139) employs a total of 2209 workers. Almost all these workers belong to the surrounding villages and areas.

This mining employment has greatly benefited the income levels of the natives. In addition, creation of over 1,200 comparatively well paid jobs in the area has generated not only sizeable trade in household supplies (including vegetables, milk, food, textile, etc) but also some household employment. It has also generated demand for tertiary services like transport and repair shops. The impact of mining operations in the area on socio-economic has been a positive one. The infrastructure of the area roads, public transport P&T facilities and electricity supply etc have also been improved after the advent of mining operation in the area. As part of its social concern, the management is helping out the local villages in solving their day to day problems by sinking tube wells, repairing village approach roads, constructing public buildings like schools, dispensary, assisting in health care activities, assisting the neighborhood adult literacy centre, holding rural sports meets and developing playing fields, etc. These will be further augmented after commencement of mining operation in ML 139.

i) Historical monuments etc

There are no historical monuments or places of archeological interest within 5 km radius of the lease.

10.0 OTHERS

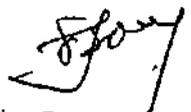
a) Tribal issues

The tribal people of the nearby villages work in the mines and get employment and earn their livelihoods. There is no local agitation against mining.

b) National Park

There is no national park within and around the leasehold area. So mining will not be a problem in respect of this.


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11.0 ECONOMIC EVALUTION:

a) Capital cost

The estimated capital cost of Kalta Iron Mine project will be around Rs. 30 Crores, which include site allocation, prospecting activities and common infrastructure facilities.

b) Cost of Mining

Production cost for Kalta Iron Mine worked out taking into account the annual production capacity, requirement/ linkages/sourcing and pricing of various input materials to the mine site, requirement of manpower and their salaries & wages, power, fuel and other services & utilities, consumables, maintenance spares and various overhead expenses.

The estimated production cost (including depreciation & interest) at 100% capacity utilization will be Rs. 1263/- per tonne of product excluding Royalty.

c) Cost of Mineral:

The entire production of iron ore from Kalta Iron Mine will be consumed in SAIL's own steel plants. Cost of Production of iron ore will claim on transfer price.

Since the iron ore produced from this lease hold is for captive use of SAIL's integrated steel plants this iron ore project is economically viable.

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Office

Utkal University

Utkal University

DIPLOMA FOR MASTER OF SCIENCE
(SEMESTER EXAMINATION)

This is to certify that

Peter Dang

of the University Postgraduate Department

of Geology

who has been examined in all the Semesters of
Master of Science in Geology
completed in the month of November 1982

was this day admitted to the degree.

Average Grade OP+

Average Marks 55.8 %

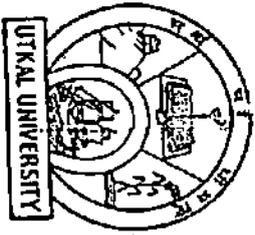
Special Papers Metamorphic Minerals

UTKAL UNIVERSITY

YANI VIHAR
BRUBANESWAR

The 16th April, 1984

[Signature]
Vice-Chancellor



ଓଡ଼ିଶା ବିଶ୍ୱବିଦ୍ୟାଳୟ

ଅଧ୍ୟାପକ ଚନ୍ଦନ ରାୟ ପଟ୍ଟ

(ଅଣ୍ଡରଗ୍ରାଜି ଚରଣ)

ପରୀକ୍ଷା ପାରିତା ପରମେଶ୍ୱର ମାତ୍ରରେ

ଅଧ୍ୟାପକ ଚନ୍ଦନ ରାୟ ପଟ୍ଟ ଉତ୍ତର ପର

ପରୀକ୍ଷା ଉତ୍ତୀର୍ଣ୍ଣ କରିବା ପାଇଁ ଗୃହଣ

କରିବାକୁ ଅନୁମତି ଦିଆଯାଇଛି।

ଅଧ୍ୟାପକ ଚନ୍ଦନ ରାୟ ପଟ୍ଟ

ପରମେଶ୍ୱର OP+

ପରମେଶ୍ୱର 55.8 %

ବିଶେଷ ପରୀକ୍ଷା Metamorphic Minerals

ଓଡ଼ିଶା ବିଶ୍ୱବିଦ୍ୟାଳୟ

ଯାନି ବିହାର

ବ୍ରହ୍ମପୁର

ତା. 16-4-84

[Signature]
ପ୍ରମୁଖ ଅଧ୍ୟାପକ

PETER DANG

General Manager (Geology)

SAIL, RMD, BIM & KIM

BARSOA IRON MINES & KALTA IRON MINES

ଶ୍ରୀ ଶ୍ରୀ ଡ. କେ. ନାୟକ/Dr. R. K. NAIK

ସିନିୟର ମ୍ୟାନେଜର (ଜିଓଲୋଜି) ଶାନ୍ତିନୀ ଓଡ଼ିଶା ବିଶ୍ୱବିଦ୍ୟାଳୟ

Senior Manager (Geo.) P & D

ସି.ଏଲ. ଓଡ଼ିଶା ବିଶ୍ୱବିଦ୍ୟାଳୟ
SAIL, RMD, ROURKELA



STEEL AUTHORITY OF INDIA LTD
RAW MATERIALS DIVISION
KALTA IRON MINES

P.O.: KALTA Dist: Sundargarh(Odisha)
Phone(06625) 234036, Fax: 06625-234023

Ref No.: KIM/PERS/991

Dated: 22.12.2018

EXPERIENCE CERTIFICATE

This is to certify that Sri Peter Dang, P. No.: H000116, Designation Dy. General Manager (Geology) is having more than five years experience of working in Supervisory Capacity in Mines of Raw Materials Division (RMD) of Steel Authority of India Limited since 06-06-1984.

This certificate is issued for the purpose of preparation of Mining Plan/Scheme /Modification of Mining plan/Review of Mining plan as required by Indian Bureau of Mines (IBM).

Signature of Head of Personnel

Name

T. K. NAYAK
Dy. Manager (P&A)
SAIL - RMD
KALTA IRON MINE

Designation

Seal

डॉ० आर. के. नाएक/ Dr. R. K. NAIK
संरक्षित प्रबंधक (भूविज्ञान) योजना एवं विकास
Senior Manager (Geo.) P & D
सेल, आर.एम.डी. राउरकेला
SAIL, RMD, ROURKELA

PETER DANG
General Manager (Geology)
SAIL, RMD, BIM & KIM
BARSUA IRON MINES &
KALTA IRON MINES

Head Office: 5th & 6th Floor, Industry House, 10 Camac Street, Kolkata-700 017
Regd. Office: Ispat Bhawan, Lodi Road, New Delhi- 110 003. P.B. 3049

IDENTITY CARD
STEEL AUTHORITY OF INDIA LIMITED
RAW MATERIALS DIVISION
 Kalta Iron Mine, Kalta, Sundargarh,
 Odisha-770052



NAME : Peter Dang
 PI No. : H000116/216033
 Designation : DGM(Geology) I/C MM
 Address : A/3, Kalta, Sundergarh
 Odisha-770052
 DOB : 08/10/1960 Asstt. Manager (Pers)
 SAIL, RMD
 Issue Authority

Sub. @ Employed

Identity Card No. : 181
 Blood Group : AB+
 Identification Mark : Round black mark on left chest.

Emergency Contact Address
 At-Kurpani, PO- Kapas, PS. Bramitrapur,
 Dist-Sundergan, Odisha-770033
 Mob No. 08722455

Note:
 * Not Transferable & to be produced on demand
 * Loss to be reported immediately
 * If found, please return to issuing authority.

Dr. R. K. Naik
 डॉ० आरू के. नाएक / Dr. R. K. NAIK
 वरिष्ठ प्रबंधक (भूविज्ञान) योजना एवं विकास
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 सेल, आर.एम.डी. राउरकेला
 SAIL, RMD, ROURKELA

Peter Dang
PETER DANG
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Sambalpur University

ସମ୍ବଲପୁର ବିଶ୍ୱବିଦ୍ୟାଳୟ



MASTER OF SCIENCE

This is to Certify that

Rajesh Kumar Naik

of University Post Graduate Department, who has passed the examination for the degree of

MASTER OF SCIENCE

in Earth Science

held in the year 1996, and was placed

in First class under SEMESTER course credit system

with specialisation in Economic Geology

was this day admitted to the degree

SAMBALPUR UNIVERSITY
JYOTI VIHAR, BURLA

The 15th JANUARY 1999

PETER DANG
General Manager (Geology)
SAIL, RMD, BIM & KIM
BARSUA IRON MINES &
KALTA IRON MINES

डॉ० आर. के. नाएक / Dr. R. K. NAIK
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Senior Manager (Geol.) P & D
सेल, आर.एम.डी. राउरकेला
SAIL, RMD ROURKELA

McDart
Vice-Chancellor

स्टील अथॉरिटी ऑफ इण्डिया लि.
रॉ मेटेरियल्स डिविजन, राउरकेला



STEEL AUTHORITY OF INDIA LTD.

RAW MATERIALS DIVISION, ROURKELA.
2nd floor, Project & Modernisation Building
Rourkela - 769 011 (Odisha)
Ph. No. 0661 - 2510801, Fax : 0661 - 2510411

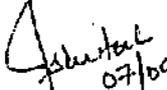
Ref No. : RMD/RKL/P&A/2019/524

Dated : 07.09.2019

EXPERIENCE CERTIFICATE

This is to certify that Dr. Rajesh Kumar Naik, Pl. No. : H000670, Designation : Senior Manager (Geology), is working in Steel Authority of India Limited in supervisory capacity since 28.02.2008. His qualification is Ph.D(Geology) from Sambalpur University, Jyotibihar, Burla.

This certificate is issued for the purpose of preparation of Mining Plan/Modification of Mining plan/Review of Mining Plan as required by Indian Bureau of Mines.


07/09/19
(Ashutosh)

Manager(Liaison)
& I/c. (P & A)

Raw Materials Division, Rourkela

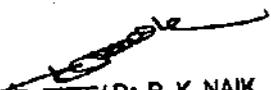
प्रबंधक (संपर्क)/ MANAGER (LIAISON)

अ.प्र. (का.व.प्र.)/Addl. Charge (P & A)

सेल, आर.एम.डी. / SAIL R.M.D.

राउरकेला / ROURKELA

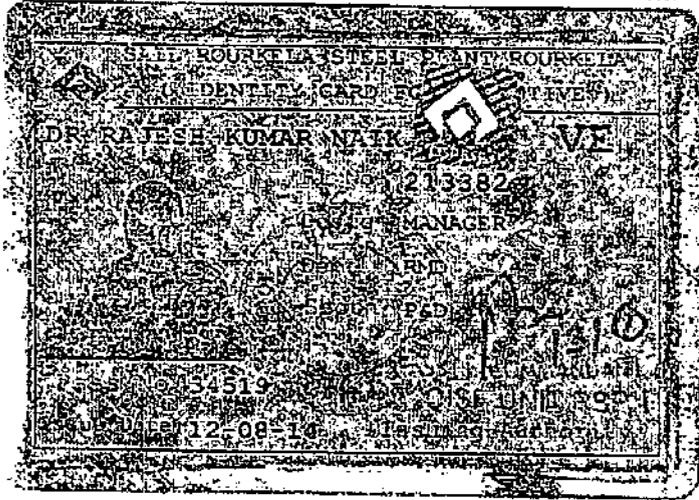

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SAIL, RMD, ROURKELA

Head Office : 5th & 6th floor, Industry House, 10 Camac Street, Kolkata - 700017, Fax : 033 - 22825630/0422. rmdcal@vsnl.net.in

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Dr. R. K. Naik
डॉ. आर. के. नाएक / Dr. R. K. NAIK
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**CONSENT COMPLIANCE MONITORING
OF
KALTA IRON MINE, KALTA, ODISHA
(1st Quarter of 2017-18)**

Kalta Iron Ore Mine is situated in the Sundargarh District of Orissa and located at 79 km south of Rourkela at a latitude between 21° 50' to 22° 00' N and longitude between 85° 07' to 85° 14' E. The area has a semi arid climatic condition having annual temperature ranging from 40° C (Maximum) to 07° C (Minimum). The area receives an annual average rainfall of about 2100 mm. The mine is operating in a dry circuit with facilities like crushing, screening etc.

The discharge and emission consents have been given to the mine by Odisha State Pollution Control Board. As per the directive of Raw Materials Division (RMD) Kolkata the Air & Water Quality at different identified locations are being monitored on monthly basis (w.e.f March-2012) by Environment Management Division (EMD), SAIL, Kolkata, the nodal agency for Environment Management of its Plants and Mines. The environmental quality monitoring (Air, Water & Noise) for the 1st quarter 2019-20 was conducted during 30th May'19, in and around Kalta Iron Mines including Roxy Railway Siding (22 km from mine site) & its adjacent areas.


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WATER LOCATION AT MIOM :-

- W1 -Water Stream from Hill (leading to Intake bund)
- W2-U/S of Samijnallah near national highway
- W3-Kalta Township Storage tank
- W4-Hand Pump (H/P) at Kalta Basti
- W5-Bore well at Kalta Admn. Building
- W6-Samij nallah, around 1 km away Roxy siding
- W7-D/S of Samij nallah, near Toda Basti
- W8-Hand pump at Roxy Railway siding area.

Sampling & Analysis

Date of Sampling : 30th May'19

Date of Analysis : 30th May'19

Ambient air quality monitoring locations

- Location #1(A1)Kalta Township (in front of Guest House)
- Location #2(A2) Kalta Basti
- Location #7 (A7)Kalta Admn Bldg
- Location #8 (A8)Roxy Railway siding hutting area no : 3 (near Union office)

Work Zone air quality / Fugitive Emission monitoring locations

- Location #3(A3)Drilling point
- Location #4(A4) Excavation & Loading at the mine face
- Location #5(A5) Haul Road/Service Road
- Location #6(A6) Mobile crushing & screening plant area
- Location # 9(A9)Roxy Railway Siding Wagon loading area



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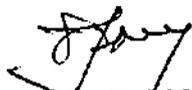


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Results of Fugitive Emission / Work Zone Air quality KIM			
Location	Date	RSPM	SPM
		($\mu\text{g}/\text{m}^3$)	($\mu\text{g}/\text{m}^3$)
Drilling point -A3	--	--	--
(A9)Roxy Railway Siding Wagon loading area	--	--	--
Haul Road/Service Road- A5	30-05-2019	308	770
Fugitive emission standards as per MoEF notification no: GSR809 (E) dtd. 4th Oct, 2010 on Iron ore mining & ore processing : Particulate Matter(PM) - 1200 ($\mu\text{g}/\text{m}^3$) at a distance of 25 \pm 2m. in the predominant downwind direction from the source of generation.		1200	

BDL: Below Detectable limit ($< 6 \mu\text{g}/\text{m}^3$)

Workzone air quality location of No. A3 & A9 could not be done due to non-availability of DG set.


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 Senior Manager (Geo.) P
 सेल, आर.एम.डी. राउरकेला
 SAIL, RMD, ROURKELA

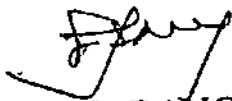
Ambient Air Quality Monitoring Results KIM

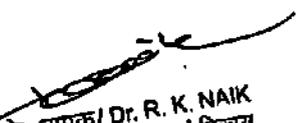
Location	Date	RSPM(PM_{10})	$PM_{2.5}$	SO_2	NO_x
		($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)
Kalta Township (G/H)-A1	30-05-2019	60	38	8	17
Kalta Basti(A2)	--	--	--	--	--
Kalta Admn. Bldg.-A7	30-05-2019	52	42	9	13
Roxy Railway Siding hutting area no:3-A8(near Union office)	--	--	--	--	--
Norm		100	60	80	80

Note: The norms are as per the NAAQS dttd: 16th Nov'2009 issued by MoEF/CPCB.

BDL: Below Detectable limit ($< 6 \mu g/m^3$).

Ambient air quality location No. A2 and A8 could not be done due to power failure and non-availability of DG set.


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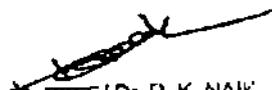

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Water Quality Results of Drinking Water & Ground Water

Sl. No.	Parameters	Unit	W3	W4	Limit as per
			(Kalta Township storage tank)	(H/P at Kalta Basti)	IS 10500:2012
1	Colour	Pt-Co Scale	8	11	5
2	Odour		Odourless	Odourless	Unobjectionable
3	Temperature	(^o C)	28.3	28.2	
4	pH		6.6	7.6	6.5 – 8.5
5	DO	mg/l	5.79	4.6	
6	Conductivity	μS/cm	110	140	-
7	TDS (mg/l)	mg/l	55	70	500
8	TSS(mg/l)	mg/l	2	4	-
9	Total Hardness	as CaCO ₃ (mg/l)	73	86	200
10	Calcium	as Ca mg/l	18.8	32.2	75
11	Magnesium	as Mg mg/l	6.3	5.8	30
12	Alkalinity	as CaCO ₃ (mg/l)	50	48	200
13	Chloride	as Cl mg/l	20	22	250
14	Sulfate	as SO ₄ mg/l	3	8	200
15	Dissolve	as PO ₄ mg/l	4.89	2.85	-
16	Nitrate	as NO ₃ mg/l	3.6	2.5	45
17	Copper	as Cu mg/l	0.03	0.02	0.05
18	Ammonical	as N mg/l	BDL	BDL	0.5
19	Free Chlorine	as Cl mg/l	0.03	0.01	0.2
20	Hexavalent Chromium	as Cr+6 mg/l	BDL	BDL	-
21	Manganese	as Mn mg/l	0.1	0.04	0.1
22	Total Iron	as Fe mg/l	0.31	0.23	0.3
23	Fluoride	as F mg/l	0.04	BDL	1
24	Sulfide	as S mg/l	BDL	0.03	0.05

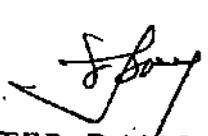
BDL: Below Detectable Limit

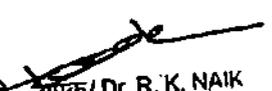

PETER DANG
 General Manager (Geology)
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 वरिष्ठ प्रबंधक (भूविज्ञान) योजना एवं विवेचना
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Sl. No.	Parameters	Unit	WS5	WS8	Limit as per
			(Bore well at Kalta Admn.)	(Hand pump at Roxy Railway siding area)	IS 10500:2012
1.	Colour	Pt-Co Scale	5	21	5
2.	Odour		Odourless	Odourless	Unobjectionable
3.	Temperature	(0 C)	29.2	29.3	
4.	pH		6.04	6.25	6.5 - 8.5
5.	Conductivity	µS/cm	127.6	214	-
6.	TDS (mg/l)	mg/l	63.8	107	500
7.	TSS(mg/l)	mg/l	2	4	-
8.	Total Hardness	as CaCO ₃ (mg/l)	37	86	200
9.	Calcium	as Ca mg/l	5.2	22.4	75
10.	Magnesium	as Mg mg/l	5.8	7.3	30
11.	Alkalinity	as CaCO ₃ (mg/l)	20	34	200
12.	Chloride	as Cl mg/l	9	12	250
13.	Sulfate	as SO ₄ mg/l	BDL	BDL	200
14.	Dissolve	as PO ₄ mg/l	5.01	1.23	-
15.	Nitrate	as NO ₃ mg/l	5.1	3.6	45
16.	Copper	as Cu mg/l	0.02	0.03	0.05
17.	Ammonical	as N mg/l	BDL	BDL	0.5
18.	Free Chlorine	as Cl mg/l	0.01	0.02	0.2
19.	Hexavalent Chromium	as Cr+6 mg/l	BDL	BDL	-
20.	Manganese	as Mn mg/l	0.04	0.03	0.1
21.	Total Iron	as Fe mg/l	0.03	0.06	0.3
22.	Fluoride	as F mg/l	0.02	0.03	1
23.	Sulfide	as S mg/l	0.02	0.03	0.05

BDL: Below Detectable Limit


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 SAIL, RMD, ROURKELA

Water Quality Results of Stream Samples

Sl. No.	Parameters	Unit	W1	W2	Limit as per
			(Water Stream from Hill leading to intake bund)	(WS of Samaj Nallah near national highway)	IS:10500:2012
1	Color	Pt-Co Scale	16	11	5
2	Odour		Odourless	Odourless	Unobjectionable
3	Temperature	(°C)	28.2	28.3	-
4	pH		6.95	7.46	6.5 - 8.5
5	DO	mg/l	6.42	6.33	
6	Conductivity	µS/cm	50	80	
7	TDS (mg/l)	mg/l	25	40	500
8	TSS(mg/l)	mg/l	5	2	
9	Total Hardness	as CaCO ₃ (mg/l)	29	19	200
10	Calcium	as Ca mg/l	4	6	75
11	Magnesium	as Mg mg/l	4.6	0.97	30
12	Alkalinity	as CaCO ₃ (mg/l)	15	17	200
13	Chloride	as Cl mg/l	17	8	250
14	Sulfate	as SO ₄ mg/l	BDL	BDL	200
15	Dissolve Phosphate	as PO ₄ mg/l	0.41	1.4	
16	Nitrate	as NO ₃ mg/l	2.1	2.6	45
17	Copper	as Cu mg/l	0.01	0.03	0.05
18	Ammonical Nitrogen	as N mg/l	BDL	BDL	0.5
19	Free Chlorine	as Cl mg/l	BDL	0.03	0.2
20	Hexavalent Chromium	as Cr ⁺⁶ mg/l	BDL	BDL	
21	Manganese	as Mn mg/l	0.06	0.08	0.1
22	Total Iron	as Fe mg/l	0.28	0.26	0.3
23	Sulfide	as S mg/l	BDL	BDL	0.05
24	Fluoride	as F mg/l	0.02	0.04	1

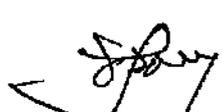
BDL: Below Detectable Limit


PETER DANG
 General Manager (Geology)
 SAIL, RMD, BIM & KIM
 BARSUA IRON MINES &
 KALTA IRON MINES


 डॉ० आर.के. नाएक/ Dr. R. K. NAIK
 वरिष्ठ प्रबंधक (भूविज्ञान) योजना एवं विकास
 Senior Manager (Geo.) P & D
 सेल, आर.एम.डी. राउरकेला
 SAIL, RMD, ROURKELA

Sl. No.	Parameters	Unit	W6	W7	Limit as per IS:10500:2012
			(D/S of Samajallah, near Toda Basti)	(Samij nallah near Roxy siding)	
1	Color	Pt-Co Scale	45		5
2	Odour		Odourless		Unobjectionable
3	Temperature	(°C)	28.3		
4	pH		7.25		6.5 - 8.5
5	DO	mg/l	6.87		
6	Conductivity	µS/cm	82		-
7	TDS (mg/l)	mg/l	41		500
8	TSS(mg/l)	mg/l	1		-
9	Total Hardness	as CaCO ₃ (mg/l)	19		200
10	Calcium	as Ca mg/l	6		75
11	Magnesium	as Mg mg/l	0.97		30
12	Alkalinity	as CaCO ₃ (mg/l)	20		200
13	Chloride	as Cl mg/l	9		250
14	Sulfate	as SO ₄ mg/l	BDL		200
15	Dissolve Phosphate	as PO ₄ mg/l	5.1		-
16	Nitrate	as NO ₃ mg/l	2.6		45
17	Copper	as Cu mg/l	BDL		0.05
18	Ammonical Nitrogen	as N mg/l	BDL		0.5
19	Free Chlorine	as Cl mg/l	0.03		0.2
20	Hexavalent	as Cr ⁺⁶ mg/l	BDL		-
21	Manganese	as Mn mg/l	0.08		0.1
22	Total Iron	as Fe mg/l	0.26		0.3
23	Sulfide	as S ⁻ mg/l	0.002		0.05
24	Fluoride	as F mg/l	0.04		1

BDL: Below Detectable Limit


PETER DANG
 General Manager (Geology)
 SAIL, RMD, BIM & KIM
 BARSUA IRON MINES &
 KALTA IRON MINES


 डॉ० आर. के. नाईक / Dr. R. K. NAIK
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 Senior Manager (Geo.) P & D
 सेल, आर.एम.डी. राउरकेला
 SAIL, RMD, ROURKELA

Sri Harinand Rai,
Director Technical & Nominated owner
Steel Authority of India Ltd
Kalta Iron Mine
At: Po: Tema
Dist: Sundergarh,
Odisha-770042

Sr: Violation of provisions of Mineral Conservation & Development Rules, 2017 in respect of your Kalta Iron Mine over an area of 25.981 ha in Sundergarh district of Odisha State.

Sr: The following provision of Mineral Conservation and Development Rules, 2017 was found violated in your said mine during inspection on 27.02.2019 by the undersigned.

Sl.No	Rule No	Rule Position	Nature of Violation
1	26(2)	The holder of mining lease shall submit to the competent authority a yearly report as per the format specified by the Indian Bureau of Mines, before 1st day of July every year setting forth the extent of protective and rehabilitative works carried out as envisaged in the approved mine closure plan, and if there is any deviation, reasons thereof.	The year progress report on PMCP from the year 2015-16 to 2017-18 has not been submitted till date.
2	35(2)	Every holder of a mining lease shall monitor his mining and allied activities as per the notified template of star rating in the format prescribed in this behalf by the Indian Bureau of Mines from time to time, and shall submit online its self-assessment report before the 1st day of July every year for the previous financial year, along with the soft copy (in the standard format), of high resolution satellite images obtained from CARTOSAT-2 satellite LISS-IV sensor on the scale of cadastral map, as on the 31st day of March for that financial year, covering the mining lease and an area of two kilometers from the lease boundary, to the Regional Controller or the authorized officer of the Indian Bureau of Mines.	The lessee has not submitted online its self-assessment report before the 1st day of July 2018 for the previous financial year 2017-18 along with the soft copy (in the standard format), of high resolution satellite images obtained from CARTOSAT-2 satellite LISS-IV sensor on the scale of cadastral map, as on the 31st day of March for 2017-18, covering the mining lease and an area of two kilometers from the lease boundary.
3	45(5)(b)	a monthly return which shall be submitted before the tenth day of every month in respect of the preceding month in electronic form along with a signed print copy of the same if it is not digitally signed....	Monthly returns from the year 2015-16 to 2017-18 have not been submitted till date.
4	45(5)(c)	an annual return which shall be submitted before the 1st day of July each year for the preceding financial year in electronic form, along with a signed print copy of the same if it is not digitally signed....	Annual returns from the year 2015-16 to 2017-18 have not been submitted till date.
5	55(3)(iii)	every holder of a mining lease shall employ, in case of category 'A' mines, a whole-time mining engineer and a geologist.	Whole time geologist has not been appointed by the lessee.

डॉ० आर. के. नाईक / Dr. R. K. NAIK
वरिष्ठ प्रबंधक (भूविज्ञान) योजना एवं विकास
Senior Manager (Geo.) P & D
सेल, आर.एम.डी. राउरकेला
SAIL, RMD, ROURKELA


PETER DANG
General Manager (Geology)
SAIL, RMD, BIM & KIM
BARSUA IRON MINES &
KALTA IRON MINES

02 In this connection, it is brought to your notice that the above violations constitute an offence punishable under Rule 17 of Mineral Conservation and Development Rules, 2017.
03. You are advised to rectify the above violations immediately and intimate the position to this office within 45 (forty-five) days from the date of issue of this letter.

o/c *Sudip Ranjan Mazumdar*
19/3/19

(SUDIP RANJAN MAZUMDAR)
Senior Mining Geologist
Indian Bureau of Mines

Copy forwarded to:
The Controller of Mines (EZ) / Indian Bureau of Mines / Kolkata.
The Director of Mines / Directorate of Mines / Government of Orissa / Heads of Department Building / New Capital / Bhubaneswar-751 001.

30/3

30/3

o/c *Sudip Ranjan Mazumdar*
19/3/19

(SUDIP RANJAN MAZUMDAR)
Senior Mining Geologist
Indian Bureau of Mines

28/3
29/3/19

Dr. R. K. Naik
डॉ० आर.के. नाइक / Dr. R. K. NAIK
वरिष्ठ प्रबंधक (भूविज्ञान) योजना एवं विकास
Senior Manager (Gen) P & D
सेल, आर.एम.डी. राउरकेला
SAIL, RMD, ROURKELA

Peter Dang
PETER DANG
General Manager (Geology)
SAIL, RMD, BIM & KIM
BARSUA IRON MINES &
KALTA IRON MINES



STEEL AUTHORITY OF INDIA LIMITED
RAW MATERIALS DIVISION
KALTA IRON MINE

AT/PO-KALTA, DIST.SUNDARGARH(ODISHA)
Phone No.06625-234036, FAX-06625-234023, E-Mail: kaltasallrmd@gmail.com

KIM/DGM(Mines)/IBM/Violation/ML-139/ 929

Date: 16/05/2019

To
Shri S.R. Mazumdar
Senior Mining Geologist
Indian Bureau of Mines
149, Pokhariput
Bhubaneswar-751020

Sub: Compliance report/status in respect of violations of provisions of MCDR. 2017 for Kalta Iron Mine over an area of 25.981 ha (ML-139)

Ref.: Your letter No. ORI/IRON/SG/MCDR-2/BBS/3042 dated 19.03.2019

Sir,

With reference to above, we would like to inform that the aforementioned letter dated 19.03.2019 has been received by mail only on 14.05.19, wherein the violations of the provisions of MCDR 2017 were pointed out with respect to our ML-139 lease of Kalta Iron Mine. The point wise compliance to the violations pointed out have been furnished below for kind consideration.

Sl No.	Rule No.	Nature of Violation	Compliance Report/ Status
1	26(2)	The Yearly Progress Report on PMCP from the year 2015-16 to 2017-18 has not been submitted till date.	The Lease is non-working since 1988 due to want of statutory clearances. No mining & allied activities are carried out in the leases since 1988. The entire lease area falls under forest land and proposal for obtaining forest clearance is pending with State Govt. As no statutory clearances exist for the lease, no mining & allied activities including reclamation & rehabilitation works could be carried out.
2	35(2)	The Lessee has not submitted online its self-assessment report before 1 st day of July, 2018 for the previous financial year 2017-18 along with the soft copy(in the standard format) of high resolution satellite images obtained from CARTOSATE-2 satellite LISS-IV sensor on the scale of cadastral map, as on the 31 st day of March for 2017-18, covering the mining lease and an area of 2 Kms from the lease boundary	Online self-assessment report (Star Rating) could not be submitted for the year 2017-18 as lease is non-working since 1988 due to want of statutory clearances. So the Star Rating performance of the mine could not be assessed as per the standard Star rating Format. The soft copy (in the standard format) of high resolution satellite image obtained from CARTOSATE-2 satellite LISS-IV sensor on the scale of cadastral map, as on the 31 st day of March 2018, covering the mining lease and an area of 2 Kms from the lease boundary is enclosed in CD.

Head Office: 5th & 6th Floor, Industry House, 10 Canal Street, Kolkata-700017
Regd. Office: 15/1st Bhopan, Lodi Road, New Delhi-110003

डॉ० आर.के. नाइक/ Dr. R. K. NAIK
वरिष्ठ प्रबंधक (भूविज्ञान) योजना एवं विद्यमान
Senior Manager (Geo.) P & D
सेल, आर.एम.डी. राउरकेला
SAIL, RMD, ROURKELA

124

PETER DANG
General Manager (Geology)
SAIL, RMD, BIM & KIM
BARSUA IRON MINES &
KALTA IRON MINES



STEEL AUTHORITY OF INDIA LIMITED
RAW MATERIALS DIVISION
KALTA IRON MINE

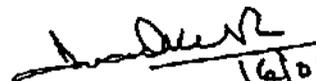
AT/PO-KALTA, DIST.SUNDARGARH(ODISHA)
Phone No.06625-234036, FAX-06625-234023, E-Mail: kalta@railrmd@gmail.com

3	45(5) (b)	Monthly Returns from the year 2015-16 to 2017-18 have not been submitted till date.	No production/ dispatch during the period from 2015-16 to 2017-18 and there is no mine code for ML-139 lease. Application has been submitted to Zonal Office, IBM, Kolkata on 15.05.2019 for obtaining IBM Mine Code for the lease for submission of NIL monthly and annual returns. Copy of the letter submitted to IBM, Kolkata is enclosed as Annexure-I). We will submit the returns in electronic form along with signed hard copy of the same after obtaining mine code.
4	45(5) (c)	Annual Return from the year 2015-16 to 2017-18 have not been submitted till date	
5	55(3) (iii)	Whole time Geologist has not been appointed by the lessee.	ML-139 is an adjoining lease to our main working lease i.e. ML-130 (Kalta Part). Sri Peter Dang, M.Sc. Geology has been appointed as Geologist of Kalta Iron Mine (ML-130, Kalta Part) who is looking after job of Geologist of ML-139 also (Letter for appointment of Geologist is enclosed as Annexure-II).

In view of above compliances, it is earnestly requested that above violations of the provision of MCDR 2017 may kindly be liquidated.

With Regards,

Yours faithfully,


16/05/2019
DGM(Mines) & Agent
Kalta Iron Mine

Encl: As above


डॉ० आर.के. नाइक/ Dr. R. K. NAIK
वरिष्ठ विधक (भूविज्ञान) योजना एवं विकास
Senior Manager (Geo.) P & D
सेल, आर.एम.डी. राउरकेला
SAIL, RMD, ROURKELA

Head Office: 5th & 6th Floor, Industry House, 10 Camac Street, Kolkata-700014
Regd. Office: Ispat Bhawan, Lodi Road, New Delhi-110 003


PETER DANG
General Manager (Geology)
SAIL, RMD, BIM & KIM
BARSUA IRON MINES &
KALTA IRON MINES



स्टील अथॉरिटी ऑफ इण्डिया लिमिटेड
STEEL AUTHORITY OF INDIA LIMITED
रॉ मटेरियल्स डिवीज़न
RAW MATERIALS DIVISION

Ref No. RMD/K/E&L/19/217

Date: 15.05.19

To
Controller of Mines (EZ)
Indian Bureau of Mines,
CP-13, Sector V Salt Lake City,
Kolkata- 700 091

Sub: Allotment of mine code for three leases of SAIL situated in Odisha

Respected Sir,

With reference to the subject mentioned above, this is to inform you that updation in Form-K for SAIL mines and plants in the MTS portal is under process. However detail of following leases couldn't be uploaded in Form-K of MTS due to non-availability of mine code.

1. ML-139 (25.981 ha) lease of Kalta Iron Mine, Village - Kalta, Taluk - Bonai, Dist- Sundergarh, State - Odisha
2. ML-227 (3.34 ha) lease of Kalta Iron Mine, Village - Kalta, Taluk - Bonai, Dist - Sundergarh, State - Odisha
3. ML-162 (77.94 ha) lease of Barsua Iron Mines, village - Barsua, Taluk - Bonai, Dist - Sundergarh, State - Odisha

In this regard, you are requested to allot mine code for the afore-mentioned leases of SAIL mines so as to complete registration of SAIL in Form-K of MTS portal.

Thanking You

Regards,



Yours sincerely

(M.K.T.P. Dutta)

DGM (E&L) & Safety

इंडस्ट्री हाउस, 10, कंसक स्ट्रीट, कोलकाता - 700 017, दूरभाष : कार्यालय : 033-2282-2316/2452/3344, फोन +91-33-2282-5610, ई-मेल : rmdsail@gmail.com, वेबसाइट : www.sail.co.in
Industry House, 10, Consac Street, Kolkata - 700017, Telephone : (0) : 033-2282-2316/2452/3344, Fax : +91-33-2282-5610, E-mail : rmdsail@gmail.com, Website : www.sail.co.in
पंजीकृत कार्यालय : इगत बावन, लोदी रोड, नई दिल्ली - 110 093, Registered Office : Ipat Bhawan, Lodi Road, New Delhi - 110 093
विपणन पहचान संख्या / Corporate Identity Number : L27109DL1B73001008454

हर किसी की जिन्दगी से जुड़ा हुआ है सेल

There is a little bit of SAIL in everybody's life

डॉ० आर.के. नायक/ Dr. R. K. NAIK
वरिष्ठ प्रबंधक (भूविज्ञान) योजना एवं विकास
Senior Manager (Geo.) P & D
सेल, आर.एम.डी. राउरकेला
SAIL RMD ROURKELA

126

General Manager (Geology)
SAIL, RMD, BIM & KIM
BARSUA IRON MINES &

THE MINE LEASE BOUNDARY SUPERIMPOSED ON SATELLITE IMAGERY
 (ISSUE MARCH 2018) COVERING AN AREA OF 2KM BUFFER ZONE
 KALTA IRON MINES, ODISHA
 RAW MATERIALS DIVISION, STEEL AUTHORITY OF INDIA LTD.



13960

डॉ० आर. के. नाएक / Dr. R. K. NAIK
 वरिष्ठ प्रबंधक (भूविज्ञान) योजना एवं विकास
 Senior Manager (Geo.) P & D
 सेल. आर.एम.डी. राउरकेला

Peter Dang
 PETER DANG
 General Manager (Geology)
 SAIL, RMD, BIM & KIM
 BARSUA IRON MINES &
 KALTA IRON MINES

Appointment is _____ or Geologist please indicate:
Whole time

ANNEXURE - II


STEEL AUTHORITY OF INDIA LTD
RAW MATERIALS DIVISION
KALTA IRON MINES
P.O.: KALTA Dist. Sundargarh (Odisha)
Phone: (06625) 234036. Fax: 06625-234023

Ref No: KIM/Agent/ Form-1/ 2.2. 9

Date: 06/03/2019

1. The Controller-General
Indian Bureau of Mines,
Indra Bhawan,
Civil Lines, Nagpur-440001
2. The Controller of Mines
Indian Bureau of Mines,
Indra Bhawan
Civil Lines, Nagpur-440001
3. The Regional Controller of Mines,
Indian Bureau of Mines
149 Pokhariput, Bhubaneswar-751020
4. Director of Mines
Govt. Of Orisha, Bhubaneswar- 751001

Sub Notice in Form-1 in respect of appointment of Geologist at Kalta Iron Mine

Dear Sir,

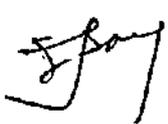
We are submitting herewith the Notice in Form-1 in respect of Appointment of Geologist at Kalta Iron Mine Kalta for your kind information & record.

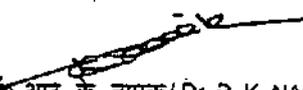
Thanking You,

Yours Faithfully,


6/3/19
D.G.M. (Mines) & Agent
Kalta Iron Mine, RMD, SAIL
ANAND KUMAR
DGM (MINES)
SAIL, RMD, KALTA IRON MINE

all


PETER DANG
General Manager (Geology)
SAIL, RMD, BIM & KIM
BARSUA IRON MINES &
KALTA IRON MINES


डॉ० आर. के. नाएक / Dr. R. K. NAIK
वरिष्ठ प्रबंधक (भूविज्ञान) योजना एवं विकास
Senior Manager (Geo.) P & D
सेल, आर.एम.डी. राउरकेला
SAIL, RMD, ROURKELA
Annex - 8/13

Head Office, 5th & 6th Floor, Industry House, 10 Concor Street, Kolkata-700 017

FORM-I

Notice of certain Appointment/Resignation/Termination/Change of address.

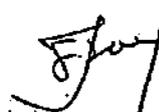
(See Rule-46)

MINE CODE : 30 ORI 13006

TO

1. The Controller General
Indian Bureau of Mines, Indira Bhawan,
Civil Lines, Nagpur-440001
2. The Controller of Mines
Indian Bureau of Mines, Indira Bhawan,
Civil Lines, Nagpur-440001
3. The Regional Controller of Mines,
Indian Bureau of Mines
1-19, Pukhripur, Bhubaneswar-751020
4. Director of Mines
Govt. Of Odisha, Bhubaneswar- 751001

1. Name and address of the
Holder of Mining Lease or
Prospecting Licence
STEEL AUTHORITY OF INDIA LTD.
ISPAT BHAWAN, LODI ROAD,
NEW DELHI - 110003
2. Name of Mineral/Minerals for
Which Mining Lease/Prospecting
Licence is granted
IRON ORE
3. Name of Mining/Prospecting Licence area
KALTA IRON MINE
Raw Materials Division, SAIL
4. Location of Mine/Prospecting Licence area
 - (i) Topo-sheet No. 73/G1
 - (ii) Cadastral Survey or Khasara Number
 - (iii) Village
 - (a) Taluka Kalta
 - (b) District Koira
 - (c) State Sundargarh
Orisha
5. Particular of Mining/Prospecting Licence
 - (i) Date of execution : 06.01.1960
 - (ii) Period 30 year from 06.01.1960 to 05.01.1990
1st Renewal : 20 yrs. 06.01.1990 to 05.01.2010
2nd Renewal : 20 yrs 06.01.2010 to 05.01.2030
 - (iii) Area under Mining Lease/Prospecting Licence
2486.383 Ha (Kalta Iron Mine Portion: 336.47 Ha)
6. Please indicate whether notice is given in respect of
 - (i) New appointment
 - (ii) Resignation/Termination of employment
 - (iii) Change of address
 (Strike out whichever is not applicable)


PETER DANG
 General Manager (Geology)
 SAIL, RMD, BIM & KIM
 BARSUA IRON MINES &
 KALTA IRON MINES
 Contd. P/2


 डॉ० आर. के. नाईक / Dr. R. K. NAIK
 वरिष्ठ प्रबंधक (भूविज्ञान) योजना एवं विकास
 Senior Manager (Geo.) P & D
 सेल, आर.एम.डी. राउरकेला
 SAIL, RMD, ROURKELA

Annex II - 82/3

7. In case of Appointment of Agent/Mining Engineer/Geologist/Manager please indicate:-

- (i) Name : Sri Peter Dang
- (ii) Designation : Dy. General Manager (Geology)
- (iii) Address : At Kalta Iron Mine, PO- Kalta, Dist: Sundergarh(Odisha)- 770052
- (iv) Qualification : M.Sc. Geology
- (v) University/Institution from which passed: Utkal University, Vani Vihar, Bhubaneswar
- (vi) Date of appointment : 02.05.2016

8. If the appointment is that of a Mining Engineer or Geologist please indicate:-

- (i) Whether the appointment is : Whole time Part time
(Please tick mark which ever is applicable)
- (ii) Name, Location and Ownership of all other mines/Prospecting Licence which he will supervise: NIL

9. In case of resignation/termination of employment of Agent/Mining Engineer/Geologist/Manager please indicate:-

- (i) Name : NA
- (ii) Designation : NA
- (iii) Date of resignation/termination of employment : NA

In case the vacancy is so created has been filled in, please furnish the particular of the same in column 6 & 7)

10. In case of change of address of Lease/Agent/Mining Engineer/Geologist/Manager please indicate:-

- (i) Name : NA
- (ii) Designation : NA
- (iii) Present address : NA
- (iv) Date of change of address : NA

Date 6/3/19

Place Kalta

Signature:

[Handwritten Signature]
6/3/19

Name in Full : ANAND KUMAR
Designation : D.G.M.(Mines) & Agent
Kalta Iron Mine, RMD, SAIL

[Handwritten Signature]
General Manager (Geology)
SAIL, RMD, BIM & KIM
BARSUA IRON MINES &
KALTA IRON MINES

Annex-II 6/3/19

[Handwritten Signature]
डॉ० अरि. के. नाएक/ Dr. R. K. NAIK
बरिष्ठ प्रबंधक (भूविज्ञान) योजना एवं विकास
Senior Manager (Geo.) P & D
सेल, आर.एम.डी. राउरकेला
SAIL, RMD, ROURKELA



By Speed Post/Online

No. J-11015/21/2018-IA.II (M)
Government of India
Ministry of Environment, Forest and Climate Change
Impact Assessment Division

Indira Paryavaran Bhavan,
Vayu Wing, 3rd Floor, Aliganj,
Jor Bagh Road, New Delhi-110 003

Dated: 11th September, 2018

To,

Raw Materials Division (RMD)
Steel Authority of India Limited (SAIL)
Kolkata, Sundargarh
West Bengal - 700017
Email: envrmd@gmail.com

Sub.: Kalta Iron Mine of M/s SAIL with production capacity of 49,701 TPA (ROM), located at Village-Kalta, Tehsil- Bonai, District- Sundargarh, Odisha in MLA of Area 25.98ha -Prescribing TOR regarding.

Ref.:- Online proposal no. IA/OR/MIN/72371/2018.

Sir,

This has reference to above mentioned online proposal for determining the Terms of Reference (TOR) for undertaking detailed EIA study for the purpose of obtaining Environmental Clearance in accordance with the provisions of the EIA Notification, 2006. For this purpose, the Proponent had submitted information in the prescribed format (Form-1) along with a Pre-feasibility Report. The proposal was considered by the Expert Appraisal Committee in its meeting held during August 24, 2018 wherein the Committee prescribed the TOR.

2. The proposal of M/s SAIL is for an Iron Ore Mine with production capacity of 49,701 TPA (ROM) in mine lease area of 25.981ha. The mine is located at Village Kalta, Tehsil Bonai, District Sundergarh, Odisha. The lease is covered by Survey of India Topo sheet no. 73 G/1 and 73 F/4 and falls under Toda Reserve Forest. The instant proposal is for obtaining Environmental Clearance for the project under EIA Notification 2006. This mining project falls under Category "A" Project or activity 1(a) as per EIA Notifications 2006 and its subsequent amendments as the lease boundary of the lease is 0.5 km towards interstate boundary of Jharkhand and Odisha. The PP presented the KML file during the presentation to indicate the location of mine lease on Google Earth/ DSS.

TOR to M/s SAIL

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डॉ० आर.के. नाईक/ Dr. R. K. NAIK
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Senior Manager (Geo.) P & D
सेल, आर.एम.डी. राउरकेला
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3. The proposal for ToR was earlier considered by the EAC in its meeting held during 22-23 March, 2018 wherein the Committee deferred the proposal and is of the view that the PP needs to submit the (i) Authenticated past production details from the State Department of Mines & Geology since inception of mine to till date in light of the Common Cause Judgment pronounced by the Hon'ble Supreme Court on dated 02.08.2017; (ii) The Details of consent under Air/Water Act obtained by PP since start of mining operations along with document; and (iii) Revised application as PP mentioned in Form 1 (S.No. 4), a new mine, however it is an existing mine.

4. In this context, PP vide letter dated 25.05.2018, has submitted the requisite information and accordingly the proposal is considered before the EAC. Based on the production details provided by the DMG dated 24.04.2018 the production details was 'NIL' during 1988-2018 and the mine is not working presently. The Committee deliberated the issues and observed that there is no violation. The proposal of TOR was again considered by the Expert Appraisal Committee in its meeting held during August 24, 2018 wherein the Committee deliberated the proposal and noted that the ML lease area is divided into two blocks viz., 'Block A' (10.7972 ha) and 'Block B' (15.1838 ha). Based on the information submitted and presentation made by PP, recommended the proposal for grant of Standard ToR for preparation of EIA/ EMP report.

5. The lease was granted by the Department of Steel and Mines, Government of Odisha on 17.01.1975 for a period of 20 years i.e. up to 16.01.1995. 1st Renewal of Mining lease (RML) application was submitted on 16.02.1994 for 20 years (17.01.1995 to 16.01.2015) and 2nd RML application was submitted on 04.01.2014 for 20 years. However, as per the provisions of MMDR Amendment Act 2015 and Mineral (Mining by Govt. Company) Rules, 2015, the period of original lease is deemed to be granted for 50 years i.e. from 17.01.1975 to 16.01.2025. Accordingly, Govt. of Odisha has issued an order dated 10.02.2016 extending the lease up to 16.01.2025.

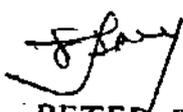
6. The ML lease area is divided into two blocks viz., 'Block A' (10.7972 ha) and 'Block B' (15.1838 ha). The lease area is almost an undulating hilly terrain with highest altitude of 860 m RL at northern part of the lease area (Block-A) and lowest altitude of 760 m RL at the western part of the lease area (Block-B). The Block B of ML 139 is in geographical & geological continuity with the main mining lease i.e. ML 130, which consists of three working areas i.e. Barsua, Taldihand Kalta. Being situated at northern end of the Kalta area, the ML - 139 lease was worked as a part of Kalta Iron Ore Mine for till 1987-88 and since then mining operations are suspended.

7. Mining Plan for ML - 139 lease was approved by the Indian Bureau of Mines (IBM), vide letter No. CAL/SG/FC/MP-400 dated 28.03.1996 and the same was valid till 2014-15. Since the mining plan did not contain Progressive Mine Closure Plan, the same was incorporated and got approval of IBM on 21.06.2013. The modified mining plan for the period from 2015-16 to 2019-20 was approved by IBM vide their letter no

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MS/OTFM/02-ORI/BHU/2016-17/1473 dated 30.08.2016. Application for obtaining diversion of the forest land under Forest (Conservation) Act, 1980 has been submitted on 22.07.2015 (Proposal No. FP / OR / MIN / 10329 / 2015). The mine will be operated by open cast mining method with formation of benches by drilling and blasting. The blasted ore will be crushed, sized and sorted to produce lumps & fines. The sized ore will be transported from mine site to Railway Siding at Roxy by road about 22 km and subsequently dispatched by rail to SAIL steel plants. The mine will be operated on single shift basis and about 86 semi-skilled & unskilled laborers will be engaged. The infrastructure facilities i.e. township, hospitals, schools etc. and industrial services already established at the Kalta Iron Ore Mine will be extended for the ML - 139 mining lease.

8. The proposal of Terms of Reference (TOR) was considered before the Expert Appraisal Committee (Non Coal Mining Sector) in its meeting held during **August 24, 2018** wherein the Committee prescribed the **Standard TOR along with additional TOR.**

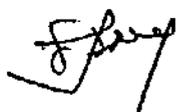
9. The matter was examined in the Ministry and the undersigned is directed to say that the Ministry of Environment, Forest and Climate Change after accepting the recommendations of the EAC, hereby decided to accord the Terms of Reference for the above mentioned project. Accordingly, the Project Proponent is requested to prepare and submit the EIA/EMP report based on the TOR prescribed which are as under:-

A. STANDARD TOR FOR MINING PROJECT

- 1) The TOR will not be operational till such time the Project Proponent complies with all the statutory requirements and judgment of Hon'ble Supreme Court dated the 2nd August 2017 in Writ Petition (Civil) No. 114 of 2014 in the matter of Common Cause versus Union of India and Ors..
- 2) Department of Mining & Geology, State Government shall ensure that mining operation shall not commence till the entire compensation levied, for illegal mining paid by the Project Proponent through their respective Department of Mining & Geology in strict compliance of judgment of Hon'ble Supreme Court dated the 2nd August 2017 in Writ Petition (Civil) No. 114 of 2014 in the matter of Common Cause versus Union of India and Ors.
- 3) Year-wise production details since 1993-94 should be given, clearly stating the highest production achieved in any one year prior to 1993-94. It may also be categorically informed whether there had been any increase in production after the EIA Notification 1994 came into force, w.r.t. the highest production achieved prior to 1994. The production details need to submit since inception of mine duly authenticated by Department of Mines & Geology, State Government.
- 4) A copy of the document in support of the fact that the Proponent is the rightful lessee of the mine should be given.
- 5) All documents including approved mine plan, EIA and Public Hearing should be

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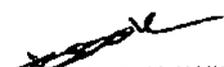
compatible with one another in terms of the mine lease area, production levels, waste generation and its management, mining technology etc. and should be in the name of the lessee.

- 6) All corner coordinates of the mine lease area, superimposed on a High Resolution Imagery/toposheet, topographic sheet, geomorphology and geology of the area should be provided. Such an Imagery of the proposed area should clearly show the land use and other ecological features of the study area (core and buffer zone).
- 7) Information should be provided in Survey of India Toposheet in 1:50,000 scale indicating geological map of the area, geomorphology of land forms of the area, existing minerals and mining history of the area, important water bodies, streams and rivers and soil characteristics.
- 8) Details about the land proposed for mining activities should be given with information as to whether mining conforms to the land use policy of the State; land diversion for mining should have approval from State land use board or the concerned authority.
- 9) It should be clearly stated whether the proponent Company has a well laid down Environment Policy approved by its Board of Directors? If so, it may be spelt out in the EIA Report with description of the prescribed operating process/procedures to bring into focus any infringement/deviation/violation of the environmental or forest norms/ conditions? The hierarchical system or administrative order of the Company to deal with the environmental issues and for ensuring compliance with the EC conditions may also be given. The 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, may also be detailed in the proposed safeguard measures in each case should also be provided.
- 10) Issues relating to Mine Safety, including subsidence study in case of underground mining and slope study in case of open cast mining, blasting study etc. should be detailed. The proposed safeguard measures in each case should also be provided.
- 11) The study area will comprise of 10 km zone around the mine lease from lease periphery and the data contained in the EIA such as waste generation etc. should be for the life of the mine / lease period.
- 12) Land use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, national park, migratory routes of fauna, water bodies, human settlements and other ecological features should be indicated. Land use plan of the mine lease area should be prepared to encompass preoperational, operational and post operational phases and submitted. Impact, if any, of change of land use should be given.
- 13) Details of the land for any Over Burden Dumps outside the mine lease, such as extent of land area, distance from mine lease, its land use, R&R issues, if any, should be given.
- 14) A Certificate from the Competent Authority in the State Forest Department should be provided, confirming the involvement of forest land, if any, in the project area. In the event of any contrary claim by the Project Proponent

regarding the status of forests, the site may be inspected by the State Forest Department along with the Regional Office of the Ministry to ascertain the status of forests, based on which, the Certificate in this regard as mentioned above be issued. In all such cases, it would be desirable for representative of the State Forest Department to assist the Expert Appraisal Committees.

- 15) Status of forestry clearance for the broken up area and virgin forestland involved in the Project including deposition of net present value (NPV) and compensatory afforestation (CA) should be indicated. A copy of the forestry clearance should also be furnished.
- 16) Implementation status of recognition of forest rights under the Scheduled Tribes and other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 should be indicated.
- 17) The vegetation in the RF / PF areas in the study area, with necessary details, should be given.
- 18) A study shall be got done to ascertain the impact of the Mining Project on wildlife of the study area and details furnished. Impact of the project on the wildlife in the surrounding and any other protected area and accordingly, detailed mitigative measures required, should be worked out with cost implications and submitted.
- 19) Location of National Parks, Sanctuaries, Biosphere Reserves, Wildlife Corridors, Ramsar site Tiger/Elephant Reserves/(existing as well as proposed), if any, within 10 km of the mine lease should be clearly indicated, supported by a location map duly authenticated by Chief Wildlife Warden. Necessary clearance, as may be applicable to such projects due to proximity of the ecologically sensitive areas as mentioned above, should be obtained from the Standing Committee of National Board of Wildlife and copy furnished.
- 20) A detailed biological study of the study area [core zone and buffer zone (10 km radius of the periphery of the mine lease)] shall be carried out. Details of flora and fauna, endangered, endemic and RET Species duly authenticated, separately for core and buffer zone should be furnished based on such primary field survey, clearly indicating the Schedule of the fauna present. In case of any scheduled-I fauna found in the study area, the necessary plan alongwith budgetary provisions for their conservation should be prepared in consultation with State Forest and Wildlife Department and details furnished. Necessary allocation of funds for implementing the same should be made as part of the project cost.
- 21) Proximity to Areas declared as 'Critically Polluted' or the Project areas likely to come under the 'Aravali Range', (attracting court restrictions for mining operations), should also be indicated and where so required, clearance certifications from the prescribed Authorities, such as the SPCB or State Mining Dept. Should be secured and furnished to the effect that the proposed mining activities could be considered.
- 22) Similarly, for coastal Projects, A CRZ map duly authenticated by one of the authorized agencies demarcating LTL, HTL, CRZ area, location of the mine lease w.r.t CRZ, coastal features such as mangroves, if any, should be furnished.

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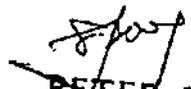

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- (Note: The Mining Projects falling under CRZ would also need to obtain approval of the concerned Coastal Zone Management Authority).
- 23) R&R Plan/compensation details for the Project Affected People (PAP) should be furnished. While preparing the R&R Plan, the relevant State/National Rehabilitation & Resettlement Policy should be kept in view. In respect of SCs /STs and other weaker sections of the society in the study area, a need based sample survey, family-wise, should be undertaken to assess their requirements, and action programmes prepared and submitted accordingly, integrating the sectoral programmes of line departments of the State Government. It may be clearly brought out whether the village(s) located in the mine lease area will be shifted or not. The issues relating to shifting of village(s) including their R&R and socio-economic aspects should be discussed in the Report.
 - 24) One season (non-monsoon) [i.e. March - May (Summer Season); October - December (post monsoon season); December - February (winter season)] primary baseline data on ambient air quality as per CPCB Notification of 2009, water quality, noise level, soil and flora and fauna shall be collected and the AAQ and other data so compiled presented date-wise in the EIA and EMP Report. Site-specific meteorological data should also be collected. The location of the monitoring stations should be such as to represent whole of the study area and justified keeping in view the pre-dominant downwind direction and location of sensitive receptors. There should be at least one monitoring station within 500 m of the mine lease in the pre-dominant downwind direction. The mineralogical composition of PM10, particularly for free silica, should be given.
 - 25) Air quality modelling should be carried out for prediction of impact of the project on the air quality of the area. It should also take into account the impact of movement of vehicles for transportation of mineral. The details of the model used and input parameters used for modelling should be provided. The air quality contours may be shown on a location map clearly indicating the location of the site, location of sensitive receptors, if any, and the habitation. The wind roses showing pre-dominant wind direction may also be indicated on the map.
 - 26) The water requirement for the Project, its availability and source should be furnished. A detailed water balance should also be provided. Fresh water requirement for the Project should be indicated.
 - 27) Necessary clearance from the Competent Authority for drawl of requisite quantity of water for the Project should be provided.
 - 28) Description of water conservation measures proposed to be adopted in the Project should be given. Details of rainwater harvesting proposed in the Project, if any, should be provided.
 - 29) Impact of the Project on the water quality, both surface and groundwater, should be assessed and necessary safeguard measures, if any required, should be provided.
 - 30) Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided. In case the working will intersect groundwater table, a detailed Hydro

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Geological Study should be undertaken and Report furnished. The Report inter-alia, shall include details of the aquifers present and impact of mining activities on these aquifers. Necessary permission from Central Ground Water Authority for working below ground water and for pumping of ground water should also be obtained and copy furnished.

- 31) Details of any stream, seasonal or otherwise, passing through the lease area and modification / diversion proposed, if any, and the impact of the same on the hydrology should be.
- 32) Information on site elevation, working depth, groundwater table etc. Should be provided both in AMSL and BGL. A schematic diagram may also be provided for the same.
- 33) A time bound Progressive Greenbelt Development Plan shall be prepared in a tabular form (indicating the linear and quantitative coverage, plant species and time frame) and submitted, keeping in mind, the same will have to be executed up front on commencement of the Project. Phase-wise plan of plantation and compensatory afforestation should be charted clearly indicating the area to be covered under plantation and the species to be planted. The details of plantation already done should be given. The plant species selected for green belt should have greater ecological value and should be of good utility value to the local population with emphasis on local and native species and the species which are tolerant to pollution.
- 34) Impact on local transport infrastructure due to the Project should be indicated. Projected Increase in truck traffic as a result of the Project in the present road network (including those outside the Project area) should be worked out, indicating whether it is capable of handling the incremental load. Arrangement for Improving the infrastructure, if contemplated (including action to be taken by other agencies such as State Government) should be covered. Project Proponent shall conduct Impact of Transportation study as per Indian Road Congress Guidelines.
- 35) Details of the onsite shelter and facilities to be provided to the mine workers should be included in the EIA Report.
- 36) Conceptual post mining land use and Reclamation and Restoration of mined out areas (with plans and with adequate number of sections) should be given in the EIA report.
- 37) Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spelt out in detail. Details of pre-placement medical examination and periodical medical examination schedules should be incorporated in the EMP. The project specific occupational health mitigation measures with required facilities proposed in the mining area may be detailed.
- 38) Public health Implications of the Project and related activities for the population in the impact zone should be systematically evaluated and the proposed remedial measures should be detailed along with budgetary allocations.
- 39) Measures of socio economic significance and influence to the local community proposed to be provided by the Project Proponent should be indicated. As far as

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possible, quantitative dimensions may be given with time frames for implementation.

- 40) Detailed environmental management plan (EMP) to mitigate the environmental impacts which, should inter-alia include the impacts of change of land use, loss of agricultural and grazing land, if any, occupational health impacts besides other impacts specific to the proposed Project.
- 41) Public Hearing points raised and commitment of the Project Proponent on the same along with time bound Action Plan with budgetary provisions to implement the same should be provided and also incorporated in the final EIA/EMP Report of the Project.
- 42) Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the Project should be given.
- 43) The cost of the Project (capital cost and recurring cost) as well as the cost towards implementation of EMP should be clearly spelt out.
- 44) A Disaster Management Plan shall be prepared and included in the EIA/EMP Report.
- 45) Benefits of the Project if the Project is implemented should be spelt out. The benefits of the Project shall clearly indicate environmental, social, economic, employment potential, etc.
- 46) The activities and budget earmarked for Corporate Environmental Responsibility (CER) shall be as per Ministry's O.M No 22-65/2017-IA. II (M) dated 01.05.2018 and the action plan on the activities proposed under CER shall be submitted at the time of appraisal of the project included in the EIA/EMP Report.
- 47) The Action Plan on the compliance of the recommendations of the CAG as per Ministry's Circular No. J-11013/71/2016-IA.I (M), dated 25.10.2017 needs to be submitted at the time of appraisal of the project and included in the EIA/EMP Report.
- 48) Compliance of the Ministry's Office Memorandum No. F: 3-50/2017-IA.III (Pt.), dated 30.05.2018 on the judgment of Hon'ble Supreme Court, dated the 2nd August, 2017 in Writ Petition (Civil) No. 114 of 2014 in the matter of Common Cause versus Union of India needs to be submitted and included in the EIA/EMP Report.

10. Besides the above, the below mentioned general points are also to be followed:-

- a) All documents to be properly referenced with Index and continuous page numbering.
- b) Where data are presented in the Report especially in Tables, the period in which the data were collected and the sources should be indicated.
- c) Project Proponent shall enclose all the analysis/testing reports of water, air, soil, noise etc. using the MoEF&CC/NABL accredited laboratories. All the original analysis/testing reports should be available during appraisal of the Project.
- d) Where the documents provided are in a language other than English, an English translation should be provided.

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- e) The Questionnaire for environmental appraisal of mining projects as devised earlier by the Ministry shall also be filled and submitted.
- f) While preparing the EIA report, the instructions for the Proponents and instructions for the Consultants issued by MoEF vide O.M. No. J-11013/41/2006-IA.II (I) dated 4th August, 2009, which are available on the website of this Ministry, should be followed.
- g) Changes, if any made in the basic scope and project parameters (as submitted in Form-I and the PFR for securing the TOR) should be brought to the attention of MoEF&CC with reasons for such changes and permission should be sought, as the TOR may also have to be altered. Post Public Hearing changes in structure and content of the draft EIA/EMP (other than modifications arising out of the P.H. process) will entail conducting the PH again with the revised documentation.
- h) As per the circular no. J-11011/618/2010-IA.II (I) dated 30.5.2012, certified report of the status of compliance of the conditions stipulated in the environment clearance for the existing operations of the project, should be obtained from the Regional Office of Ministry of Environment, Forest and Climate Change, as may be applicable.

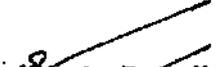
11. The EIA report should also include (i) surface plan of the area indicating contours of main topographic features, drainage and mining area, (ii) geological maps and sections and (iii) sections of the mine pit and external dumps, if any, clearly showing the land features of the adjoining area.

12. The prescribed TOR would be valid for a period of three years for submission of the EIA/EMP report, as per the O.M. No. J-11013/41/2006-IA.II (I) (Part) dated 29.08.2017. **The instant TOR is valid up to 10.09.2021.**

13. After preparing the draft EIA (as per the generic structure prescribed in Appendix- III of the EIA Notification, 2006) covering the above mentioned issues, the proponent will get the public hearing conducted and take further necessary action for obtaining environmental clearance in accordance with the procedure prescribed under the EIA Notification, 2006.

14. This issues with the approval of Competent Authority.

Yours faithfully,

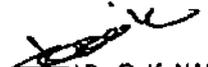

(Dr. R. B. Lal)

Scientist 'E'/Addl. Director

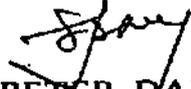
Copy to:

- 1). **The Secretary**, Ministry of Mines, Government of India, Shastri Bhawan, New Delhi.

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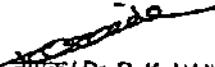
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- 2). **The Secretary**, Department of Environment, Government of Odisha, Secretariat, Bhubaneswar.
- 3). **The Secretary**, Department of Mines and Geology, Government of Odisha, Secretariat, Bhubaneswar.
- 4). **The Secretary**, Department of Forests, Government of Odisha, Secretariat, Bhubaneswar.
- 5). **The Chairman**, Central Pollution Control Board, Parivesh Bhawan, CBD-cum-Office Complex, East Arjun Nagar, Delhi-110032.
- 6). **The Additional Principal Chief Conservator of Forests (C)**, Ministry of Environment, Forest and Climate Change, Regional Office (EZ), A/3, Chandrasekharpur, Bhubaneswar - 751023.
- 7). **The Member Secretary**, Odisha State Pollution Control Board, Parivesh Bhawan, A/118 Nilakantha Nagar, Unit-VIII, Bhubaneswar-751012.
- 8). **The Controller General**, Indian Bureau of Mines, Indira Bhawan, Civil Lines, Nagpur-440 001.
- 9). **The Member Secretary**, Central Ground Water Authority, Central Ground Water Board Ministry of Agriculture and Irrigation, 12/1 Jam Nagar House, Shahjahan Road, New Delhi 110011.
- 10). **The District Collector**, District- Sundargarh, State of Odisha.
- 11). **Guard File.**
- 12). **MoEF&CC Website.**


(Dr. R. B. Lal)

Scientist 'E'/Addl. Director


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असाधारण
EXTRAORDINARY

भाग II—खण्ड 3—उप-खण्ड (II)
PART II—Section 3—Sub-section (II)

प्राधिकार से प्रकाशित
PUBLISHED BY AUTHORITY

(No. 221) नई-दिल्ली, रविवार, अप्रैल 30, 1978/वैशाख 10, 1900
No. 221] NEW DELHI, SUNDAY, APRIL 30, 1978/VAISAKHA 10, 1900

इस भाग के विषय सूची संख्या की जाती है जिसमें कि यह अणुसंकेतन के रूप में
रखा जा सके।

Separate paging is given to this Part in order that it may be filed as a separate compilation.

प्रस्ताव और खान मंत्रालय

(प्रस्ताव संख्या)

आ. ४

नई दिल्ली, 30 अप्रैल, 1978

सं. 291 (म).-- केन्द्रीय सरकार, भूमिगत संयंत्र, खान और खण्डन विभाग (पुनर्गठन) तथा प्रकीर्ण उपखण्ड परिचालन, 1978 (1978 का 10) की धारा 1 की उपधारा (2) द्वारा प्रस्ताव प्रकृतियों का प्रयोग करने हेतु, 1. मई, 1978 को उक्त धारा के रूप में नियुक्त करती है जिसे तारीख की उक्त प्राधिकारण प्रयुक्त होगा।

[सं. 0(17)/78-सं. 1]

विद्यमान रंग प्रकाश, अगर संबंध

11 01/78

(375)

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 KALTA IRON MINES

MINISTRY OF IRON AND MINES

(Department of Steel)

ORDER

New Delhi, the 30th April, 1978

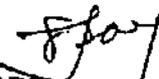
S. D. 291(K).—In exercise of the powers conferred by sub-section (2) of section 4 of the Public Sector Iron and Steel Companies (Restructuring and Reorganisation) Provisions Act, 1978 (46 of 1978), the Central Government hereby appoints the Board of Directors of the Bhilai Iron and Steel Plant, Bhilai, to be the same as follows:

[No. 6(17)/78-SAIL-N]

S. D. PRASAD, Addl. Secy.

PRINTED BY THE MANAGER, GOVT. OF INDIA PRESS, KING ROAD, NEW DELHI-110064 AND PUBLISHED BY THE CONTROLLER OF PUBLICATIONS, DELHI-110054, 1978

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भारत का राजपत्र The Gazette of India

EXTRAORDINARY

PART II—Section 1.

PUBLISHED BY AUTHORITY

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NEW DELHI, SUNDAY, APRIL 30, 1978/VAISAKHA 10, 1900

Separate paging is given to this Part in order that it may be filed as a separate compilation

MINISTRY OF LAW, JUSTICE AND COMPANY AFFAIRS
(Legislative Department)

New Delhi, the 30th April, 1978/Vaisakha 10, 1900 (Sat)

The following Act of Parliament received the assent of the President on the 30th April, 1978, and is hereby published for general information:—

THE PUBLIC SECTOR IRON AND STEEL COMPANIES (RESTRUCTURING) AND MISCELLANEOUS PROVISIONS ACT, 1978 No. 16 of 1978

An Act to provide for restructuring of the iron and steel companies in the public sector so as to secure better management and greater efficiency in their working and for matters connected therewith or incidental thereto.

Be it enacted by Parliament in the Twenty-ninth Year of the Republic of India as follows:—

CHAPTER I PRELIMINARY

1. (1) This Act may be called the Public Sector Iron and Steel Companies (Restructuring) and Miscellaneous Provisions Act, 1978.
(2) It shall come into force on such date as the Central Government may, by notification in the Official Gazette, appoint.

2. (1) In this Act, unless the context otherwise requires,—
(a) "appointed day" means the date on which this Act comes into force;
(b) "Companies Act" means the Companies Act, 1956;

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M. and
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ment,
Legisla-
tion.

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(c) "corresponding unit", in relation to—

(i) the Integral Company, means that unit of the Integral Company which corresponds to the unit of the dissolved company or the transferred company in which the concerned officer or other employee was holding office before the transfer of the said unit;

(ii) a transferee company, means that unit of a transferee company which corresponds to the unit of the dissolved company in which the concerned officer or other employee was holding office before the transfer of the said unit;

(d) "dissolved company" means a company specified in the First Schedule;

(e) "Integral Company" means the Steel Authority of India Limited, a company formed and registered under the Companies Act having its registered office at New Delhi;

(f) "transferee company" means the company to which the undertakings of a dissolved company or of a transferred unit, as the case may be, stand transferred by virtue of the provisions of this Act;

(g) "transferred company" means—

(i) Metallurgical and Engineering Consultants (India) Limited, a company formed and registered under the Companies Act having its registered office at Ranchi in the State of Bihar;

(ii) National Mineral Development Corporation Limited, a company formed and registered under the Companies Act having its registered office at Hyderabad in the State of Andhra Pradesh;

(iii) Hindustan Steelworks Construction Limited, a company formed and registered under the Companies Act having its registered office at Calcutta in the State of West Bengal;

(iv) Bharat Refractories Limited, a company formed and registered under the Companies Act having its registered office at Bokaro Steel City in the State of Bihar; or

(v) India Firebricks and Insulation Company Limited, a company formed and registered under the Companies Act having its registered office at Bombay in the State of Maharashtra;

(h) "transferred unit" means—

(i) Kiriharu Iron Ore Mines, a unit of the National Mineral Development Corporation Limited; or

(ii) Meghalaband Iron Ore Project, a unit of the National Mineral Development Corporation Limited;

(iii) Ramgarh Refractory Plant, a unit of the Hindustan Steel Limited, (situated near Ramgarh in the State of Bihar);

(iv) Refractory Project, a unit of the Hindustan Steel Limited (situated at Bilhal in the State of Madhya Pradesh); or

(v) Sillimanite Mines, a unit of the Hindustan Steel Limited (situated in the State of Meghalaya).

(2) Words and expressions used herein and not defined but defined in the Companies Act have the meanings respectively assigned to them in that Act.

7. For the purposes of this Act, the undertaking of a dissolved company or of a transferred unit shall be deemed to include all assets, rights, leaseholds (including mining leases, if any), industrial or other licences, powers, authorities and privileges and all property, movable and immovable, including lands, buildings, works, mines, workshops, projects, smelters, stores, instruments, machinery, automobiles, and other vehicles, cash or bank balances, cash in hand, investments and book debts and all other rights and interests in, or arising out of, such property as were immediately before the appointed day in the ownership, possession, power or control of the dissolved company or the transferred unit, as the case may be (whether within or without India), and all books of account, registers, maps, drawings, records of survey and all other documents of whatever nature relating thereto, and shall also be deemed to include all borrowings, liabilities and obligations of whatever kind of the dissolved company or the transferred unit.

"Unit"-
"taking"
-
meaning
of.

Explanation.—Reference in this section to an undertaking of a transferred unit shall be deemed to be a reference to so much of the undertaking of the company of which that forms a unit as is referable to it as if it were a separate company.

CHAPTER II

DISSOLUTION, TRANSFER AND VESTING OF UNDERTAKINGS OF CERTAIN COMPANIES

4. On the appointed day, the companies specified in the First Schedule shall stand dissolved and, subject to the provisions of sections 6 and 7, all the undertakings of such companies shall stand transferred to, and vest in, the Integral Company.

Dissolu-
tion,
transfer
and vest-
ing of
undertak-
ings of
certain
companies
in
Integral
Company.

5. On the appointed day, the undertakings of the following transferred units shall stand transferred to, and vest in, the Integral Company, namely:—

Transfer
and vest-
ing of
Kiriburu
Iron Ore
Mines, etc.
Integral
Company.

- (a) Kiriburu Iron Ore Mines, a unit of the National Mineral Development Corporation Limited, and
- (b) Meghahatuburu Iron Ore Project, a unit of the National Mineral Development Corporation Limited.

6. (1) On the appointed day, the undertakings of the following transferred units shall stand transferred to, and vest in, the Bharat Refractories Limited, namely:—

Transfer
and vest-
ing of
Refrac-
tory Plant,
etc. in the
Bharat
Refractories
Limited.

- (a) Ramgarh Refractory Plant of the Hindustan Steel Limited (situated near Ramgarh in the State of Bihar),
- (b) Sillimanite Mines of the Hindustan Steel Limited (situated in the State of Meghalaya), and
- (c) Refractory Project of the Hindustan Steel Limited (situated at Bhilai in the State of Madhya Pradesh).

(2) Notwithstanding anything contained in the Companies Act, as from the appointed day, the registered office of the Bharat Refractories Limited may remain at Bokaro Steel City or be transferred to Ranchi.

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Transfer of immovable properties of Hindustan Steel Limited to Metallurgical and Engineering Consultants (India) Limited.

7. On the appointed day, the right, title and interest of the Hindustan Steel Limited in the immovable properties owned by it in Ranchi District of the State of Bihar, together with liabilities and obligations in relation thereto, shall stand transferred to, and vest in, the Metallurgical and Engineering Consultants (India) Limited.

Transfer of shares held by Bokaro Steel Limited to Central Government.

8. On the appointed day, all the shares held by the Bokaro Steel Limited in the share capital of the Bharat Refractories Limited shall stand transferred to, and vest in, the Central Government.

Transfer of shares held by Integral Company to Central Government.

9. On the appointed day, all the shares held by the Integral Company in the share capital of each of the companies specified in the Second Schedule shall stand transferred to, and vest in, the Central Government.

Transfer of shares held by Integral Company to Bharat Refractories Limited.

10. On the appointed day, all the shares held by the Integral Company in the share capital of the India Firebricks and Insulation Company Limited (a company formed and registered under the Companies Act having its registered office at Bombay in the State of Maharashtra) shall stand transferred to, and vest in, the Bharat Refractories Limited.

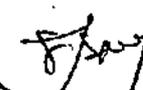
Transfer of shares held by Central Government to Integral Company.

11. On the appointed day, all the shares held by the Central Government in the share capital of the Indian Iron and Steel Company Limited (a company under the Companies Act having its registered office at Calcutta in the State of West Bengal) shall stand transferred to, and vest in, the Integral Company.

Central Government, etc., deemed to be registered in the register of members of companies.

12. The Central Government, the Bharat Refractories Limited or the Integral Company, as the case may be, shall be deemed, as from the appointed day, to have been registered in the register of members of the companies concerned as the holder of each share which stands transferred to, and vested in, each of them by virtue of the provisions of section 8, 9, 10 or 11, as the case may be.

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(1) The Central Government may, from time to time, by order published in the Official Gazette, specify the amount by which the paid-up share capital of the Integral Company, the Bharat Refractories Limited, the Metallurgical and Engineering Consultants (India) Limited, and the National Mineral Development Corporation Limited shall stand reduced or increased as a result of transfer of shares, undertakings or immovable properties, as the case may be, under the provisions of this Act.

(2) In specifying the amount under sub-section (1), the Central Government shall have regard to the following factors, namely:—

(i) the book value of shares referred to in section 8, 9, 10 or 11, as the case may be, of the concerned company, on the appointed day,

(ii) the net value of the undertakings of the dissolved company and transferred unit, as on the appointed day, and

(iii) the book value of the immovable properties owned by the Hindustan Steel Limited referred to in section 7, as on the appointed day,

as are transferred to or from the companies referred to in sub-section (1).

(3) Every order made under sub-section (1) shall be made within a period of one year from the appointed day and any such order may take effect prospectively or retrospectively, but not with effect from a date earlier than the appointed day.

(4) Any order made by the Central Government under this section may include a direction for the issue or cancellation of appropriate number of shares so as to give effect to the provisions of this Act.

CHAPTER IV

PROVISIONS RELATING TO OFFICERS AND EMPLOYEES

14. (1) Every officer (not being a director) or other employee holding office immediately before the appointed day in a dissolved company in relation to any undertaking of such company, other than an officer or other employee holding such office in relation to transferred units referred to in section 8, shall, as from the appointed day, continue to hold office as such in the corresponding unit of the Integral Company by the same tenure and upon the same terms and conditions of service and with the same rights and privileges as to retirement benefits as would have been admissible to him if the company in which he was holding office had not been dissolved and shall continue to do so unless and until such tenure and terms and conditions are duly altered by the Integral Company.

(2) Notwithstanding anything contained in sub-section (1), rules relating to the conditions of service and Standing Orders applicable to officers or other employees referred to in sub-section (1), as in force immediately before the appointed day, shall continue to apply unless and until they are duly altered by the Integral Company or other authority, as the case may be.

Power of Central Government to modify amount of paid-up share capital of Integral Company, etc., and issue of shares.

Provisions relating to officers and other employees of dissolved companies.

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Provis-
ions
relating
to officers
and em-
ployees of
transfer-
red units.

15. (1) Every officer or other employee holding office immediately before the appointed day in the transferred unit shall, as from the appointed day, continue to be an officer or other employee of the corresponding unit of the transferee company by the same tenure and upon the same terms and conditions of service and with the same rights and privileges as to retirement benefits as would have been admissible to him if the transferred unit in which he was holding office had not been transferred and shall continue to do so unless and until such tenure and terms and conditions are duly altered by the transferee company.

(2) Notwithstanding anything contained in sub-section (1), rules relating to the conditions of service and Standing Orders applicable to the officers or other employees referred to in sub-section (1), as immediately before the appointed day, shall continue to apply unless and until they are duly altered by the transferee company or other authority, as the case may be.

Provisions
relating
to direc-
tors.

16. (1) Every person holding office as a director of a dissolved company immediately before the appointed day shall, on that day, cease to hold office as such director.

(2) Every person, being a director in whole-time employment of a dissolved company, immediately before the appointed day, shall continue to be an employee of the corresponding unit of the Integral Company with such designation and on such terms and conditions as may be determined by the Integral Company.

Provi-
sion re-
lating to
auditors.

17. Every person appointed under section 619 of the Companies Act as an auditor of a dissolved company or of a transferred unit, holding office immediately before the appointed day, may continue to hold office as such auditor in the corresponding unit of the Integral Company or of any other transferee company, as the case may be, for the duration for which he was so appointed, on the same terms and conditions as were applicable to him immediately before the appointed day.

Compens-
ation for
transfer
not pay-
able.

18. Notwithstanding anything contained in the Industrial Disputes Act, 1947, or in any other law for the time being in force, the transfer of services of any officer or other employee shall not entitle such officer or other employee to any compensation under that Act or under any other law for the time being in force and no claim for such compensation shall be entertained by any court, tribunal or other authority.

Provident
fund.

19. Where a provident fund has been established by a dissolved company or any other company in respect of a transferred unit for the benefit of the employees and the same stands vested in a trust, the moneys and other assets standing to the credit of such provident fund shall continue to be held in trust with the same objects as were applicable before the appointed day and the trustees of such trusts immediately before the appointed day shall, subject to the provisions of the trust deeds and the rules relating to such trusts, continue to function as trustees in respect of such provident fund of the corresponding unit of the Integral Company or of other transferee company, as the case may be, as if this Act had not been passed:

Provided that the right to nominate trustees and other rights relating to the trusts vested in the dissolved company or other company in respect

14 of 1047

of the transferred unit, as the case may be, shall vest in the Integral Company or other transferee company, as the case may be.

20. Where any gratuity, welfare or other fund has been established by a dissolved company or any other company in respect of a transferred unit for the benefit of its employees and is in existence immediately before the appointed day, all moneys and other assets standing to the credit of or relating to such gratuity, welfare or other fund shall vest in the corresponding unit of the Integral Company or other transferee company, as the case may be.

Gratuity, welfare and other funds.

CHAPTER V

FINANCIAL PROVISIONS

21. (1) The Integral Company shall be liable to pay any sum under the provisions of the Income-tax Act or the Companies (Profits) Surtax Act which any dissolved company would have been liable to pay if the dissolution had not taken place, in the like manner and to the same extent as the dissolved company.

Provisions with respect to Income-tax and Surtax.

(2) For the purpose of making an assessment of the income or, as the case may be, the chargeable profits of any dissolved company and for the purpose of levying any sum in accordance with the provisions of sub-section (1),—

(a) any proceeding taken against any dissolved company before the appointed day shall be deemed to have been taken against the Integral Company and may be continued against the Integral Company from the date at which it stood immediately before the appointed day;

(b) any proceeding which could have been taken against any dissolved company if the dissolution had not taken place, may be taken against the Integral Company; and

(c) all the provisions of the Income-tax Act or, as the case may be, the Companies (Profits) Surtax Act shall apply accordingly.

(3) The assessment of the income or, as the case may be, the chargeable profits of the previous year of any dissolved company in which the dissolution took place up to the appointed day shall be made as if such dissolution had not taken place, and all the provisions of the Income-tax Act and the Companies (Profits) Surtax Act shall, so far as may be, apply accordingly.

(4) The transfer to, and vesting in, of the undertaking of any dissolved company in the Integral Company under the provisions of this Act shall be deemed to be an amalgamation in relation to such companies and the provisions of the Income-tax Act shall, so far as may be, apply accordingly as if references in the said Act to the amalgamating company and the amalgamated company were references to the dissolved company and the Integral Company, respectively.

(5) Where any capital asset forming part of any undertaking belonging to the transferred unit or, as the case may be, the Hindustan Steel Limited is, in pursuance of section 5 or section 6 or section 7, transferred to, and vests in, the Integral Company or the Bharat Refractories Limited or, as the case may be, the Metallurgical and Engineering Consultants (India) Limited, such capital asset shall be deemed to have been transferred in a scheme of amalgamation and the provisions of the Income-tax Act shall, so far as may be, apply accordingly as if references

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in the said Act to the amalgamating company were references to the transferred unit or, as the case may be, the Hindustan Steel Limited and the references to the amalgamated company, being an Indian company, were references to the Integral Company or the Bhurat Refractories Limited or, as the case may be, the Metallurgical and Engineering Consultants (India) Limited.

(6) The accumulated loss and the unabsorbed depreciation, if any, of any dissolved company shall be deemed to be the loss or, as the case may be, allowance for depreciation of the Integral Company for the previous year in which the undertaking of the dissolved company vested in the Integral Company, and the provisions of the Income-tax Act relating to set off and carry forward of loss and allowance for depreciation shall apply accordingly.

(7) The provisions of sub-sections (1) to (6) shall have effect notwithstanding anything to the contrary contained in the Income-tax Act or the Companies (Profits) Surtax Act.

Explanation.—For the purposes of this section,—

(a) "Income-tax Act" means the Income-tax Act, 1901;

(b) "Companies (Profits) Surtax Act" means the Companies (Profits) Surtax Act, 1904;

(c) words and expressions used in this section and not defined in this Act but defined in the Income-tax Act or the Companies (Profits) Surtax Act shall have the meanings respectively assigned to them in the said Acts.

Taxes,
fees and
other
charges
not pay-
able.

23. For the removal of doubts, it is hereby declared that no taxes, duties, fees or other charges of whatever nature (including registration charges), shall be payable in respect of any transfer of shares or transfer of any undertakings or transfer of any immovable property under the provisions of this Act.

CHAPTER VI

MISCELLANEOUS

Saving
of con-
tracts,
etc.

23. (1) All contracts, deeds, bonds, agreements and other instruments of whatever nature to which the dissolved company is a party subsisting or having effect immediately before the appointed day, shall, as from that day, be of full force and effect against, or in favour of the Integral Company or other transferee company, as the case may be, and may be enforced as fully and effectually as if, instead of the dissolved company, the Integral Company or other transferee company had been a party thereto.

(2) All contracts, deeds, bonds, agreements and other instruments of whatever nature to which the company in respect of a transferred unit is a party and in so far as it relates to matters pertaining to the undertakings of the transferred-unit, subsisting or having effect immediately before the appointed day, shall, as from that day, be of full force and effect against, or in favour of the Integral Company or other transferee company, as the case may be, and may be enforced as fully and effectually as if, instead of such company, the Integral Company or other transferee company had been a party thereto.

24. If on the appointed day, there is pending any suit, arbitration, appeal or other legal proceeding of whatever nature by or against a dissolved company, the same shall not abate, be discontinued or be in any way prejudicially affected by reason of the transfer under the provisions of this Act to the Integral Company or any other transferee company, as the case may be, of the undertakings of the dissolved company or of anything contained in this Act, but the suit, arbitration, appeal or other proceeding may be continued, prosecuted and enforced by or against the Integral Company or other transferee company, as the case may be, in the same manner and to the same extent as it would or might have been continued, prosecuted and enforced by or against the dissolved company if this Act had not been passed.

Survival of legal proceedings.

25. If any difficulty arises in giving effect to the provisions of this Act, the Central Government may, by order, published in the Official Gazette, make such provisions not inconsistent with the provisions of this Act, as appears to it to be necessary, for the removal of the difficulty:

Power to remove difficulties.

Provided that no such order shall be made after the expiry of a period of three years from the appointed day.

26. The provisions of this Act or of any order made thereunder shall have effect notwithstanding anything contained in the Companies Act or in any other law for the time being in force or in any contract, express or implied, or in any rules or regulations having effect by virtue of any law other than this Act.

Act to override the provisions of other laws.

27. (1) For the purpose of giving effect to the provisions of this Act, the Central Government may, by notification in the Official Gazette, make amendments in the memorandum or articles of association, or both, of the Integral Company or other transferee company.

Power to amend memorandum and articles of association.

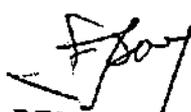
(2) Any amendments in the memorandum or articles of association of the Integral Company or other transferee company made in pursuance of sub-section (1) shall have effect notwithstanding anything contained in the Companies Act.

THE FIRST SCHEDULE

[See sections 2(1) (d) and 4]

1. Dhillal Ispat Limited, a company formed and registered under the Companies Act having its registered office at Dhillal in the State of Madhya Pradesh.
2. Bokaro Steel Limited, a company formed and registered under the Companies Act having its registered office at Bokaro Steel City in the State of Bihar.
3. Durgapur Mishra Ispat Limited, a company formed and registered under the Companies Act having its registered office at Durgapur in the State of West Bengal.
4. Hindustan Steel Limited, a company formed and registered under the Companies Act having its registered office at Ranchi in the State of Bihar.

डॉ० आर. के. नाईक / Dr. R. K. NAIK
वरिष्ठ प्रबंधक (भूविज्ञान) योजना एवं विपणन
Senior Manager (Geo.) P & D
सेल, आर.एम.डी. राउरकेला
SAIL, RMD, ROURKELA


PETIR BANG
General Manager (Geology)
SAIL, RMD, BIM & KI
BARSUA ION MINES
KALTA ION MINES

5. Rourkela Ispat Limited, a company formed and registered under the Companies Act having its registered office at Rourkela in the State of Orissa.

6. SAIL International Limited, a company formed and registered under the Companies Act having its registered office at Calcutta in the State of West Bengal.

7. Salem Steel Limited, a company formed and registered under the Companies Act having its registered office at Salem in the State of Tamil Nadu.

THE SECOND SCHEDULE

[See section 9]

1. Metallurgical and Engineering Consultants (India) Limited, a company formed and registered under the Companies Act having its registered office at Ranchi in the State of Bihar.

2. Hindustan Steelworks Construction Limited, a company formed and registered under the Companies Act having its registered office at Calcutta in the State of West Bengal.

3. National Mineral Development Corporation Limited, a company formed and registered under the Companies Act having its registered office at Hyderabad in the State of Andhra Pradesh.

4. Manganese Ore (India) Limited, a company formed and registered under the Companies Act having its registered office at Nagpur in the State of Maharashtra.

5. Mandovi Pellets Limited, a company formed and registered under the Companies Act having its registered office at Mormugao Harbour in the Union territory of Goa, Daman and Diu.

K. K. SUNDARAM,
Secy. to the Govt. of India

PRINTED BY THE GENERAL MANAGER, GOVERNMENT OF INDIA PRESS, MOKTO ROAD, NEW DELHI AND PUBLISHED BY THE CONTROLLER OF PUBLICATIONS, DELHI.

डॉ० आर०के० नाईक / Dr. R. K. NAIK
वरिष्ठ प्रबंधक (भूविज्ञान) योजना एवं विकास
Senior Manager (Geo.) P & D
सेल आर.एम.डी. राउरकेला
S/L, RMD, ROURKELA

PETER DANG
General Manager (Geology)
SAIL, RMD, BIM & KIM
BARSUA IRON MINES &
KALTA IRON MINES



STATE BANK OF INDIA
C.A.G. II NEW DELHI
4TH AND 5TH FLOOR
REDFORT
CAPITAL PARSVANATH
TOWERS, NEW DELHI

Tel No. :
Fax No. :
SWIFT No. : SBININBB824
PIN Code :

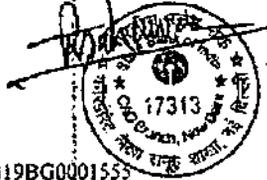
22-10-2019

To,
THE REGIONAL CONTROLLER OF MINES, INDIAN BUREAU OF MINES
PLOT NO 149, POKHARIPUT
BHUBANESWAR 751020

Bureau

DEAR SIR(S),

Guarantee Number : 1731319BG000155
Date of Issue : 22-10-2019
Guarantee Amount : INR-2,558,400.00
Date of Expiry : 31-03-2025
Date of Claim : 31-03-2026
Applicant Name : STEEL AUTHORITY OF INDIA LTD.



*Beneficiary's Copy
For Confirmation*

We confirm having issued / Extended the captioned Bank Guarantee in your favour on behalf of our above named Constituent and the same signed by the officers of the Bank.

YOURS FAITHFULLY

Mahawar
AUTHORISED SIGNATORY - I

Kolixit
AUTHORISED SIGNATORY - II

TEJ RAM MAHAWAR
एम/एम-7883

(*2nd signatory required, if BG is for Rs. 50000/- and above)

The beneficiaries are advised in their own interest to verify the genuineness of the Guarantee with the BG issuing Branch and also verify that Bank Guarantee for Rs.50000/- (Rupees Fifty Thousand Only) & above is signed by two authorized officials of the Bank.

PLEASE CONTACT BRANCH FOR eTradeSBI FACILITY-INTERNET ACCESS TO TRADE FINANCE

Oct 22, 2019 3:42 PM

Peter Dang
PETER DANG
General Manager (Geology)
SAIL, RMD, BIM & KIM
BARSUA IRON MINES &
KALTA IRON MINES

Dr. R. K. NAIK
डॉ. आर. के. नाईक / Dr. R. K. NAIK
वरिष्ठ प्रबंधक (भूविज्ञान) योजना एवं विज्ञान
Senior Manager (Geo.) P & D
सेल, आर.एम.डी. राउरकेला
SAIL, RMD, ROURKELA



सत्यमेव जयते

INDIA NON JUDICIAL

Government of National Capital Territory of Delhi

e-Stamp

Certificate No. : IN-DL62081563943125R
 Certificate Issued Date : 30-Sep-2019 08:58 AM
 Account Reference : IMPACC (IV)/dl801003/ DELHI/ DL-DLH
 Unique Doc. Reference : SUBIN-DL60100331498261486359R
 Purchased by : STATE BANK OF INDIA
 Description of Document : Article Bank Guarantee
 Property Description : Not Applicable
 Consideration Price (Rs.) : 0
 (Zero)
 First Party : STATE BANK OF INDIA
 Second Party : Not Applicable
 Stamp Duty Paid By : STATE BANK OF INDIA
 Stamp Duty Amount(Rs.) : 100
 (One Hundred only)



----- Please write or type below this line -----
 STEEL AUTHORITY OF INDIA LTD. Bhubaneswar

This Stamp Paper is an integral part of Bank Guarantee No.: 1731319BG0001555 dated 22.10.2019 for Rs. 28,88,400/- (Rs. Twenty eight lakh eighty eight thousand four hundred only) in favour of Regional Controller of Mines, Indian Bureau of Mines, Bhubaneswar on behalf of: SHALAT HEAVY ELECTRICALS LIMITED, issued on 22.10.2019 and valid upto 31.03.2025 with claim period upto 31.03.2026.

For STATE BANK OF INDIA, <u>Mahawar</u> Manager (C.S.) Corporate Accounts Group Branch, New Delhi.	For STATE BANK OF INDIA, <u>Kanishka</u> Manager (C.S.) Corporate Accounts Group Branch, New Delhi.
TEJ RAM MAHAWAR M-7883	KANISHKA DIXIT D-7982

Statutory Audit:

154

डॉ० आर.के. नाईक / Dr. R. K. NAIK
 वरिष्ठ प्रबंधक (भूविज्ञान) योजना एवं विकास
 Senior Manager (Geo.) P & D

Peter Dang
 General Manager (Geology)
 SAIL, RMD, BIM & KIM
 BARSUA IRON MINES &
 KALTA IRON MINES



सत्यमेव जयते

INDIA NON JUDICIAL

Government of National Capital Territory of Delhi

e-Stamp

Certificate No. : IN-DL62081314949248R
 Certificate Issued Date : 30-Sep-2019 08:57 AM
 Account Reference : IMPACC (IV)/dl801003/ DELHI/ DL-DLH
 Unique Doc. Reference : SUBIN-DL80100331499156606993R
 Purchased by : STATE BANK OF INDIA
 Description of Document : Article Bank Guarantee
 Property Description : Not Applicable
 Consideration Price (Rs.) : 0
 (Zero)
 First Party : STATE BANK OF INDIA
 Second Party : Not Applicable
 Stamp Duty Paid By : STATE BANK OF INDIA
 Stamp Duty Amount(Rs.) : 100
 (One Hundred only)



Please write or type below this line.

— STEEL AUTHORITY OF INDIA LTD. —

— Bhujaneswar —

This Stamp Paper is an integral part of Bank Guarantee No.: 1731319BG0001555 dated 22.10.2019 for Rs. 28,88,400/- (Rs. Twenty eight lakh eighty eight thousand four hundred only) in favour Regional Controller of Mines, Indian Bureau of Mines, Bhujaneswar on behalf of: **RAJESH KUMAR SHARAT HEAVY ELECTRICALS LIMITED**, issued on 22.10.2019 and valid upto 31.03.2025 with claim period upto 31.03.2026.

For STATE BANK OF INDIA, <i>Mahawar</i> Manager (C.S.) Corporate Accounts Group Branch, New Delhi.	For STATE BANK OF INDIA, <i>Kanishka</i> Manager (C.S.) Corporate Accounts Group Branch, New Delhi.
TEJ RAM MAHAWAR M-7883	KANISHKA DIXIT D-7982

Stamp Duty Paid:



155

डॉ० आर.के. नाईक / Dr. R. K. NAIK
 वरिष्ठ प्रबंधक (भूविज्ञान) योजना एवं विकास
 Senior Manager (Geo.) P & D
 जेल्स आर.एम.डी. राउरकेला

PETER DANG
 General Manager (Geology)
 SAIL, RMD, BIM & KIM
 BARSUA IRON MINES &

STATE BANK OF INDIA
CORPORATE ACCOUNTS GROUP BRANCH
5TH FLOOR, RED FORT CAPITAL PARSVNATH TOWERS,
BHAI VEER SINGH MARG, GOLE MARKET, NEW DELHI-110001

BANK GUARANTEE-PERFORMANCE

BANK GUARANTEE NO: 1731319BG0001555

Date: 22.10.2019

Form No.
Regional Controller of Mines,
Indian Bureau of Mines,
Plot No. 149, In front of CPWD Office,
Pokhariput,
Bhubaneswar - 751020

Dear Sirs,

Guarantee No. 1731319BG0001555
Amount of Guarantee Rs. 28,88,400/-
Guarantee Period from 22 October'19 to 31.03.2025
Last date for lodgment of claim - 31.03.2026

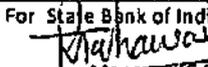
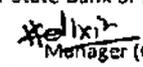
This Deed of guarantee executed on 22nd Day of October, 2019 by State Bank of India, (bank name) constituted under the Stat Bank of India Act 1955 having its Corporate office at Madame Cama Road, Nariman Point Mumbai-400021 and amongst other places, a branch at CAG Branch, 5th Floor Redfort Capital, Parsvnath Towers, Bhai Veer Singh Marg, Gole Market, New Delhi-110001 (hereinafter referred to as the bank) in favour of the Regional Controller of Mines, Indian Bureau of Mines, Bhubaneswar (hereinafter referred to as the Beneficiary) for an amount not exceeding Rs.28,88,400/- (Rs. Twenty eight lakh eighty eight thousand four hundred only) at the request of SAIL (hereinafter referred to as the Contractor/s)

This guarantee is issued subject to the condition that the liability of the bank under this guarantee is limited to maximum of Rs. 28,88,400/- (Rs. Twenty eight lakh eighty eight thousand four hundred only) and the guarantee shall remain in full force up to 31.03.2025 (date of expiry) and cannot be revoked on or before 31.03.2026 (last date of claim) by the Bank or applicant.

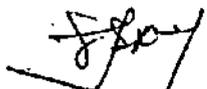
SUBJECT TO AS AFORESAID

BANK GUARANTEE AND CO-ACCEPTANCE BOND

1. Agreement on production of a Bank guarantee for Rs. 28,88,400/- (Rs. Twenty eight lakh eighty eight thousand four hundred only) under rule 27 of MCDR, 2017.
2. We State Bank of India (bank name), at the request of SAIL (lessee) do hereby undertake to pay to the Regional Controller of Mines, Indian Bureau of Mines, Bhubaneswar or any other officer authority nominated by the Controller General, Indian Bureau of Mines an amount not exceeding Rs. 28,88,400 /- (Rs. Twenty eight lakh eighty eight thousand four hundred only) against any loss or damage caused to or suffered or would be caused to or suffered by the Government or towards non compliance of provisions of Rule 22,23,24 & 26 of MCDR, 2017 i.e. Mine closure plan/progressive mine closure plan approved in respect of

For State Bank of India,  Manager (C.S.) Corporate Accounts Group Branch, New Delhi	For State Bank of India,  Manager (C.S.) Corporate Accounts Group Branch, New Delhi
TEJ RAM MAHAWAR M-7883	KANISHKA DIXIT D-7982


156
डॉ० आर. के. नाइक / Dr. R. K. NAIK
वरिष्ठ प्रबंधक (भूविज्ञान) योजना एवं विचार
Senior Manager (Geo.) P & D
सेल, आर.एम.डी. राउरकेला
SAIL, RMD, ROURKELA


PETER DANG
General Manager (Geology)
SAIL, RMD, BIM & KIM
BARSUA IRON MINES &
KALTA IRON MINES

STATE BANK OF INDIA
CORPORATE ACCOUNTS GROUP BRANCH
5TH FLOOR, RED FORT CAPITAL PARSVNATH TOWERS,
BHAI VEER SINGH MARG, GOLE MARKET, NEW DELHI-110001

BANK GUARANTEE NO:1731319BG0001555

Date: 22.10.2019

the mining lease for ML-139 of Kaita Iron Mine (ore/ores) over an area of 25.981 Hects. granted by State Government to M/s Steel Authority of India Limited (lessee) situated in Kaita Village, Bonai Taluka, Sundergarh District, Odisha State by reason of any breach of the said lessee of any of the terms or conditions contained in the Mine closure plan/progressive mine closure plan.

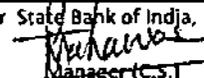
3. We, State Bank of India (bank) do hereby undertake to pay the amount due and payable under this guarantee without any demur, to the authority merely on a demand from the Regional Controller of Mines, Indian Bureau of Mines, Bhubaneswar or any other authorized by the Controller General, Indian Bureau of Mines stating that the amount claimed is due by way of loss or loss of damage caused to or would be caused to or suffered by the government by reason of breach by the said lessee or any of the terms or conditions contained in the Mining Plan/Review of Mining Plan or by reason of lessee's failure to perform the said mine closure plan/progressive mine closure plan. However our liability under this guarantee shall be restricted to an amount not exceeding Rs.28,88,400/- (Rs. Twenty eight lakh eighty eight thousand four hundred only).
4. We undertake to pay to the authority on a demand from the Regional Controller of Mines, Indian Bureau of Mines, Bhubaneswar or any other officer authorized by the Controller General, Indian Bureau of Mines or Govt. of India any money so demanded notwithstanding any dispute or disputes raised by the lessee in any suit or proceedings pending before any court or tribunal relating thereto our liability under this present being absolute and unequivocal.

The payment so made by us under this bond shall be valid discharge of our liability for payment there under and lessee shall have no claim against us for making such payment.

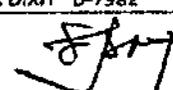
5. We, State Bank of India (bank name), further agree that the guarantee herein contained shall remain in full force and effect during the period up to the end of the Mining Plan/Review of Mining Plan/Modification of the Mining Plan period of five years that would be taken for performance of the said Agreement and that shall continue to be enforceable till all the dues of the Govt. within the claim period under or by virtue of the said agreement have been fully paid and its claims satisfied or discharged till Regional Controller of Mines, Indian Bureau of Mines, Bhubaneswar or any other officer authorized by the Controller General, Indian Bureau of Mines certifies that the terms and conditions of the said progressive mine closure plan/final mine closure plan have been fully and properly carried out by the said lessee and accordingly discharge this guarantee .

Unless a demand or claim under this guarantee is made on us in writing on or before 31.03.2026, we shall be discharged from all liability under this guarantee thereafter.

6. We further agree that Regional Controller of Mines, Indian Bureau of Mines, Bhubaneswar or any other officer authorized by the Controller General, Indian Bureau of Mines shall have fullest liberty without our consent and without affecting in any manner our obligations

For State Bank of India,  Manager (C.S.) Corporate Accounts Group Branch, New Delhi	For State Bank of India,  Manager (C.S.) Corporate Accounts Group Branch, New Delhi
TEJ RAM MAHAWAR M-7883	KAMISHKA DIXIT D-7982

डॉ० आर. के. नाईक / Dr. R. K. NAIK
वरिष्ठ प्रबंधक (भूविज्ञान) योजना एवं विकास
Senior Manager (Geo.) P & D
सेल, आर.एम.डी. राउरकेला


PETER DANG
General Manager (Geology)
SAIL, RMD, BIM & KIM
BARSUA IRON MINES &
KAITA IRON MINES

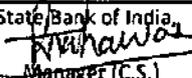
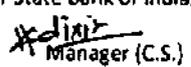
STATE BANK OF INDIA
CORPORATE ACCOUNTS GROUP BRANCH
5TH FLOOR, RED FORT CAPITAL PARSYNATH TOWERS,
BHAI VEER SINGH MARG, GOLE MARKET, NEW DELHI-110001

BANK GUARANTEE NO:1731319BG0001555

Date: 22.10.2019

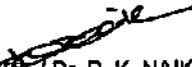
hereunder to vary any of the terms and conditions of the said agreement or to extend time of performance by the said lessee from time to time or to postpone for any time or from time to time any powers exercisable by Regional Controller of Mines, Bhubaneshwar against the said lessee and to forbear or enforce any of the terms and conditions relating to the said agreement, we (bank) shall not be relieved from our liability by reason of any such variation or extension being granted to the said lessee or for any forbearance, act or omission on the part of Regional Controller of Mines, Indian Bureau of Mines, Bhubaneshwar or any indulgence by Regional Controller of Mines, Indian Bureau of Mines, Bhubaneshwar to the said lessee or any manner or thing whatsoever which under the law relating to sureties, would but this provision have effect of so relieving us.

- 7. This guarantee will not be discharged due to change in constitution of the bank or lessee.
- 8. We, State Bank of India (bank name), lastly undertake not to revoke this guarantee during its currency except with the previous consent of the Regional Controller of Mines, Indian Bureau of Mines, Bhubaneshwar in writing.
- 9. Notwithstanding anything contained herein:
 - a) Our liability under this Bank guarantee shall not exceed Rs. 28,88,400/- (Rs. Twenty eight lakh eighty eight thousand four hundred only)
 - b) The bank guarantee shall be valid up to 31.03.2025.
 - c) The period of bank guarantee submitted is valid for the period of the proposals given in the Mining plan/ PMCP/FMCP etc. We are liable to pay the guarantee amount or any part thereof under this Bank guarantee and only if served upon us a written claim or demand on or before 31.03.2026.
- 10. If the bank guarantee is to be en-cashed through the court, in that case the (city where Regional office, IBM is located) court will have jurisdiction.
- 11. In witness whereof, the bank through its authorized officer has set its hand and stamp on this 22nd Day of October 2019 at New Delhi.

For State Bank of India,  Manager (C.S.) Corporate Accounts Group Branch, New Delhi TEJ RAM MAHAWAR M-7883	For State Bank of India,  Manager (C.S.) Corporate Accounts Group Branch, New Delhi KANISHKA DIXIT D-7982
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PETER DANG
 General Manager (Geology)
 SAIL, RMD, BIM & KIM
 BARSUA IRON MINES &
 KALTA IRON MINES


 डॉ० आर. के. नाईक / Dr. R. K. NAIK
 ज्येष्ठ प्रबंधक (भूविज्ञान) योजना एवं विकास
 Senior Manager (Geo.) P & D
 सेल, आर.एम.डी. राउरकेला
 SAIL, RMD, ROURKELA

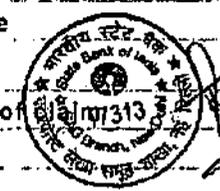


SWIFT

Main Reference NO: 1731319BG0001555 Transaction Reference NO: 1731319BG0001555
 Unit Code: 17313 Operator: 8214301
 Module Name: BGIF Function Name: Inland_Issue_Bank_Guarantee
 Transaction Date: 22-10-2019 Transaction Time: 15:42:21
 Event Time: 1

MT760COV ackFlag : notifyFlag :

B1: Outgoing SWIFT Header 1
 F01SBIN001731350000000000
 B2: Receiver's BIC Code
 I760SBIN0017313N
 7020: Transaction Reference Number (Issuing Bank Guarantee Number)
 1731319BG0001555
 7024: Type of Bank Guarantee : Performance, Financial, Others
 PERFORMANCE
 7025: Amount of Guarantee Currency Code
 Amount
 INR25688400,
 7026: Guarantee Validity Guarantee From Date
 Guarantee To Date
 2019102220250331
 7027: Guarantee Effective Date
 20191022
 7029: End date for lodgement of
 20260331
 7031: Issuing Branch IFSC
 SBIN0017313
 7032: Issuing branch name and address
 STATE BANK OF INDIA
 4TH AND 5TH FLOOR REDFORT
 GOLE MARKET
 CAPITAL PARSVANATH TOWERS, NEW DELHI
 7033: Name of applicant and his details
 STEEL AUTHORITY OF INDIA LTD
 ISPAT BHAWAN,
 LODHI ROAD
 NEW DELHI-110003



Mahawar

TEJ RAM MAHAWAR
एम/एम-7883

Peter Dang

7034: Name of Beneficiary and his details
PETER DANG
 General Manager (Geology)
 SAIL, RMD, BIM & KIM
 BARSUA IRON MINES &
 KALTA IRON MINES

डॉ० आर. के. नाइक / Dr. R. K. NAIK
 वरिष्ठ प्रबंधक (भूविज्ञान) योजना एवं विकास
 Senior Manager (Geo.) P & D
 सेल, आर.एम.डी. राउरकेला
 751002, राउरकेला, ओडिशा

THE REGIONAL CONTROLLER OF MINES
INDIAN BUREAU OF MINES
PLOT NO 149, POKHARIPUT
BHUBANESWAR 751020

7035:

Beneficiary IFSC

SBIN0017313

7036:

Beneficiary branch name and address

STATE BANK OF INDIA
4TH AND 5TH FLR RED FORT CAPITAL
PARSVNATH TOWER GOLE MARKET
NEW DELHI

7040:

Stamp Duty Electronically Paid (Y/N)

N

7046:

Date of Payment

20191022

7047:

Place of Payment

C.A.G. II NEW DELHI

7048:

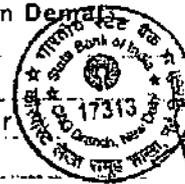
e-Bank Guarantee to be held in Demand Form (Y/N)

N

20Z:

Transaction Reference Number

NON-REGULAR



तेज राम भार्गव
TEJ RAM BHARGAV
एम/म-7883

Peter Dang
PETER DANG
General Manager (Geology)
SAIL, RMD, BIM & KIM
BARSUA IRON MINES &
KALTA IRON MINES

Dr. R. K. NAIK
डॉ. आर. के. नाईक / Dr. R. K. NAIK
वरिष्ठ प्रबंधक (भूविज्ञान) योजना एवं विकास
Senior Manager (Geo.) P & D
सेल. आर.एम.डी. राउरकेला
SAIL, RMD, ROURKELA



STATE BANK OF INDIA
C.A.G. II NEW DELHI
4TH AND 5TH FLOOR
REDFORT
CAPITAL PARSVANATH
TOWERS, NEW DELHI

Tel No. :
Fax No. :
SWIFT No. : SBININBB824
PIN Code :

22-10-2019

TO,
STEEL AUTHORITY OF INDIA LTD
ISPAT BHAWAN,
LODHI ROAD
NEW DELHI-110003

DEAR SIR(S),

WE HAVE DEBITED YOUR ACCOUNT NO. 00000010813608557 AS SHOWN BELOW ON ACCOUNT OF CHARGES.

FOR GUARANTEE NO	1731319BG0001555
YOUR REFERENCE NUMBER	NON REF
YOUR GSTIN NUMBER	07AAGS7062F1ZG
GUARANTEE COMMISSION	INR 24407.00
P & T CHARGES	INR 236.00
STAMP A/C	INR 200.00
GOODS & SERVICES TAX [GST]	INR 4893.00
TOTAL DEBIT AMOUNT	INR 29236.00

OFFICER IN CHARGE
STATE BANK OF INDIA



PLEASE CONTACT BRANCH FOR eTradeSBI FACILITY-INTERNET ACCESS TO TRADE FINANCE.

PETER DANG
General Manager (Geology)
SAIL, RMD, BIM & KIM
BARSUA IRON MINES &
KALTA IRON MINES

Oct 22, 2019 3:42 PM

डॉ० आर. के. नाईक / Dr. R. K. NAIK
वरिष्ठ प्रबंधक (भूविज्ञान) योजना एवं विकास
Senior Manager (Geo.) P & D
सेल, आर.एम.डी. राउरकेला
SAIL, RMD, ROURKELA



भारत सरकार GOVERNMENT OF INDIA
 खान मंत्रालय MINISTRY OF MINES
 भारतीय खान ब्यूरो INDIAN BUREAU OF MINES
 क्षेत्रीय खान नियंत्रक के कार्यालय
 OFFICE OF THE REGIONAL CONTROLLER OF MINES



By Speed Post/E-mail
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 Plot No.149, Pokhariput
 BHUBANESWAR-751020

No/RMP/A/17-ORI/BHU/2019-20

दिनांक / Date: 14.10.2019

To:
 ✓
 Shri Vivek Gupta, Director &
 Nominated Owner, M/s Steel
 Authority of India Limited,
 Ispat Bhawan, Lodi-Road,
 New Delhi-110003.

Sub: Review of Mining Plan of Kalta Iron Ore Mine (TODA RF, ML-139) over an area of 25.981 ha in Sundargarh district of Odisha of M/s Steel Authority of India Limited (SAIL) submitted under Rule-17 (2) of MCR, 2016.

- Ref: i) Your letter no. SAIL/DRML/2019-20/807 dated 17.09.2019 received on 30.09.2019.
 ii) This office letter of even no. dated 30.09.2019.
 iii) This office letter of even no. dated 30.09.2019 addressed to the Director of Mines, Govt. of Odisha, copy endorsed to you.

Sir,

This has reference to the letters cited above on the subject. The draft Review of Mining Plan along with Progressive Mine Closure Plan has been examined in this office based on site inspection carried out on 04.10.2019 by Shri Sudip Ranjan Mazumdar, Senior Mining Geologist. The deficiencies observed are enclosed herewith as Annexure-I.

You are advised to carry out the necessary modifications in the draft Review of Mining Plan in the light of the contents vide Annexure-I and submit three (3) firm bound and two (2) soft copies of the document text in CD in a single MS Word file (the drawing/plates should be submitted in Auto CAD compatible format and JPG format in resolution of 100x100 pixels on same CD) with financial assurance under Rule 27 of MCDR' 2017 within 15 (fifteen) days from the date of issue of this letter for further necessary action. If the total page of annexures exceeds 50 (Fifty) then it should be submitted as separate volume. But reference of these annexures must appear in the Review of Mining Plan document. The plates are also to be submitted in separate volume.

The para-wise clarifications and the manner in which the deficiencies are attended should invariably be given while forwarding the modified copies of the Review of Mining Plan. It may be noted that no extension of time in this regard will be entertained and the Review of Mining Plan will be considered for rejection if not submitted within above due date. It may also be noted that if the deficiencies are not attended completely, the submission would be liable for rejection without further correspondence.

भवदीय / yours faithfully,

(HARKESH MEENA)

क्षेत्रीय खान नियंत्रक / Regional Controller of Mines

डॉ० आर. के. नायक / Dr. R. K. NAIK
 वरिष्ठ प्रबंधक (भूविज्ञान) योजना एवं विकास
 Senior Manager (Geo.) P & D
 सेल, आर.एम.डी. राउरकेला
 SAIL, RMD, ROURKELA

PETER DANG
 General Manager (Geology)
 SAIL, RMD, BIM & KIM
 BARSUA IRON MINES &
 KALTA IRON MINES

Copy for kind information and necessary action to:

1. Shri Peter Dang, DGM Geology, M/s Steel Authority of India Limited, Raw Material Division, Kalta Iron Mines, At/Post-Tensa, Dist-Sundargarh, Odisha-770042.
2. Dr. R. K. Naik, Sr. Manager (Geology), Raw Material Division, M/s Steel Authority of India Limited, 02nd Floor, Modernization Building, Rourkela Steel Plant, Dist-Sundargarh, Odisha-769011.

(HARKESH MEENA)

क्षेत्रीय खान नियंत्रक / Regional Controller of Mines

~~Dr. R. K. Naik~~
डॉ० आर. के. नाइक / Dr. R. K. NAIK
वरिष्ठ प्रबंधक (भूविज्ञान) योजना एवं विकास
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~~Peter Dang~~
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Scrutiny comment on Review of Mining Plan including PMCP of Kalta Iron Mine of M/s Steel Authority of India Limited over an area of 25.981 Ha in Sundergarh district of Odisha

GENERAL:

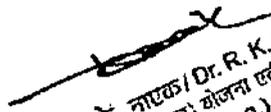
1. Sequence of paragraph, formats and its numbering as per IBM Manual Appraisal MP 2014 has not been covered in text. All the headings as mentioned in the IBM Manual Appraisal MP 2014 should be furnished in all chapters in the text.
2. Mine code furnished in the document is incorrect. Need to rectify the same.

GEOLOGY AND EXPLORATION:

3. In para 1(c), the terms Direct Ore, Hard beneficiable ore and soft beneficiable ore should be omitted. Further, in para 1(e), the details of prospecting carried out within ML-139 (over an area of 25.981 Ha) should only be furnished. Information furnished with respect to other lease area should be omitted.
4. In para 1 (i), under future exploration program, the statement "the present modification to the modified mining plan has been prepared" is incorrect and should be corrected. The future exploration program should be modified to the extent that considering the irregular habit of ore exposures the grid spacing of the proposed boreholes should be 100 m (along strike) x 50m (along dip direction/along section lines). Further, the depth of the proposed bore holes should be 300m or till the end of mineralization. The proposal for exploration should be modified accordingly and the exploration should be completed by 2021-22. Check analysis of at least 10% samples have not been proposed from third party NABL accredited laboratory. Necessary corrections to be done.
5. The lease area explored under different category of UNFC norms as shown in table in page no 29 is incorrect and should be recalculated as per the provision of Part II point no.4 and part III of Minerals (Evidence of Mineral Contents) Rules, 2015 (MEMC, Rule 21015) and as discussed during field inspection. The area under Block A should be categorized under G3 level of exploration as per UNFC. The justification for area considered for G1/G2/G3 etc. have not been furnished as per the provision of MEMC Rules'2015. Necessary corrections to be done at all relevant places of the document and resource estimation.
6. Reserves and resources have not been calculated as per the provision of MEMC Rules, 2015. Based on the provision of MEMC Rules 2015, the reserve furnished for Block-A is incorrect should be under G3 Resources. Necessary corrections to be done in calculation of reserve and resources under different UNFC codes at all relevant places in text and tables in the document. Pre-feasibility study report should be prepared and submitted instead of feasibility study report. Necessary changes in the UNFC codes should be made in text/tables/plates etc. Justification of reserves and resources under various UNFC codes have not been furnished in tabulated format as per UNFC guidelines. The reserve and resources figures in page 34 and 35 are different. Need to recheck and rectify the same. Note 2 furnished in page 35 should be omitted as the rationale should be mentioned under justification of UNFC codes and considering the prefeasibility study report.
7. In the calculation of OB in Geological and mining chapter only in-situ volume should be considered. The column showing swell volume should be omitted. Necessary corrections to be done.

MINING:

8. Justification for site selected for mining has not been furnished with respect to exploration, mineral conservation and subsequent development.
9. In para 2. (A) (a), (d), the proposed method of mining has not been discussed/elaborated in detail with respect to mining operation like deep hole drilling and blasting (in Ore, Mineral Reject and in Overburden), excavation, loading and transport with help of mining machineries etc. Need to describe in detail. List of existing and proposed mining machineries should be furnished in tabulated format.
10. In para 2.A (b)(1), the total of in-situ excavation figs have not been furnished in the format specified in IBM appraisal of MP 2014 both in cum and in tones in separate table. Further, the calculation of mineral reject as "Nil" should be rechecked and corrected.


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11. The year wise excavation proposal should be given in the following format separately for each year.

Particular for the year:.....		
Bench Geometry	Height (in m)	
	Width (in m)	
	Individual bench slope angle	
Quarry Development	Location of Development in UTM coordinate	
	Cross-sections considered for development	
	Benches considered for development with RL	
	RL of the quarry floor at the end of the year	
	Direction of advancement	
	Dimension of the quarry at the end of the year including existing benches	
	Overall quarry slope angle	
	Production of Saleable ore (in MT)	
	Generation of Mineral rejects ore from quarry (in MT)	
	Total Production of ROM (Ore + Mineral Reject) in MT	
Volume of waste generation (in cum)		

12. In para 2 (A)(e) and in para 4(c) and in all relevant places, it should be mentioned that waste will only be dumped in the proposed waste dumping site only if the area is proved to be barren after completing the proposed exploration.
13. The proposed areas for various mine activities like waste dumping sites, mineral storage areas, mineral rejects area, any other should be addressed in detail with nomenclature of the same in relevant plans and section either temporary or permanent. The same should be reflected in FA calculation.
14. In conceptual planning the life of the mine, ultimate pit limits should be recalculated considering the end of lease period only. Life of mine should be calculated considering the revised estimation of reserves and resources. Life of mine should be calculated over an lease area including both Block A and Block B.

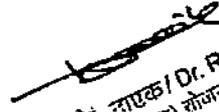
STACKING OF MINERAL REJECT/SUB GRADE AND DISPOSAL OF WASTE:

15. In para 4 (a), only the existence of waste dump within the lease area, if any should be discussed. All the calculation of waste generation and its disposal should be done on insitu volume of waste. Further, in the table in page 58, the breakup of waste used for backfilling the disturbed safety zone, storage and its utilization as proposed for road making should be furnished in tabulated format with respect to total insitu volume of waste generation. Necessary changes of insitu volume of waste generation and its disposal should be made in all relevant places in the document. In page 60, the dimension in terms of length, width and height of retaining wall and garland drain has not been mentioned.
16. The proposal for dumping may be given in tabulated format as shown below: Further, Build-up of dumps from year to year to be mentioned in text w.r.t. designed capacity of dumps, bottom and top mRL of individual terrace, dump slope, individual terrace height and slope with description of method & manner of disposal of waste should be mentioned. The method of waste dumping should be in retreating manner. The year wise buildup of dump should be described.

Year	Waste to be dumped (in m ³)	Dump No	Location of dumping (coordinates)	Proposed area (m ²)	Proposed dumping mRL.	No of terrace proposed.	Individual Terrace height	Slope of the terrace

PROCESSING OF ROM AND MINERAL REJECTS:

17. In para 6 (b), material balance chart with a flow sheet or schematic diagram of the processing procedure indicating feed, product, recovery, and its grade at each stage of processing has not been furnished. Need to provide the same.


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OTHERS:

18. In para (b), employment of mining engineer and geologist as per provision of rule 55 of MCDR 2017 has not been mentioned. Further, status of existing and proposed statutory personnel should be mentioned. Need to do necessary correction.

PROGRESSIVE MINE CLOSURE PLAN:

19. In the tables for year wise proposal the dimension of retaining wall and garland drain in terms of length, width, height/depth for construction and maintenance in subsequent years have not been mentioned. Further, total numbers of saplings to be planted have not been furnished.

20. The existing road in block A has not been shown in the plan. The same should be shown and its area should be calculated under heads "road". Accordingly, net area considered for FA calculation should be rechecked and corrected. The additional amount of bank guarantee need to be submitted.

PLATES (GENERAL):

1. **KEY PLAN:** The key plan should incorporate all features as mentioned Rule 32 5 (a) of MCDR 2017. The project site shown should be omitted from the plan. The mining lease area have not been shown in plan and its index. Need to do necessary correction.

2. **SURFACE PLAN:** The Surface Plan should be prepared to satisfy the provision as laid down rule 32 (1) (a) of MCDR 2017. The road passing through Block A has not been shown in the plan.

GEOLOGICAL PLAN & SECTION: (i) The redefined UNFC boundaries and UPL to be shown in Geological Plan and sections (ii) The index shown in plan has not been referred in its index and also there is mismatch in index (iii) the road passing through block A has not been shown in the plan (iv) The Geological Plan should be prepared to satisfy the provision as laid down rule 32 (1) (b), (c) and (d) of MCDR 2017. Plan and section should be drawn on same scale. (v) UNFC codes shown in the geological sections are incorrect (vi) Revised exploration proposal should be shown in plan and section. (vii) Plate No of Geological section does not match with the plate no shown in list of plates. Need to do necessary corrections

3. **DEVELOPMENT PLAN & SECTION:** (i) Individual year wise development plan and sections should be submitted.

4. **ENVIRONMENT PLAN:** The environment plan has not been prepared as per the provision laid down in rule 32 (5) (b) of MCDR 2017.

5. **FINANCIAL ASSURANCE AREA PLAN:** The existing road in block A has not been shown in the plan. The same should be shown and its area should be calculated under heads "road". Accordingly, net area considered for FA calculation should be rechecked and corrected. The additional amount of bank guarantee need to be submitted.

6. **CONCEPTUAL PLAN AND SECTION:** The index shown in plan and section does not match with its index. Need to rectify the same.

ANNEXURES:

1. All the annexure to be properly numbered/paged and relevant annexure to be signed by QP etc. It is observed that many of the annexures are not legible. A legible copy of same to be enclosed.

2. Copies of financial assurance in form of bank guarantee have not been submitted.

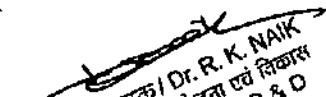
Sudip Ranjan Mazumdar
14/10/19
(Sudip Ranjan Mazumdar)
Senior Mining Geologist

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Senior Manager (Geo.) P & D
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Compliance of scrutiny comments with respect to Review of Mining Plan & Progressive Mine Closure Plan of ML-139 Lease, Kalta Iron Mine (25.981 Ha) of M/S Steel Authority of India Limited.

Sl. NO	SCRUTINY COMMENTS	ACTION TAKEN
GENERAL:		
1	Sequence of paragraph, formats and its numbering as per IBM Manual Appraisal MP 2014 has not been covered in text. All the headings as mentioned in the IBM Manual Appraisal MP 2014 should be furnished in all chapters in the text.	Sequence of paragraph, formats and its numbering in the text has been corrected as per IBM Manual Appraisal MP 2014. All the headings as mentioned in the IBM Manual Appraisal MP 2014 have been furnished in all chapters in the text.
2.	Mine code furnished in the document is incorrect need to rectify the same.	Mine code in the document has been rectified.
GEOLOGY AND EXPLORATION:		
3.	In para 1(c), the terms of direct Ore, Hard beneficiable ore and soft beneficiable ore should be omitted. Further, in para 1(e), the details of prospecting carried out within ML-139(over an area of 25.981 Ha) should only be furnished. Information furnished with respect to other lease should be omitted.	In para 1(c), the terms of direct Ore, Hard beneficiable ore and soft beneficiable ore has been omitted. The details of prospecting carried out within ML-139 (over an area of 25.981 Ha) only furnished and Information with respect to other lease has been omitted.
4.	In Para 1(i), under future exploration program, the statement " the present modification to the modified mining plan has been prepared" is incorrect and should be corrected. The future exploration program should be modified to the extent that considering the irregular habit of ore exposures the grid spacing of the proposed boreholes should be 100 m (along strike) X 50m (along dip direction/along section lines). Further, the depth of the proposed boreholes should be 300m or till the end of mineralization. The proposal for exploration should be modified accordingly and the exploration should be completed by 2021-22. Check analysis of at least 10% samples have not been proposed from third party NABL accredited laboratory. Necessary corrections to be done.	In Para 1(i), under future exploration program, in place of statement " the present modification to the modified mining plan has been prepared" corrected and written as 'the present Review of mining plan has been prepared'. The future exploration program has been modified and Bore holes has been proposed at grid interval of 100m (along strike) X 50m (along dip direction/along section lines) The depth of the boreholes has been proposed upto 300m or till the end of mineralization and completed by 2021-22. Check analysis of at least 10% samples have been proposed from third party NABL accredited laboratory at page no. 22.
5.	The lease area explored under different category of UNFC norms as shown in table in page no 29 is incorrect and should be recalculated as per the provision of part II point no.4 and part II of Minerals (Evidence of Mineral Contents) Rules, 2015(MEMC, Rule 2015) and as discussed during field inspection. The area under Block A should be categorized under G3 level of exploration as per UNFC. The justification for area considered for G1/G2/G3 etc. have not been furnished as per the provision of MEMC Rules 2015. Necessary corrections to be done at all relevant places of the document and resource estimation.	The reserve under different category of UNFC norms has been recalculated as per the provision of part II point no.4 and part II of Minerals (Evidence of Mineral Contents) Rules, 2015 (MEMC, Rule 2015) and as discussed during field inspection. The area under Block-A has been categorized under G3 level of exploration as per UNFC. The justification for area considered for G1/G2/G3 etc. have been furnished as per the provision of MEMC Rules 2015. Accordingly Necessary corrections have been done at page no. 24, 25 and all relevant places of the document and resource estimation.
6.	Reserves and resources have not been calculated as per the provision of MEMC Rules, 2015. Based on the provision of MEMC Rules 2015, the reserve furnished for Block-A is incorrect should be under G3 Resources. Necessary corrections to be done in calculation of reserve and	The reserve Reserves and resources have been calculated as per the provision of MEMC Rules, 2015 and has been modified accordingly. The reserve for Block-A has been modified based on the provision of MEMC


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	resources under different UNFC codes at all relevant places in text and tables in the document. Pre-feasibility study report should be prepared and submitted instead of feasibility study report. Necessary changes in the UNFC codes should be made in text/table/plates etc. Justification of reserves and resources under various UNFC codes have not been furnished in tabulated format as per UNFC guidelines. The reserve and resources figures in page 34 and 35 are different. Need to recheck and rectify the same. Note 2 furnished in page 35 should be omitted as the rationale should be mentioned under justification of UNFC codes and considering the prefeasibility study report.	Rules 2015, and categorized under G3 Resources. Necessary corrections have been done in calculation of reserve and resources under different UNFC codes at all relevant places in text and tables in the document. Pre-feasibility study report has been prepared and submitted. Necessary changes in the UNFC codes have been made in text, table and plates. Justification of reserves and resources under various UNFC codes have been furnished in tabulated format as per UNFC guidelines. The reserve and resources has been recalculated and given at page no 36 and 37. Note 2 furnished in page 35 have been omitted.													
7.	In the calculation of OB in Geological and mining chapter only in-situ volume should be considered. The column showing swell volume should be omitted. Necessary corrections to be done.	In the calculation of OB in Geological and mining chapter only in-situ volume has been considered.													
MINING															
8.	Justification for site selected for mining has not been furnished with respect to exploration, mineral conservation and subsequent development	Justification for site selected for mining has been furnished with respect to exploration, mineral conservation and subsequent development at page no. 38													
9.	In para 2.(A) (a), (d), the proposed method of mining has not been discussed/elaborated in detail with respect to mining operation like deep hole drilling and blasting(in Ore, Mineral reject and in Overburden), excavation, loading and transport with help of mining machineries etc. Need to describe in detail. List of existing and proposed mining machineries should ne furnished in tabular format.	In para 2.(A) (a), (d), the proposed method of mining has been elaborated in detail with respect to mining operation. List of existing and proposed mining machineries has been furnished in tabular format at page no.52													
10.	In para 2.A (b)(I), the total of in-situ excavation figs have not been furnished in the format specified in IBM appraisal of MP 2014 both in cum and in tones in separate table. Further, the calculation of mineral reject as "Nil" should be rechecked and corrected.	In para 2.A (b)(I), the total of in-situ excavation figs have been furnished in the format specified in IBM appraisal of MP 2014 both in cum and in tones in separate table.													
11.	The year wise excavation proposal should be given in the following format separately for each year <table border="1"> <thead> <tr> <th colspan="2">Particular for the Year</th> </tr> </thead> <tbody> <tr> <td rowspan="3">Bench Geometry</td> <td>Height</td> </tr> <tr> <td>Width</td> </tr> <tr> <td>Individual bench slope angle</td> </tr> <tr> <td rowspan="6">Quarry development</td> <td>Location of Development in UTM coordinate</td> </tr> <tr> <td>Cross section considered for development</td> </tr> <tr> <td>Benches considered for development for RL</td> </tr> <tr> <td>RL of the quarry floor at the end of the year</td> </tr> <tr> <td>Direction of advancement</td> </tr> <tr> <td>Dimension of the quarry at the end of the year including existing benches</td> </tr> </tbody> </table>	Particular for the Year		Bench Geometry	Height	Width	Individual bench slope angle	Quarry development	Location of Development in UTM coordinate	Cross section considered for development	Benches considered for development for RL	RL of the quarry floor at the end of the year	Direction of advancement	Dimension of the quarry at the end of the year including existing benches	The year wise excavation proposal has been given as per format separately for each year.
Particular for the Year															
Bench Geometry	Height														
	Width														
	Individual bench slope angle														
Quarry development	Location of Development in UTM coordinate														
	Cross section considered for development														
	Benches considered for development for RL														
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	Overall quarry slope angle Production of Saleable ore(in MT) Generation of Mineral rejects ore from quarry (in MT) - Total production of ROM(Ore + Mineral Reject) in MT Volume of waste generation(in cum)	
12.	In para 2(A)(e) and in para 4(c) and in all relevant places, it should be mentioned that waste will only be dumped in the proposed waste dumping site only if the area is proved to be barren after completing the proposed exploration.	In para 2(A)(e) and in para 4(c) and in all relevant places, it has been mentioned that waste will only be dumped in the proposed waste dumping site only if the area is proved to be barren after completing the proposed exploration.
13.	The proposed areas for various mine activities like waste dumping sites, mineral storage areas, mineral rejects area, any other should be addressed in detail with nomenclature of the same in relevant plans and section either temporary or permanent. The same should be reflected in FA calculation.	The proposed areas for various mine activities either temporary or permanent has been addressed in detail with nomenclature of the same in relevant plans and section and the same has been reflected in FA calculation.
STACKING OF MINERAL REJECT/ SUBGRADE AND DISPOSAL OF WASTE:		
14.	In conceptual planning the life of the mine, ultimate pit limits should be recalculated considering the end of the lease period only. Life of mine should be calculated considering the revised estimation of reserves and resources. Life of mines should be calculated over an lease area including both Block A and Block B.	In conceptual planning the life of the mine, ultimate pit limits has been recalculated considering the end of the lease period only. Life of mine has been calculated considering the revised estimation of reserves and resources of over lease area including both Block-A and Block- B.
15.	In para 4(a), only the existence of waste dump within the lease area, if any should be discussed. All the calculation of waste generation and its disposal should be done on insitu volume of waste. Further, in the table in page58, the breakup of waste used for backfilling the disturbed safety zone, storage and its utilization as proposed for road making should be furnished in tabulated format with respect to total insitu volume of waste generation necessary changes of insitu volume of waste generation and its disposal should be made in all relevant places in the document. In page 60, the dimension in terms of length, width and height of retaining wall and garland drain has not been mentioned.	There is no waste dump exists within the lease area. All the calculation of waste generation and its disposal has been done on insitu volume of waste. The table in page 60, the breakup of waste used for backfilling the disturbed safety zone, storage and its utilization as proposed for road making has been furnished in tabulated format with respect to total insitu volume of waste generation. Necessary changes of insitu volume of waste generation and its disposal has been done made in all relevant places in the document. In page 62 and 63, the dimension in terms of length, width and height of retaining wall and garland drain has been mentioned.

~~Dr. R. K. NAIK~~
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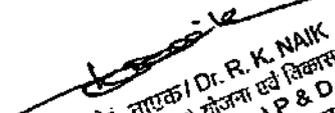
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16.	The proposal for dumping may be given in tabulated format as shown below; Further, Build-up of dumps from year to year to be mentioned in text w.r.t designed capacity of dumps, bottom and top mRL of individual terrace, dump slope, individual terrace height and slope with description of method & manner of disposal of waste should be mentioned. The method of waste dumping should be in retreating manner. The year wise buildup of dump should be described.	The proposal for dumping has been given in table as per format. Build-up of dumps from year to year has been mentioned in text w.r.t designed capacity of dumps, bottom and top mRL of individual terrace, dump slope, individual terrace height and slope with description of method & manner of disposal of waste at page no. 60, 61 & 62. The year wise buildup of dump has been described.						
		Year	Waste to be dumped (in m3)	Dump No	Location of dumping (Coordinates)	Proposed area (m2)	proposed dumpin g mRL	No of terrace propos ed
PROCESSING OF ROM AND MINERAL REJECTS:								
17.	In para6(b), material balance chart with a flow sheet or schematic diagram of the processing procedure indicating feed, product, recovery, and its grade at each stage of processing has not been furnished. Need to provide the same.	In para6(b), material balance chart with a flow sheet or schematic diagram of the processing procedure indicating feed, product, recovery, and its grade at each stage of processing has been furnished.						
OTHERS:								
18.	In para 7(b), employment of mining engineer and geologist as per provision of rule 55 of MCDR 2017 has not been mentioned. Further, status of existing and proposed statutory personnel should be mentioned. Need to do necessary correction.	In para 7(b), employment of mining engineer and geologist as per provision of rule 55 of MCDR 2017 has been mentioned. Status of existing and proposed statutory personnel has been mentioned at page no. 70 and 71.						
PROGRESSIVE MINE CLOSURE PLAN:								
19.	In the tables for the year wise proposal the dimension of retaining wall and garland drain in terms of length, width, height depth for construction and maintenance in subsequent years have not been mentioned. Further, total numbers of samplings to be planted have not been furnished.	In the tables for the year wise proposal the dimension of retaining wall and garland drain in terms of length, width, height depth for construction and maintenance in subsequent years have been mentioned. Total numbers of samplings to be planted have been given in the table.						
20.	The existing road in block A has not been shown in the plan. The same should be shown and its area should be calculated under "road". Accordingly, net area considered for FA calculation should be rechecked and corrected. The additional amount of bank guarantee need to be submitted.	The road was erroneously shown in the earlier map has been rectified as per fresh survey. There is no road passing through Block-A. Hence correction in net area consideration for FA calculation is not needed.						

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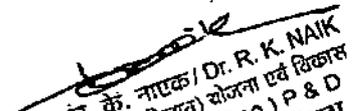
~~Peter Dang~~
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PLATES (GENERAL):		
1	KEY PLAN: The key plan should incorporate all features as mentioned in Rule 32 5(a) of MCDR 2017. The project site shown should be omitted from the plan. The mining lease area has not been shown in plan and its index. Need to do necessary action	All features as mentioned in Rule 32 5(a) of MCDR 2017 has been incorporated in the key plan. The project site shown has been omitted from the plan. The mining lease area has been shown in plan and its index.
2	SURFACE PLAN: The surface plan should be prepared to satisfy the provision as laid down rule 32(1) (a) of MCDR'2017. The road passing through Block A has not been shown in the plan.	The surface plan has been prepared to satisfy the provision as laid down rule 32(1) (a) of MCDR'2017. The freshly surveyed road has been shown in the map which is not passing through Block A.
	GEOLOGICAL PLAN AND SECTIONS: (i) The redefined UNFC boundaries and UPL to be shown in Geological plan and sections.	The redefined UNFC boundaries and UPL to have been shown in Geological plan and sections.
	ii) The index shown in plan has not been referred in its index and also there is mismatch in index.	The index shown in plan has been referred in its index and also there is proper match in index.
	iii) The road passing through block A has not been shown in the plan.	The road was erroneously shown in the earlier map has been rectified as per fresh survey. There is no road passing through Block-A.
	iv) The geological plan should be prepared to satisfy the provision as laid down rule 32(1) (b), (c) and (d) of MCDR'2017. Plan and section should be drawn in a same scale.	The geological plan has been prepared to satisfy the provision as laid down rule 32(1) (b), (c) and (d) of MCDR'2017. Plan and section has been drawn in a same scale.
	v) UNFC codes shown in the geological sections are incorrect	UNFC codes in the geological sections have been corrected.
	vi) Revised exploration proposal should be shown in plan and section.	Revised exploration proposal has been shown in plan and section.
vii) Plate No of Geological section does not match with the plate no shown in list of plates. Need to do necessary corrections.	Plate No of Geological section has been changed and accordingly matches with the plate no shown in list of plates.	
3	DEVELOPMENT PLAN & SECTIONS: (i) Individual year wise development plan and sections should be submitted.	Individual year wise development plan and sections has been submitted vide Plate No-XII.
4	ENVIRONMENT PLAN: The environment plan has not been prepare as per the provision laid down in rule 32(5) (b) of MCDR'2017.	The environment plan has been prepared and submitted as per the provision laid down in rule 32(5) (b) of MCDR'2017.
5	FINANCIAL ASSURANCE PLAN: The existing road in block A has not been shown in the plan. The same should be shown and its area should be calculated under heads "road". Accordingly, net area considered for FA calculation should be rechecked and corrected. The additional amount of bank guarantee need to be submitted.	The road was erroneously shown in the earlier map has been rectified as per fresh survey. There is no road passing through Block-A. Hence correction in net area consideration for FA calculation is not needed.
6	CONCEPTUAL PLAN AND SECTIONS: The index shown in plan and section does not match with its index. Need to rectify the same.	The index shown in the plan and section has been corrected to have a proper match.


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ANNEXURES:		
1	All the annexure to be properly numbered/ paged and relevant annexure to be signed by QP etc. It is observed that many of the annexures are not legible. A legible copy of same to be enclosed	All the annexure has been properly numbered/ paged and relevant annexure have been signed by QP. Legible copies have been enclosed.
2	Copies of financial assurance in form of bank guarantee have not been submitted.	Copies of financial assurance in form of bank guarantee have been submitted and annexed at XX.


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