

**INDIAN BUREAU OF MINES
MINERALS DEVELOPMENT AND REGULATION DIVISION
MCDR INSPECTION REPORT
BHUBANESWAR REGIONAL OFFICE**

General:

SL. No.	Particulars	Details
1	Name of the Mine	Nadidih Iron Mine
2	Date of inspection	14/12/2023
3	Name of inspecting officer	Prashant S Hegde, RMG
4	Name accompanying mine officials	S/Shri Abani Kumar Dash, Head statutory compliance & Geology, Vikil N. Kawale, Mines Manager cum Mining Engineer and other mine officials
5	Last date of Inspection & Officer	08/01/2023 Rajani Kanta Rautaray, AME
6	Total Lease Area (Ha) with breakup of Non-forest and forest land	74.50 Ha. (63.021 Ha Forest + 11.479 Ha Non-forest)
7	Minecode	30ORI13072
8	IBM Registration Number under rule 45 of MCDR, 2017	IBM/329/2011
9	Name of the lessee, Address, phone, email and fax number	M/s ESL STEEL LIMITED At-Siyaljori, PO-Jogidih PS-Chandankyari BOKARO, JHARKHAND-828303 Email ID: Navanath.Vhate@vedanta.co.in Phone No. 0674-2575702/9765565531
10	Village	NADIKASIRA & RENGALBEDA
11	Taluka/Mandal	KOIRA
12	District	SUNDARGARH
13	Pincode	770048
14	State	ODISHA
15	Post office	KOIRA
16	Nearest police station	KOIRA
17	Nearest Railway station	BARBIL
18	Date of Grant of Mining Lease	17.11.2021
19	Date of Execution	20.11.2021
20	Date of opening of Mine	26.11.2021
21	Date of expiry	19.11.2071
22	Name of the Nominated Owner with Address, phone, email, fax number and date of appointment	Shri Ashish Kumar Gupta M/s ESL Steel Limited Siyaljori, PO-Jogidih, OP-Bangaria Bokaro Steel City Jharkhand-828303 Email-id: Ashish.Gupta3@vedanta.co.in Phone No. 7763807222 Date of Appointment: 26.10.2023
23	Name of the Mine Agent with Address, phone, email, fax number and date of appointment	Shri Biswanath Sahoo Nadidihi Iron Ore Mine of M/s ESL Steel Limited Village- Nadidihi Taluka-Bonai P.O.-Koira

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		District-Sundargarh Odisha-770048 Email: Biswanath.Sahoo@vedanta.co.in Phone: 9049930239 Date of Appointment- 02.11.2023
24	Name of the Mines Manager with Address, mobile no, email, fax number and date of appointment in mine	Shri VIKIL N. KAWALE M/s. ESL Steel Limited, Siyaljori, PO-Jogidih, OP-Bangaria Bokaro steel city Jharkhand-828303 Email-Id: Vikil.Kawale@vedanta.co.in Phone: 9545505071 Date of Appointment- 01.12.2021
25	Name of the Mining Engineer , Qualification and total experience with Address, mobile no, email, fax/phone number and date of appointment in mine	Shri VIKIL N. KAWALE B.E. (Mining Engineering) Experience- 20 years M/s ESL Steel Limited, Siyaljori, PO-Jogidih, OP-Bangaria Bokaro steel city JHARKHAND-828303 Email-Id: Vikil.Kawale@vedanta.co.in Phone: 9545505071 Date of Appointment- 20.01.2022
26	Name of the Geologist , Qualification and total experience with Address, mobile no, email, fax number and date of appointment in mine	Shri Biswanath Sahoo M.Sc. (Geology) Experience- 17 years ESL Steel Limited, Siyaljori, PO-Jogidih, OP-Bangaria Bokaro steel city JHARKHAND-828303 Email Id: Biswanath.Sahoo@vedanta.co.in Phone: 9049930239 Date of Appointment- 20.01.2022
27	Date of Approval of Mining Plan/Review of Mining Plan/ their modifications with five-year period and specific condition in approval letter, if any.	Approved Mining Plan Letter No. BBS/SNG/IRON-MN/2167/MP/2022-23 dated 12/05/2022 for period 2021-22 to 2025-26
28	Mineral (s) granted in lease and proved for mining	Iron ore
29	Method of Mining(Opencast, Underground)	Opencast
30	Category (Fully Mechanised, Others or Manual)	Fully Mechanized
31	Captive/Non Captive	Non-Captive
32	Present EC Capacity	9 MTPA (8 MTPA of ROM Iron Ore and 1 MTPA of low-grade ore from old dump located within mine lease area.)

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OBSERVATIONS/COMMENTS OF INSPECTING OFFICER:**1)Exploration:---**

SL.No	Item	Proposals (FY 2022-23)	Actual work	Remarks
1a	Backlog of previous year	NIL	45 nos core boreholes drilled with 3896 total meterage during FY-23-23	_____
1b	Exploration over lease area for Geological axis 1 or 2.	NIL	Entire lease Area explored under G1 Level. 45 Nos. of Boreholes drilled in FY-2023 to increase the confidence level and ore body Interpretation. (Report is under progress)	G1: 74.50 Ha. Area proved as non-mineralized: 27.271 Ha.
1c	Exploration Agency & Expenditure in lakh Rupees during the year	NIL	Drilling Partner: M/s Maheshwari Mining Pvt. Ltd. Technical Partner: SRK Mining Services (India) Pvt. Ltd. Expenditure: 219.425 Lakhs.	_____
1d	Balance area to be explored to bring Geological axis in 1 or 2	NA	NIL; Entire lease Area already explored under G1 Level	_____
1e	Balance reserves as on 01.04.2023	NA	Iron Ore (+45 % Fe) reserves: 111: 16,910,222 tonnes	Based on approved MP dated 12/5/2022
1f:	General remarks of inspecting Officer on Geology, exploration etc.	The lease area is a part of Bamebari syncline on eastern limb of major Horse-shoe shaped Singhbhum-Bonai-Keonjhar iron ore belt/series. The litho-unit observed as follows: Ferruginous shale, Laterite, Iron ore, Manganiferous shale and BHJ/BHQ/BHC. Based on exploration data, the configuration of ore body as follows. Iron ore: 1051m X 709m X 60m (average Grade 60.26 % Fe)		

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	Entire lease Area already explored under G1 Level.
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2)Development:--

SL. No.	Item	Proposals (FY 2022-23)	Actual work	Remarks
2a	Location of development w.r.t. lease area	320546E to 321131 E 2429775 to 2430535 N (i.e. East pit and West Pit)	Broadly within the proposals.	NIL
2b	Separate benches in topsoil, overburden and mineral	Separate benches in overburden and minerals ; No top-soil generation; OB: one bench Mineral: 5 benches.	As per proposals	_____
2c	Stripping ratio or ore to OB ratio	1: 0.17	1: 0.24	Ratio in tonnes/m3 BD:2.5
2d	Quantity of topsoil generation in m3	No proposals	Nil	_____
2e	Quantity of overburden generation in m3	632,884 (Based In-situ-mining & supporting documents of approved MP)	734,574	+16 % deviation was informed to be for systematic development of benches as auctioned mine.
2f	General remarks of inspecting Officer on development of pit w.r.t. type of deposit etc	Developments of pits are being carried out as per approved MP dated 12/5/2022. It is an auctioned non-captive mine with 95.6 % Bid premium.		

3)Exploitation:--

SL.No.	Item	Proposals (FY 2022-23)	Actual work	Remarks
3a	Number of pits proposed for	Two pits (East Pit & West pit)	Two pits (East Pit & West pit)	Dimensions: West Pit: 510mX359mX8 1m

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	production			East pit: 412mX387mX6 6m
3b	Quantity of ROM mineral production proposed	3,615,876 Tonnes	3,043,480 Tonnes	_____
3c	Recovery of salable/usable mineral from ROM production	71% (2,567,272 Tonnes)	73% (2,224,131 Tonnes)	_____
3d	Quantity of mineral reject generation	1,048,604 Tonnes	819,349 Tonnes	_____
3e	Grade of mineral reject generation and threshold value declared	MR: 45 to 55 % Fe	MR: 45 to 55 % Fe	Threshold value of Iron Ore : +45 % Fe
3f	Quantity of sub-grade mineral generation	Same as para 3d		Sub-grade mineral/ mineral reject are being stacked separately & utilized by blending based on market demand.
3g	Grade of sub-grade mineral generation	Same as para 3e		
3h	Manual / Mechanised method adopted for segregating from ROM	Mechanized	Mechanized	-----
3i	Any analysis or beneficiation study proposed & carried out for sub-	Nil	NIL	_____

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	grade mineral and reject																							
3j	Provision of drilling & blasting in mineral benches	Drilling and blasting using the wagon drill in Hard rocks only (which comprises about 5 -10% of total handling)	As per proposals.	Drilling with 110 mm diameter & Blasting done by using the Class-II type Power gel explosives.																				
3k	Provision of mining machineries in mineral benches	Yes, mining by Excavators & Dumpers Combination.	As per proposals.	_____																				
3l	Whether height of benches in overburden and mineral suitable for method of mining proposed in MP/SOM	9m bench height with 10 to 12 m width	As per proposals.	_____																				
3m	Total area covered under excavation/ pits	34.49 Ha	34.049 Ha	_____																				
3n	Ore to OB ratio for the pit/mine during the year	1: 0.17	1: 0.24	Ratio in tonnes/m ³ BD:2.5																				
3o	Total area put in use under different heads at the end of year	<table border="1"> <thead> <tr> <th>Particulars</th> <th>Total Area(Ha) at the end of FY</th> </tr> </thead> <tbody> <tr> <td>Area under Mining</td> <td>34.49</td> </tr> <tr> <td>Overburden/ Waste dumping</td> <td>14.21</td> </tr> <tr> <td>Mineral Storage</td> <td>9.30</td> </tr> <tr> <td>Area Occupied Infrastructure, plants, buildings , roads etc</td> <td>2.35</td> </tr> </tbody> </table>	Particulars	Total Area(Ha) at the end of FY	Area under Mining	34.49	Overburden/ Waste dumping	14.21	Mineral Storage	9.30	Area Occupied Infrastructure, plants, buildings , roads etc	2.35	<table border="1"> <thead> <tr> <th>Particulars</th> <th>Total Area(Ha) at the end of FY 2022-23</th> </tr> </thead> <tbody> <tr> <td>Area under Mining</td> <td>34.049</td> </tr> <tr> <td>Overburden/ Waste dumping</td> <td>14.047</td> </tr> <tr> <td>Mineral Storage</td> <td>9.289</td> </tr> <tr> <td>Area Occupied Infrastructure, plants, buildings , roads etc</td> <td>2.35</td> </tr> </tbody> </table>	Particulars	Total Area(Ha) at the end of FY 2022-23	Area under Mining	34.049	Overburden/ Waste dumping	14.047	Mineral Storage	9.289	Area Occupied Infrastructure, plants, buildings , roads etc	2.35	_____
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3p	Production of ROM	2021-22: Vesting order dated 22/10/2021	2021-22: 273,206	Unit: In tonnes;																				

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	mineral during last five-years period, as applicable	(Auction mine of ML expired on 31/3/2020) 2022-23: 3,615,876	2022-23: 3,043,480	Date of opening of mine on 26.11.2021
3q	General remarks of inspecting Officer on method of mining etc		Open-cast fully mechinsed mining method is being carried as per approved MP.	

4)Solid Waste Management-Dumping:--

SL.No	Item	Proposals (FY 2022-23)	Actual work	Remarks
4a	Separate dumping of topsoil, OB & mineral reject	No Topsoil ; OB waste dumping separately	As per proposals.	_____
4b	Location of topsoil, OB & mineral reject dumps	OB: 320600 E to 320900 E 2430700 N to 2430870 N Proposed Stack/Stockpile (Mineral Reject): 320523 E to 320323 E 2430700 N to 2430510 N	Broadly as per the proposals.	_____
4c	Number of dumps within lease area and outside lease area	One dump within the lease area.	One dump within the lease area.	_____
4d	Location of dumps w.r.t. ultimate pit limit	Outside of UPL (North-Eastern part of ML)	As per the proposals.	_____
4e	Number of active & alive dumps	One active dump only.	One active dump only.	_____

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4f	Number of dead dumps	NIL	NIL	_____
4g	Number of dumps stabilised	NIL	NIL	_____
4h	Whether Retaining wall or garland drain all along dumps are there	Yes; Retaining wall or garland drain all along dump	Constructed Retaining wall or garland drains all along dump were well maintained.	_____
4i	Length of Retaining wall or garland drain all along dump	Maintenance of existing 108 m retaining wall & 97m garland drain around dump.	Well maintained as per the proposals.	_____
4j	Number of settling ponds	Nil	Maintenance of Existing Settling Ponds	_____
4k	Specific comments of inspecting Officer on waste dump management	Overburden wastes and mineral reject management are being carried out as per the approved proposals.		

5)Solid Waste Management-Backfilling:--

SL.No	Item	Proposals (FY 2022-23)	Actual work	Remarks
5a	Status on part or full extraction of mineral from mined out area before starting backfilling	No such proposals.	NIL	_____
5b	Area under backfilling of mined out area	NA	NIL	_____
5c	Concurrent use of topsoil for restoration or rehabilitation of mined out area	NA	NIL	_____
5d	Total area fully reclaimed & rehabilitated	NA	NIL	_____
5e	General remarks of inspecting Officer on backfilling and reclamation etc	Existing pits were not matured by backfilling as ore/mineral not exhausted.		

6) Progressive Mine Closure Plan:---

SL.N.	Item	Proposals (FY 2022-23)	Actual work	Remarks
6a	Whether Annual report on PMCP submitted on time and correctly - Rule 26(2). (Hard copy same provided)	Before 1 st July 2023	Submitted on time	NIL
6b	Management of worked/ mined out benches/dumps i) Area available for rehabilitation (ha) ii) Afforestation done (ha) iii) No. of saplings planted during the year iv) Cumulative no. of plants v) Any other specific method of rehabilitation vi) Cost incurred on watch & care during the year	i) Nil ii) Nil iii) Nil iv) NA v) Plantation vi) NA	i) Nil ii) 1.47 Ha iii) 1,000 nos iv) 3,400 nos v) Plantation vi) 4.48 lakhs	1000 nos saplings planted over Gap Filling of dump slopes during year 22-23.
6c	Compliance on reclamation and rehabilitation by backfilling i) Voids available for backfilling (L X B X D) ii) Void filled by waste/tailings iii) Afforestation on the backfilled area iv) Rehabilitation by making water reservoir v) Any other specific means	i) NIL ii) NIL iii) NIL iv) NIL v) NIL	i) NIL ii) NIL iii) NIL iv) NIL v) NIL	No reclamation and rehabilitation by backfilling proposals.
6d	Compliance of Rehabilitation of waste land within lease i) Afforestation ii) Area rehabilitated (ha) iii) Method of rehabilitation	i) NIL ii) Nil iii) Nil	i) NIL ii) Nil iii) Nil	NIL
6e	Compliance of Environmental monitoring (core zone & buffer zone)	Environmental monitoring in Core zone and buffer zone will	Environmental monitoring in Core zone and buffer zone was carried out	NIL

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		be as per MOEF and SPCB guidelines.	as per the proposals and parameters are within the limit.	
6f	General remarks of inspecting Officer on PMCP compliance & progressive closure operation etc	Lessee has implementing PMCP proposals as per approved MP.		

7)Mineral Conservation:---

SL.No	Item	Proposals ((FY 2022-23)	Actual work	Remarks
7a	ROM Mineral dispatch or grade-wise sorting within lease area	Grade wise sorting to Fines & CLO by crushing and screening within lease area.	As per proposals	NIL
7b	Method of grade-wise mineral sorting i.e. manual or mechanical	Mechanical	Mechanical	NIL
7c	Different grade of mineral sorted out at mines	Iron Ore of different size (Fines & CLO) and Grade wise sorting and dispatched (Fine Iron Grade range- 51-below 55% Fe, 55-below 58% Fe, 58-below 60% Fe, 60-below 62% Fe & 62-below 65% Fe) and CLO	As per proposals	NIL
7d	Any beneficiation process at mines	None Except dry crushing & screening and wet rotary scrubber.	As per proposals.	NIL
7e	General remarks of inspecting Officer on mineral conservation & beneficiation issues	Grade-wise sorting to fines/CLO & dispatches of ore/mineral as per the proposals and there is no mineral conservation issue.		

8)Environment:--

SL.No.	Item	Proposals (FY 2022-23)	Actual work	Remarks
8a	Separate removal and utilization of topsoil	No such proposals.	Nil	---
8b	Concurrent use or storage of topsoil	No such proposals.	Nil	Nil
8c	Separate dumps for overburden, waste rock, rejects and fines	Separate dumping of OB wastes & mineral rejects proposed	Carried out as per approved proposals.	Mineral rejects stored in proposed stack/Stockpile area /

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				blended with Ore having grade > 55 % Fe as per Market demand.
8d	Use of overburden, waste rock, rejects and fines dumps for restoring the land to its original use	No such proposals	NIL	Nil
8e	Phased restoration, reclamation and rehabilitation of lands affected by mining operations (Pits, dumps etc)	No such proposals	NIL	Nil
8f	Baseline information on existence of plantation & additional plantation done	No such proposals during FY 22-23.	1000 nos saplings planted in 1.47 Ha area during year 22-23 with cumulative 3,400 nos of saplings.	_____
8g	Survival rate	NA	70 %	_____
8h	Water sprinkling on roads to control airborne dust	Regular sprinkling of water on Haul roads, crushing & screening plant site and dump location etc using Water tanker to suppress the dust.	Carried out as per the proposals.	_____
8i	General remarks of inspecting Officer on aesthetic beauty in & around mines area.	Aesthetic beauty in & around mines area is good as lessee implementing the PMCP proposal and carried out plantation as per the proposals.		

9) Compliance of Rule 45

SL.No.	Item	COMMENTS		Remarks.
9a	Status of submission of Monthly and Annual returns	Regularly submitting the MRs/ARs on-time. Earlier, lessee had already deposited Rs 20000/-- on 23/10/23 for delay in submission of MR Aug-23.		Nil
S.N.	Item	Details GIVEN in A.R.	Actual in field	_____
9b	Scrutiny of Annual return for information on Mining Engineer,	Mining Engineer Cum Manager: Shri VIKIL N. KAWALE Geologist: Shri Biswanath	Actual also the same.	_____

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	Geologist and Manager	Sahoo																				
9c	Scrutiny of Annual return on land use pattern for area under pits, reclaimed area, dumps etc.	(1) Covered under current (O/C) Workings- 34.049 Ha (2) Used for Waste Disposal- 14.047 Ha (3) Occupied by plant, buildings, residential, welfare, buildings and roads- 2.35 Ha (4) Other Purpose (including Mineral Storage)- 24.054 Ha	Actual also as per AR.	_____																		
9d	Scrutiny of Annual return on afforestation	1,000 nos	Actual also as per AR	_____																		
9e	Scrutiny of Annual return on mineral reject generation (Grade & quantity)	During year-22-23 <table border="1"> <tr> <td>Iron Unprocessed Ore (45-55 % Fe)</td> <td>819,349 tonnes</td> </tr> <tr> <td>Iron Processed Ore (45-55 % Fe)</td> <td>23,040 tonnes</td> </tr> </table>	Iron Unprocessed Ore (45-55 % Fe)	819,349 tonnes	Iron Processed Ore (45-55 % Fe)	23,040 tonnes	Actual also as per AR and being utilized by blending as per Market demand.	_____														
Iron Unprocessed Ore (45-55 % Fe)	819,349 tonnes																					
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9f	Scrutiny of Annual return on ROM stock and/or graded ore	As on 31.03.2023 tonnes Stock Iron ROM: 9,86,932 t <table border="1"> <tr> <th colspan="2">Fines closing stock in tonnes</th> </tr> <tr> <td>51%- below 55 % Fe</td> <td>6,150</td> </tr> <tr> <td>55%- below 58%Fe</td> <td>1,30,550</td> </tr> <tr> <td>58%- below 60%Fe</td> <td>13,206</td> </tr> <tr> <td>60%- below 62%</td> <td>1,19,914</td> </tr> <tr> <td>62%- below 65%Fe</td> <td>24,702</td> </tr> <tr> <th colspan="2">CLO stock in tonnes</th> </tr> <tr> <td><62% Fe (clo any size)</td> <td>1,47,012</td> </tr> <tr> <td>62%- below 65% Fe (5-18 mm)</td> <td>43</td> </tr> </table>	Fines closing stock in tonnes		51%- below 55 % Fe	6,150	55%- below 58%Fe	1,30,550	58%- below 60%Fe	13,206	60%- below 62%	1,19,914	62%- below 65%Fe	24,702	CLO stock in tonnes		<62% Fe (clo any size)	1,47,012	62%- below 65% Fe (5-18 mm)	43	Appear to be correct.	_____
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9g	Scrutiny of Annual return on sale value, Ex. Mine price & production cost	Cost of production: Rs-3961.21 per tonne; Ex-mine price: <table border="1"> <tr> <th colspan="2">Ex-mine Price of Iron ore Fines in Rs per tonne</th> </tr> <tr> <td>51%- below 55% Fe</td> <td>1132.59</td> </tr> <tr> <td>55%- below 58%Fe</td> <td>2856.98</td> </tr> <tr> <td>58%- below 60%Fe</td> <td>2281.14</td> </tr> <tr> <td>60%- below 62%Fe</td> <td>3325.6</td> </tr> </table>	Ex-mine Price of Iron ore Fines in Rs per tonne		51%- below 55% Fe	1132.59	55%- below 58%Fe	2856.98	58%- below 60%Fe	2281.14	60%- below 62%Fe	3325.6	Cost of Production and ex-mine price of some of grade range of ore were not matching.	V/L issued on 28/12/23.								
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		62%- below 65%Fe	3613.87		
		Ex-mine Price for CLO in Rs per tonne			
		<62% Fe (clo any size)	5055.48		
		62%-65% Fe (5-18 mm)	6289.33		
		Ex-mine Lumps iron ore in Rs per tonne: 58 % to below 60 %Fe: 4730.14 60 to below 62 % Fe: 6398.31			
9i	Scrutiny of Annual return on fixed assets	Fixed Value of Assets: Rs 258,22,26,017		Appear to be correct	_____
9k	Scrutiny of Annual return on mining machineries	Back Hoe: 9 nos; Blast Hole Drill: 1 nos; Wheel Loader:7 nos; Dumpers (100 T):2 nos ; Tippers: 27 nos; Water tanker: 2 nos; Crusher: 1nos; Generator: 10 nos; Dozer: 3 nos Motor Grader: 1 nos.		Observed to be correct.	_____

(10) Violation observed during current inspection and compliance position of earlier violation pointed out:

(a) Compliance position of earlier violation pointed out: No serious violation pointed out during earlier last inspection dated 8/1/23.

(b) During current inspection: The violation of Rule 45(7) of MCDR 2017 has been observed and the violation letter issued on 28/12/23.

(11) On-line validation of star rating of templates submitted under rule 35 (FY-2022-23) has been made on 22/12/23 for four star at RO level.

(12) The lessee was submitted DAI/drone survey data under rule 34A for FY 22-23 on 28/6/2023.

Date: 29/12/2023

(Prashant S. Hegde)
Regional Mining Geologist