# F. No. J-11011/281/2006-IA. II(I)

Government of India

Ministry of Environment, Forest and Climate Change

(Impact Assessment Division)

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Dated:

10th February, 2020

To

Shri. BNS. Prakash Rao, Senior Vice President, M/s. JSW Steel Limited, Pottaneri, Mecheri Salem Works, Mettur, Salem. Tamil Nadu - 636453 Tel: 04298-272272; E-mail: d.ravichandar@jsw.in

Subject: Installation of 0.8 MTPA slag grinding unit and new facilities related to value addition and technological upgradation within the existing 1.3 MTPA Integrated Steel Plant premises by M/s JSW Steel Limited located at village Pottaneri & M.Kalipatti, Mecheri, Taluk Mettur, District Salem, Tamil Nadu -Environmental Clearance under para 7(ii) of the EIA Notification, 2006 regarding.

- 1. This refers to the online application of M/s JSW Steel Limited made vide proposal no. IA/TN/IND/104947/2019 dated 11/11/2019 along with copy of EIA/EMP report and Form – 2 seeking Environmental Clearance (EC) under the provisions of para 7(ii) of EIA Notification, 2006 for the project mentioned above. The proposed project activity is listed at Sl. No. 3(a) Metallurgical Industries (Ferrous and Non-ferrous) under Category "A" EIA Notification, 2006 and the project is appraised at the Central level.
- 2. The aforesaid proposal was considered in the 13th meeting of the Reconstituted Expert Appraisal Committee meeting held during 27-29th November, 2019. The EAC proceedings of the proposal is given as below:

Details submitted by the project proponent

3. The project of M/s. JSW Steel Works located in M. Kallipatti and Pottaneri Village, Mettur Tehsil, Salem District, Tamil Nadu was granted environment clearance for the expansion of crude steel capacity from 1.0 to 1.3 MTPA. and additional captive power plant of 1 x 30 MW vide letter No. J-11011/281/2006-IA. II (I) dated 07.07.2017. The Expansion project activities are scheduled in phased manner. At present Phase-I activities of the project are completed and CTO obtained on 25.06.19 for 1.15 MTPA steel production and 97 MW Captive power generation. Balance expansion activities are scheduled in phase II.



Environmental Clearance for the project titled "Installation of 0.8 MTPA slag grinding unit and new facilities related to value addition and technological upgradation within the existing 1.3 MTPA Integrated Steel Plant premises by M/s JSW Steel Limited located at Mecheri, Taluk Mettur, District Salem, Tamil Nadu". Page 1 of 23

4. The implementation status of 1.3 MTPA existing EC are given in the table below:

S. No	Manufacturing Units	Capacit y at 1.0 MTPA	Proposed Expansio n 1.0 to 1.3 MTPA	Total Capacity after Expansion	Implementation Status
1	Coke Oven Plant -1(Non– Recovery Type)	0.50	-	0.5	In operation
2	Sinter Plant – 1 (20 Square Meter)	0.175	-	0	In operation
3	Sinter Plant – 2 (90 Square Meter)	1.06		1.06	In operation
4	Sinter Plant – 3 (90 Square Meter)	•	1.06	1.06	Yet to be installed
5	Blast Furnace – 1 (402 to 650 Cubic Meter)	0.367	0.316	0.683	Yet to be installed
6	Blast Furnace – 2 (550 to 650 Cubic Meter)	0.578	0.105	0.683	In operation
7	Energy Optimizing Furnace – 1	0.41	0.23	0.64	In operation
8	Energy Optimizing Furnace – 2	0.62	-	0.62	In operation
9	Ladle Furnace-1 with Common VD	45 T/heat	20 T/heat	65 T/heat	In operation
10	Ladle Furnace -2	65	-	65 T/heat	In operation
11	Ladle Furnace- 3 common VD	65 T/heat	_	65 T/heat	In operation
12	Ladle Furnace- 4	65	-	65 T/heat	In operation
13	Continuous Casting Machine-1	0.35	-	0.35	In operation
14	Continuous Casting Machine - 2	0.50	-	0.50	In operation
15	Continuous Casting Machine - 3	-	0.45	0.45	In operation
16	Bar & Rod Mill Augmentation	0.4	0.08	0.48	In operation
17	Blooming Mill	0.36	0.12	0.48	In operation
18	Pickling and Annealing Steel unit	-	0.06	0.06	Annealing unit is in operation. Pickling plant
19	Peeled and ground		0.04	0.04	0.01 MTPA in operation. 0.03 MTPA
20	Air Separation Plant 1	150 T/day	-	150 T/day	In operation
21	Air Separation Plant 2	390 T/day	-	390 T/day	In operation

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S. No	Manufacturing Units	Capacit y at 1.0 MTPA	Proposed Expansio n 1.0 to 1.3 MTPA	Total Capacity after Expansion	Implementation Status
22	Air Separation Plant 3	-	250 T/day	250 T/day	Yet to be installed
23	Captive Power Plant 1	7 MW	•	7 MW	In operation
24	Captive Power Plant - 2	2 x 30 MW	-	2 x 30 MW	In operation
25	Captive Power Plant - 3	0	1 x 30 MW	1 x 30 MW	In operation

- 5. An amendment in the existing environmental clearance (EC) of 1.3 MTPA was requested for installation of 0.8 MTPA slag grinding unit and other few technological upgradation of existing facilities. The proposal was appraised in the 36th meeting of the reconstituted EAC (Industry-I) held on 9/10/2018 and ToR was prescribed on 09.11.2018. Thereafter, amendment to the ToR was requested to include few balancing and modification facilities in the existing ToR. The proposal was considered in the 6th meeting of the reconstituted EAC (Industry-I) held during on 30/04/2019 and MoEF&CC issued amendment to the existing ToR to include the proposed facilities vide letter dated 27/06/2019. Further, the Committee also recommended that the decision to consider the instant proposal under para 7(ii) (a) will be based on findings of the EIA report to be submitted to the Ministry by the project proponent. Thereafter, EAC will consider the proposal in its meeting exercising due diligence, inter-alia, and also ascertain the need for conduct of a fresh public consultation by the project proponent.
  - 6. Based on the ToRs prescribed for the project, JSWSL has submitted an application for grant of environmental clearance under clause 7 (ii) of the EIA notification 2006 to the Ministry vide online application no. IA/TN/IND/104947/2019 dated 11.11.2019.
  - 7. The proposed project is for value addition, modification in the existing facilities for emission reduction and balancing facilities without increasing the production capacity of 1.3 MTPA steel.
  - 8. The modification envisaged in the existing EC dated 7/7/2017 and the details of the value added facilities envisaged are given as below:

Modifications envisaged in the existing EC dated 7/7/2017

Manufacturing Facilities	Existing Capacity	Proposed Expansion for which EC has been issued	Total Capacity after Expansion	Modification
Coke Oven Plant -1 (Non – Recovery Type)	0.50	issueu	0.5	The existing weakened 80m RCC chimney of Battery 1, is being replaced with

Environmental Clearance for the project titled "Installation of 0.8 MTPA slag grinding unit and new facilities related to value addition and technological upgradation within the existing 1.3 MTPA Integrated Steel Plant premises by M/s JSW Steel Limited located at Mecheri, Taluk Mettur, District Salem, Tamil Nadu". Page 3 of 23

Manufacturing Facilities	Existing Capacity	Proposed Expansion for which EC has been issued	Total Capacity after Expansion	Modification	
				two nos. of MS refractory lined chimney of 75m height.	
Sinter Plant – 2 (90 Square Meter)	1.06	naiste dann	1.06	Waste heat utilization:	
Sinter Plant – 3 (90 SquareMeter)		1.06	1.06	About 6,00,000 m³/hr of hot air (275°C) planned to be diverted from sinter cooler of SP 2 & 3 to GGBS grinding unit to recover the sensible heat which is presently vented into atmosphere.  Emission reduction: At present, Sinter machine-2 waste gas stack is operating at an average of 110 mg/Nm³ of SPM as against the norm of 150 mg/Nm³, which is planned to be revamped to meet 50 mg/Nm³ as an voluntary APC measures.	
Blast Furnace – 1 (402 to 650 Cubic Meter) – Hot Metal	0.367	0.316	0.683	It is proposed to install 0.8 MTPA slag grinding unit to produce Ground	
Blast Furnace – 2 (550 to 650 Cubic Meter) – Hot Metal	0.578	0.105	0.683	Granulated Blast furnace Slag (GGBS) as a value added facility.	
Ladle Furnace - 1 with Common VD (45 T to 65 T)	45 T/heat	20 T/heat	65 T/heat	The existing primary de-dusting system of LRF 1 (38000 m³/hr) has been taken to common secondary	



Manufacturing Facilities	Existing Capacity	Proposed Expansion for which EC has been issued	Total Capacity after Expansion	Modification
		Issaeu		de-dusting system of LRF's which is having designed capacity of 5,50,000 m <sup>3</sup> /hr but working at 4,00,000 m <sup>3</sup> /hr.  The existing LRF-1 primary de-dusting stack of 30m height became redundant and planned to be used for CCM-3 billet grinding (surface preparation) fume extraction.
Ladle Furnace – 5 (65 T with VD)	-	-	65 T/heat (New)	Additional facility planned now. Since JSW Salem is producing special steels, the per heat process time increased from 30 min to 105 min due to vacuum degassing. Hence additional LRF-5 is envisaged.
Continuous Casting Machine - 1	0.35	_	0.35	Additional stacks Since, CCM-2 i provided with aut
Continuous Casting Machine -2	0.5	-	0.5	cutter fume extraction system with stack, it is planned to provide the same facility to CCM-& 3 APC measures. The height of the chimney will be 20m. In addition, grindin fume extraction facilities will be provided with bag filters for CCM to 3 with stack height of 30m.
Continuous Casting Machine - 3	-	0.45	0.45	
Pickling and Annealing Steel	-	0.06	0.06	A wet scrubber envisaged to scrub t

Environmental Clearance for the project titled "Installation of 0.8 MTPA slag grinding unit and new facilities related to value addition and technological upgradation within the existing 1.3 MTPA Integrated Steel Plant premises by M/s JSW Steel Limited located at Mecheri, Taluk Mettur, District Salem, Tamil Nadu".

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Manufacturing Facilities	Existing Capacity	Proposed Expansion for which EC has been issued	Total Capacity after Expansion	Modification
unit				acid fumes generated from the acid bath as APC measures.  Three hot water generators are envisaged to meet the following process requirement to minimize fresh acid consumption and to ensure ZLD in the proposed ETP.  To maintain the acid temperature of 55° in the pickling bath.  To maintain the treated spent acid temp. of 55° for reuse.  To supply hot water to thermal fluidic system of evaporator for ETP to ensure ZLD
Captive Power Plant 2 (2 x 30 MW)	2X30 MW	-	2X30 MW	One coal-based boiler installed in the year 2006 with a capacity of 127 TPH is operating at emission concentration of SPM, SO <sub>2</sub> & NOx with 70, 1000 and 600 mg/Nm <sup>3</sup> respectively. This unit has been planned to be upgraded, to meet the revised emission standard as per CPCB letter dated 16.04.2018 of 50, 600 and 300 mg/Nm <sup>3</sup> respectively.
Captive Power Plant 3 (1 x 30)	-	30 MW	30 MW	The total capacity of 30MW remains unaltered. Since, COP capacity remains same there is no additional waste gas is expected.

Environmental Clearance for the project titled "Installation of 0.8 MTPA slag grinding unit and new facilities related to value addition and technological upgradation within the existing 1.3 MTPA Integrated Steel Plant premises by M/s JSW Steel Limited located at Mecheri, Taluk Mettur, District Salem, Tamil Nadu".

Manufacturing Facilities	Existing Capacity	Proposed Expansion for which EC has been issued	Total Capacity after Expansion	Modification
				The additional BF gas as expected due to expansion is planned to be diverted to SMS (VD Boilers) and various shops.
DG sets	3x625 KVA	1x1250 KVA	3x625 KVA and 1x1250 KVA	2x1250 KVA 1x1750 KVA 3x275 KVA 1x650 KVA 1x400 KVA The above DG sets are envisaged to meet the emergency conditions of plant black our requirements.

# Installation of value added facilities

S.No.	Name of the unit	Production capacity envisaged	Purpose
i.	Paver block making facility	25000 Nos. of paver block/day	The utilization of the stee slag has been a major challenge in all integrated steel plants. Our R&D has successfully developed a technology for using stee slag in the manufacture of paver blocks. The study has established production paver blocks a 30% lower costs than with natural aggregates with lower use of cement and use of stee slag.  It is proposed to install paver block making facility for 25000 Nos. of paver block/day for demonstration purposes. It is intended with its installation, entrepreneut will utilize this to supp good quality pavers for use

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S.No	. Name of the unit	Production ca envisage		Purpose
				construction purposes.
ii.	Etching Lab	Nil		PP is receiving requests from their customers of special steels for the results of mace structure of steel products assess its internal soundness. In order to carry out this test the test samples of 25 mit thick will be collected from 160 to 310 mm round, 130 to 340/400 square and rectangly of bar products. The samples are to be immersed in hydrochloric acid in a tank of 100-liter volume for preparing the sample for further testing. It is proposed to install a acid fume extraction system to improve the work area for the laboratory personnel.
iii.	SMS slag crushing plant	Crushing unit o	f 50	It is proposed to install crushing unit of 50 TPI Capacity with suitable ai pollution control facilities fo crushing and separation o iron bearing material from slag.
iv.	Batching plant	Batching plant of m <sup>3</sup> /hr capacity		The construction activity for the expansion units in the 1.3 MTPA steel plant expansion is under progress. For this purpose, it is proposed to install a batching plant within the steel works with suitable air pollution control facilities for catering to the ready mix

S.No.	Name of the unit	Production capacity envisaged	Purpose
			concrete for construction
v.	Coke oven plant	Installation of bag filter with associated equipment to capture the coke dust emission	Existing Coke oven, fugitive emissions are observed while transporting coke in the conveyors (width: 1200mm) whenever it is in operation. In order to control this visible emission, it is proposed to install a bag filter with associated equipment to capture the coke dust emission
vi.	Coke Oven Plant	Coke Oven Stack 2A (COP)	Coke Oven battery # 2 existing 80m RCC chimney is found weakened, will be
vii.	Coke Oven Plant	Coke Oven Stack 2B (COP)	replaced with two nos. of MS refractory lined chimney of 75m height.
viii.	Coke Oven Plant	Coke oven # III chimney	To maintain and control draft at ovens the existing stack height of 38m will be increased to 65m.
ix.	Coke Oven Plant	Waste Heat Recovery Boiler# III	It is envisaged that additional sensible heat source from COP battery # 3 and to meet the requirement the existing stack dia and height will be modified to 1.8m and 35m respectively.
x.	SMS – CCM# 3	Steam Exhaust System stack #2	To maintain draft in the casting area an additional steam exhaust stack will be provided with the height of 26m
xi.	Pickling plant ETP	Hot water generator to ATFD	It is anticipated that Agitated Thin Film Drier (ATFD) will be installed after evaporator of ETP. To supply heat source to ATFD a Hot water generator (HSD based) will be installed

Environmental Clearance for the project titled "Installation of 0.8 MTPA slag grinding unit and new facilities related to value addition and technological upgradation within the existing 1.3 MTPA Integrated Steel Plant premises by M/s JSW Steel Limited located at Mecheri, Taluk Mettur, District Salem, Tamil Nadu".

S.No.	Name of the unit	Production capacity envisaged	Purpose		
xii.	Pickling plant ETP	ETP plant ATFD vent	It is anticipated that there is a vent stack to release water vapor from ATFD.		
xiii.	CPP II	ETP plant ATFD vent	It is proposed to install a ETP (ZLD) plant in CPP II and steam will be used for heating application. It is anticipated that there is a vent stack to release water vapor from ATFD.		

- 9. The certified compliance report for the existing environmental clearance was obtained from Regional office, Chennai vide letter No. EP/12.1/2016-17/20/TN/1687 dated 18.10.2019 wherein the conditions related to installation of solar panel, implementation of ESC related activities are yet to be complied. In this regard, project proponent has submitted action taken report for the conditions which are partially completed vide letter JSWSL/ENVT/MoEF&CC/ROC/2019-20/112 dated 01.11.2019.
- 10. The total land available including township is 268.08 ha. The plant site is 237.28 ha and township area is 30.80 ha. The land has been classified as Industrial Land use. The land required for the proposed changes/facilities is about 5.36 ha and the same exists within the plant premises. Hence, no additional land is required for the proposed changes. The greenery is about 33.5% of the total land area. Geographically, the proposed plant is located at 11°49'30.00" N & 77°54'22.34" E to 11°48'44.80" N to 77°55'37.51" E. The entire area falls in Survey of India topo sheet nos. C43F13, C43F14 & C44A1, C44A2.
- 11. There are No National parks, Wildlife sanctuaries, Biosphere reserves, Tigers/Elephant reserves, Wildlife corridors etc. within 10 km from the project site. There is no water body passing through project site.
- 12. The raw materials used in the plant are Iron ore lumps and fines, Coking/Non-coking and thermal coals, Dolomite Quartzite, Dunite, Anthracite and lime stone. The requirement of raw materials remains the same as noted in the existing EC of 1.3 MTPA except the addition of 0.04 MTPA of lime stone for SO<sub>2</sub> control in coal based boiler.
- 13. An agreement already exists between PWD and JSW to utilize 5 MGD (22730 KLD) of raw water from downstream of Mettur dam. The total estimated water requirement after the modification and installation of value added facilities will be about 17727 KLD (3.9 MGD) against the existing consumption of 17007 KLD (3.74 MGD). The additional water requirement 0.16 MGD is mainly for the proposed LRF# 5. As per existing EC dated 7/7/2017, the estimated fresh water consumption is 4.45 MGD (20245 KLD). Due to the RO plant installation and Air Cooled Condenser installation in CPP II (Unit # 3), about 2500 KLD of fresh water consumption was reduced per day.

- 14. The power requirement of the proposed project is estimated as 11.5 MW, The existing Captive power plant of the industry have power generation capacity of 97 MW and power purchase agreement with TNEB is about 34 MW. After the proposed changes the total power requirement would be 101.5 MW which will be cater through CPP and TNEB grid.
- 15. Baseline Environmental Studies were conducted during winter season from December 1st 2018 to 28th February 2019. Ambient Air Quality Monitoring (AAQM) was carried out at eight (8) locations during December 2018 to February 2019 and the baseline data indicates the ranges of concentrations as PM<sub>10</sub> 54.71 to 70.98 μg/m³; SO<sub>2</sub> 9.55 to 14.68 μg/m³; NO<sub>2</sub> 19.63 to 27.53 μg/m³. AAQ modelling study emissions indicates that the maximum incremental GLCs after the proposed amendment is 4.17 μg/m³ with respect to PM<sub>10</sub>, 0.62 μg/m³ with respect to SO<sub>2</sub>, 0.38 μg/m³ with respect to NO<sub>2</sub>. The proposed technological upgradation and other facilities will lead to reduction in pollution load SPM by 11.8%, SO<sub>2</sub> by 4.33% & NO<sub>x</sub> by 8.14 %.
- 16. Ground water quality has been monitored at eight locations in the study area and analyzed. pH: 7.14 7.69, Total Hardness: 116.7 357.2 mg/l, Chlorides: 38.7 to 560.8 mg/l. Heavy metals are within the limits. Surface water samples were analyzed from 8 locations. Surface water samples were analyzed from 5 locations: pH: 6.52 7.56, Total Hardness: 126.0 216.2 mg/l, Chlorides: 32.4 to 85.3 mg/l. Heavy metals are within the limits.
- 17. Noise levels are in the range of 49.6 to 55.2 dB(A) for day time and 38.7 to 51.4 dB(A) for night time.
- 18. With the installation of the proposed facilities, there will be an additional waste generation from pollution control facilities viz dust about 3 TPD and will be reused in sinter plant. From pickling plant Phosphate Sludge about 0.27 TPD will be generated and the same will be used as fertilizer and also disposed to TSDF. Chemical Sludge/salt from the waste water treatment will be generated about 2.06 TPD and the same will be disposed to TSDF.
- 19. The Public hearing for the existing EC was held on 12.08.2016 as per the provisions laid down in the EIA Notification, 2006.
- 20. Total cost of the proposed modification and value addition facility is INR 234.2 crores. An allocation of Rs.13 Crores has been earmarked towards the implementation of CER related activities. The additional employment generation from the proposed project is about 50 nos.
- 21. Green belt is established in an area of 79.52 ha (33.50%)and further the green belt around the project will be developed (10000 saplings for the FY 2019-2020). Local and native tree species such as Mango, Neem, Eucalyptus, Ficus, Mahogany, Vagai, Teak, Puvarasu, Banyan, etc. are planted.
- 22. The resource requirement, pollution load comparison for the proposed modification vis-à-vis with existing EC dated 7/7/2017 is given as below.

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S.No	o. Description	UoM	At 1.3 MTPA as per Earlier EC	Installation of facilities proposed / modification	After EC modification and value added facilities	n Remarks	
1	Land Requirem						
a.	Total land	На	268.08	0	268.08	No change	
2	Raw materials I						
a.	Iron ore fines	MTPA	1.47	0	1.47	No change	
b.	Iron Ore Pellets	MTPA	0.5	0	0.5		
c.	Lump ore	МТРА	0.705	0	0.705		
d.	Coking/Non- coking coal	MTPA	0.947	0	0.947		
e.	Power plant coa	1 MTPA	0.172	0	0.172		
f.	Coke breeze for SP	MTPA	0.023	0	0.023		
g.	Dolomite	MTPA	0.147	0	0.147		
h.	Quartzite	MTPA	0.039	0	0.039		
i.	Dunite	MTPA	0.039	0	0.039		
j.	Lime powder	MTPA	0.0945	0	0.0945		
k.	Mill scale	MTPA	0.158	0	0.158		
1.	Purchase coke	МТРА	0.156	0	0.156		
m.	Anthracite	MTPA	0.095	0	0.095		
n.	Limestone	МТРА	0.135	0.04	0.175	To control SO <sub>2</sub> in CPP II coal based boiler	
	Total	MTPA	4.6805	0.04	4.7205		
	Power Requireme	ower Requirement					
	Power Requirement	MW	90	11.5		LRF #5, Slag grinding unit	
	Captive Power generation	MW	97	0	97		
		MW	34	0	34		
	Fotal power availability	MW	131	0	131		
F	uel Requiremen	t					

S.No.	. Description	UoM	At 1.3 MTPA as per Earlier EC	Installation of facilities proposed / modification	After EC modification and value added facilities	Remarks
a.	High Speed Diesel	KLD	1.7	1.6	3.3	Pickling plant and DG sets - emergency operations
b.	Liquid Petroleum Gas	TPD	1.0	0.015	1.015	
5	Water Requirem	ent				
a.	Approved water allocation	MGD (m³/day)	5.0 ( 22730 )	0	5.0 ( 22730 )	No Change
ь.	Make up water consumption	MGD (m³/day)	4.45 ( 20245 )	0.16 (720)	3.90 (17727)	LRF #5 with VD, Slag grinding unit. Water reduction due to installation of RO plant and Air Cooled Condenser in CPPII - unit III
6	Man power Requ	uirement				
a.	Man power Requirement	Numbers	5341	50	5391	For slag grinding unit
5	Waste water generation	m³/day	3040	235	3275	Additional effluent from RO 200 KLD,LRF#5 - 15 KLD and CPP II –unit III - 20 KLD. Zero waste water discharge by reuse in steel plant
6	Pollution load			25 2 8		D 1
	PM <sub>10</sub>	kg/hr	341.31	-40.34	300.97	Reduction in pollution
	SO <sub>2</sub>	kg/hr	280.53	-12.16	268.37	due to
	NO <sub>x</sub>	kg/hr	207.01	-16.86	190.15	Technologica Modification

Environmental Clearance for the project titled "Installation of 0.8 MTPA slag grinding unit and new facilities related to value addition and technological upgradation within the existing 1.3 MTPA Integrated Steel Plant premises by M/s JSW Steel Limited located at Mecheri, Taluk Mettur, District Salem, Tamil Nadu". Page 13 of 23

S.No.	Description	UoM	At 1.3 MTPA as per Earlier EC	Installation of facilities proposed / modification	After EC modification and value added facilities	Remarks
7	Waste generation					
	Non Hazardous					
	BF Slag	TPD	1350	0	1350	No change
	SMS slag	TPD	720	0	720	No change
	Dust, Sludge	TPD	197	2.66	199.66	Additional dust generation from dedusting systems which is proposed for modification. The same will be reused in sinter plant
	Hazardous	TPD	0.41	2.33	2.74	Additional generation from pickling unit-Phosphate sludge 0.27 TPD will be used as fertilizer and salt from ZLD ETP 2.06 TPD will be disposed to TSDF.

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- 23. The proponent has mentioned that there is no court case or violation under EIA Notification to the project or related activity.
- 24. Name of the consultant: Vimta Labs Limited [Sr. No. 160, List of Accredited Consultant Organizations (Alphabetically) Rev. 81, Nov., 2019].

### **Observations of the Committee**

25. The Committee noted that as per the findings of the EIA report, there is no change in land requirement and there is reduction in water requirement and pollution load due to the technological modification. Besides, the Committee also noted that the installation of value added facilities such as slag grinding unit and its allied facilities are environment friendly. Further, there will be no increase in the production capacity of 1.3 MTPA steel. Therefore, the Committee consider the instant proposal under para 7(ii) (a) of the EIA Notification, 2006 and dispense with the requirement of conducting fresh public consultation.

## Recommendations of the Committee

26. In view of the foregoing and after detailed deliberations, the committee recommended the project for grant of Environmental Clearance under para 7(ii) of EIA Notification, 2006 subject to the following specific conditions in addition to the applicable general conditions as per the Ministry's Office Memorandum No. 22-34/2018-III dated 9/8/2018 for integrated steel plants.

i. Particulate emission from the rod mill of slag grinding unit shall be less than 10 mg/Nm<sup>3</sup>.

ii. Green belt shall be developed in an area of 85 ha (210 acres) in and around the plant in a time frame of two years.

Decision of MoEF&CC

27. The Ministry of Environment, Forest and Climate Change (MoEF&CC) has considered the application based on the recommendations of the Expert Appraisal Committee (Industry-I) and hereby decided to accord environmental clearance for project cited above under para 7(ii) of the EIA Notification, 2006 subject to the following specific and applicable general conditions prescribed in the Ministry's Office Memorandum No. 22-34/2018-III dated 9/8/2018 for Integrated Steel Plants.

A. Specific Conditions

- i. Particulate emission from the rod mill of slag grinding unit shall be less than 10 mg/Nm<sup>3</sup>.
- ii. Green belt shall be developed in an area of 85 ha (210 acres) in and around the plant in a time frame of two years.

#### **B.** General conditions

I. Statutory compliance:

- i. The project proponent shall obtain Consent to Establish / Operate under the provisions of Air (Prevention & Control of Pollution) Act, 1981 and the Water (Prevention & Control of Pollution) Act, 1974 from the concerned State Pollution Control Board/ Committee.
- ii. The project proponent shall obtain the necessary permission from the Central Ground Water Authority, in case of drawl of ground water / from the competent authority concerned in case of drawl of surface water required for the project.
- iii. The project proponent shall obtain authorization under the Hazardous and other Waste Management Rules, 2016 as amended from time to time.

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II. Air quality monitoring and preservation

- i. The project proponent shall install 24x7 continuous emission monitoring system at process stacks to monitor stack emission with respect to standards prescribed in Environment (Protection) Rules 1986 vide G.S.R 277 (E) dated 31st March 2012(Integrated iron & Steel); G.S.R 414 (E) dated 30th May 2008 (Sponge Iron) as amended from time to time; S.O. 3305 (E) dated 7th December 2015 (Thermal Power Plants)as amended from time to time and connected to SPCB and CPCB online servers and calibrate these system from time to time according to equipment supplier specification through labs recognised under Environment (Protection) Act, 1986 or NABL accredited laboratories.
- ii. The project proponent shall monitor fugitive emissions in the plant premises at least once in every quarter through labs recognised under Environment (Protection) Act, 1986.
- iii. The project proponent shall install system to carryout Continuous Ambient Air Quality monitoring for common/criterion parameters relevant to the main pollutants released (e.g. PM10 and PM2.5 in reference to PM emission, and SO2 and NOx in reference to SO2 and NOx emissions) within and outside the plant area at least at four locations (one within and three outside the plant area at an angle of 120°each), covering upwind and downwind directions.
- iv. The cameras shall be installed at suitable locations for 24X7 recording of battery emissions on the both sides of coke oven batteries and videos shall be preserved for at least one-month recordings.
- v. Sampling facility at process stacks and at quenching towers shall be provided as per CPCB guidelines for manual monitoring of emissions.
- vi. The project proponent shall submit monthly summary report of continuous stack emission and air quality monitoring and results of manual stack monitoring and manual monitoring of air quality /fugitive emissions to Regional Office of MoEF&CC, Zonal office of CPCB and Regional Office of SPCB along with six-monthly monitoring report.
- vii. Appropriate Air Pollution Control (APC) system shall be provided for all the dust generating points including fugitive dust from all vulnerable sources, so as to comply prescribed stack emission and fugitive emission standards.
- viii. The project proponent shall provide leakage detection and mechanised bag cleaning facilities for better maintenance of bags.
- ix. Secondary emission control system shall be provided at SMS Converters.
- x. Pollution control system in the steel plant shall be provided as per the CREP Guidelines of CPCB.
- xi. Sufficient number of mobile or stationery vacuum cleaners shall be provided to clean plant roads, shop floors, roofs, regularly.



- xii. Recycle and reuse iron ore fines, coal and coke fines, lime fines and such other fines collected in the pollution control devices and vacuum cleaning devices in the process after briquetting/ agglomeration.
- xiii. The project proponent use leak proof trucks/dumpers carrying coal and other raw materials and cover them with tarpaulin.
- xiv. Facilities for spillage collection shall be provided for coal and coke on wharf of coke oven batteries (Chain conveyors, land based industrial vacuum cleaning facility).
- xv. Land-based APC system shall be installed to control coke pushing emissions.
- xvi. Monitor CO, HC and O<sub>2</sub> in flue gases of the coke oven battery to detect combustion efficiency and cross leakages in the combustion chamber.
- xvii. Vapour absorption system shall be provided in place of vapour compression system for cooling of coke oven gas in case of recovery type coke ovens.
- xviii. In case concentrated ammonia liquor is incinerated, adopt high temperature incineration to destroy Dioxins and Furans. Suitable NOx control facility shall be provided to meet the prescribed standards.
  - xix. The coke oven gas shall be subjected to desulphurization if the sulphur content in the coal exceeds 1%.
  - xx. Wind shelter fence and chemical spraying shall be provided on the raw material stock piles.
  - xxi. Design the ventilation system for adequate air changes as per ACGIH document for all tunnels, motor houses, Oil Cellars.
- xxii. The project proponent shall install Dry Gas Cleaning Plant with bag filter for Blast Furnace and SMS converter.
- xxiii. Dry quenching (CDQ) system shall be installed along with power generation facility from waste heat recovery from hot coke

# III. Water quality monitoring and preservation

i. The project proponent shall install 24x7 continuous effluent monitoring system with respect to standards prescribed in Environment (Protection) Rules 1986 vide G.S.R 277 (E) dated 31st March 2012 (Integrated iron & Steel); G.S.R 414 (E) dated 30th May 2008 (Sponge Iron) as amended from time to time; S.O. 3305 (E) dated 7th December 2015 (Thermal Power Plants) as amended from time to time and connected to SPCB and CPCB online servers and calibrate these system from time to time according to equipment supplier specification through labs recognised under Environment (Protection) Act, 1986 or NABL accredited laboratories. The project proponent shall monitor

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Environmental Clearance for the project titled "Installation of 0.8 MTPA slag grinding unit and new facilities related to value addition and technological upgradation within the existing 1.3 MTPA Integrated Steel Plant premises by M/s JSW Steel Limited located at Mecheri, Taluk Mettur, District Salem, Tamil Nadu".

Page 17 of 23

regularly ground water quality at least twice a year (pre and post monsoon) at sufficient numbers of piezometers/sampling wells in the plant and adjacent areas through labs recognised under Environment (Protection) Act, 1986 and NABL accredited laboratories.

- ii. The project proponent shall submit monthly summary report of continuous effluent monitoring and results of manual effluent testing and manual monitoring of ground water quality to Regional Office of MoEF&CC, Zonal office of CPCB and Regional Office of SPCB along with six-monthly monitoring report.
- iii. The project proponent shall provide the ETP for coke oven and by-product to meet the standards prescribed in G.S.R 277 (E) dated 31st March 2012 (Integrated iron & Steel); G.S.R 414 (E) dated 30th May 2008 (Sponge Iron) as amended from time to time; S.O. 3305 (E) dated 7th December 2015 (Thermal Power Plants) as amended from time to time as amended from time to time.
- iv. Adhere to 'Zero Liquid Discharge'.
- v. Sewage Treatment Plant shall be provided for treatment of domestic wastewater to meet the prescribed standards.
- vi. Garland drains and collection pits shall be provided for each stock pile to arrest the run-off in the event of heavy rains and to check the water pollution due to surface run off.
- vii. Tyre washing facilities shall be provided at the entrance of the plant gates.
- viii. CO<sub>2</sub> injection shall be provided in GCP of SMS to reduce pH in circulating water to ensure optimal recycling of treated water for converter gas cleaning.
- ix. The project proponent shall practice rainwater harvesting to maximum possible extent.
- x. Treated water from ETP of COBP shall not be used for coke quenching.
- xi. Water meters shall be provided at the inlet to all unit processes in the steel plants.
- xii. The project proponent shall make efforts to minimize water consumption in the steel plant complex by segregation of used water, practicing cascade use and by recycling treated water.

# IV. Noise monitoring and prevention

 Noise level survey shall be carried as per the prescribed guidelines and report in this regard shall be submitted to Regional Officer of the Ministry as a part of six-monthly compliance report.



The ambient noise levels should conform to the standards prescribed under ii. E(P)A Rules, 1986 viz. 75 dB(A) during day time and 70 dB(A) during night time.

**Energy Conservation measures** V.

- The project proponent shall provide TRTs to recover energy from top gases of i. Blast Furnaces.
- Coke Dry Quenching (CDQ) shall be provided for coke quenching for both ii. recovery and non-recovery type coke ovens.
- Waste heat shall be recovered from Sinter Plants coolers and Sinter Machines. iii.
- Use torpedo ladle for hot metal transfer as far as possible. If ladles not used, iv. provide covers for open top ladles.
- Use hot charging of slabs and billets/blooms as far as possible. v.
- Waste heat recovery systems shall be provided in all units where the flue gas vi. or process gas exceeds 300°C.
- Explore feasibility to install WHRS at Waste Gases from BF stoves; Sinter vii. Machine; Sinter Cooler, and all reheating furnaces and if feasible shall be installed.
- Restrict Gas flaring to < 1%. viii.
- Provide solar power generation on roof tops of buildings, for solar light ix. system for all common areas, street lights, parking around project area and maintain the same regularly;
- Provide LED lights in their offices and residential areas. X.
- Ensure installation of regenerative type burners on all reheating furnaces. xi.

Waste management VI.

- An attrition grinding unit to improve the bulk density of BF granulated slag from 1.0 to 1.5 Kg/l shall be installed to use slag as river sand in construction industry.
- In case of Non-Recovery coke ovens, the gas main carrying hot flue gases to ii. the boiler, shall be insulated to conserve heat and to maximise heat recovery.
- Tar Sludge and waste oil shall be blended with coal charged in coke ovens iii. (applicable only to recovery type coke ovens).
- Carbon recovery plant to recover the elemental carbon present in GCP slurries iv. for use in Sinter plant shall be installed.

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- v. Waste recycling Plant shall be installed to recover scrap, metallic and flux for recycling to sinter plant and SMS.
- vi. Used refractories shall be recycled as far as possible.
- vii. SMS slag after metal recovery in waste recycling facility shall be conditioned and used for road making, railway track ballast and other applications. The project proponent shall install a waste recycling facility to recover metallic and flux for recycle to sinter plant. The project proponent shall establish linkage for 100% reuse of rejects from Waste Recycling Plant.
- viii. 100% utilization of fly ash shall be ensured. All the fly ash shall be provided to cement and brick manufacturers for further utilization and Memorandum of Understanding in this regard shall be submitted to the Ministry's Regional Office.
- ix. Oil Collection pits shall be provided in oil cellars to collect and reuse/recycle spilled oil. Oil collection trays shall be provided under coils on saddles in cold rolled coil storage area.
- x. The waste oil, grease and other hazardous waste like acidic sludge from pickling, galvanising, chrome plating mills etc. shall be disposed of as per the Hazardous & Other waste (Management & Transboundary Movement) Rules, 2016. Coal tar sludge / decanter shall be recycled to coke ovens.
- xi. Kitchen waste shall be composted or converted to biogas for further use.

### VII. Green Belt

- i. Green belt shall be developed in an area equal to 33% of the plant area with a native tree species in accordance with CPCB guidelines. The greenbelt shall inter alia cover the entire periphery of the plant
- ii. The project proponent shall prepare GHG emissions inventory for the plant and shall submit the programme for reduction of the same including carbon sequestration including plantation.

### VIII. Public hearing and Human health issues

- i. Emergency preparedness plan based on the Hazard identification and Risk Assessment (HIRA) and Disaster Management Plan shall be implemented.
- ii. The project proponent shall carry out heat stress analysis for the workmen who work in high temperature work zone and provide Personal Protection Equipment (PPE) as per the norms of Factory Act.
- iii. Provision shall be made for the housing of construction labour within the site with all necessary infrastructure and facilities such as fuel for cooking, mobile toilets, mobile STP, safe drinking water, medical health care, crèche etc. The housing may be in the form of temporary structures to be removed after the completion of the project.



Occupational health surveillance of the workers shall be done on a regular iv. basis and records maintained as per the Factories Act.

Corporate Environment Responsibility IX.

- The project proponent shall comply with the provisions contained in this Ministry's OM vide F.No. 22-65/2017-IA.III dated 1st May 2018, as applicable, regarding Corporate Environment Responsibility.
- The company shall have a well laid down environmental policy duly approve ii. by the Board of Directors. The environmental policy should prescribe for standard operating procedures to have proper checks and balances and to bring into focus any infringements/deviation/violation of the environmental / forest / wildlife norms / conditions. The company shall have defined system of reporting infringements / deviation / violation of the environmental / forest / wildlife norms / conditions and / or shareholders' / stake holders. The copy of the board resolution in this regard shall be submitted to the MoEF&CC as a part of six-monthly report.
- A separate Environmental Cell both at the project and company head quarter iii. level, with qualified personnel shall be set up under the control of senior Executive, who will directly to the head of the organization.
- Action plan for implementing EMP and environmental conditions along with iv. responsibility matrix of the company shall be prepared and shall be duly approved by competent authority. The year wise funds earmarked for environmental protection measures shall be kept in separate account and not to be diverted for any other purpose. Year wise progress of implementation of action plan shall be reported to the Ministry/Regional Office along with the Six Monthly Compliance Report.
- Self-environmental audit shall be conducted annually. Every three years third party environmental audit shall be carried out.
- All the recommendations made in the Charter on Corporate Responsibility for vi. Environment Protection (CREP) for the Iron and Steel plants shall be implemented.

#### Miscellaneous X.

- The project proponent shall make public the environmental clearance granted for their project along with the environmental conditions and safeguards at their cost by prominently advertising it at least in two local newspapers of the District or State, of which one shall be in the vernacular language within seven days and in addition this shall also be displayed in the project proponent's website permanently.
- The copies of the environmental clearance shall be submitted by the project proponents to the Heads of local bodies, Panchayats and Municipal Bodies in addition to the relevant offices of the Government who in turn has to display the same for 30 days from the date of receipt.

Environmental Clearance for the project titled "Installation of 0.8 MTPA slag grinding unit and new facilities related to value addition and technological upgradation within the existing 1.3 MTPA Integrated Steel Plant premises by M/s JSW Steel Limited located at Mecheri, Taluk Mettur, District Salem, Tamil Nadu". Page 21 of 23

- iii. The project proponent shall upload the status of compliance of the stipulated environment clearance conditions, including results of monitored data on their website and update the same on half-yearly basis.
- iv. The project proponent shall monitor the criteria pollutants level namely; PM<sub>10</sub>, SO<sub>2</sub>, NOx (ambient levels as well as stack emissions) or critical sectoral parameters, indicated for the projects and display the same at a convenient location for disclosure to the public and put on the website of the company.
- v. The project proponent shall submit six-monthly reports on the status of the compliance of the stipulated environmental conditions on the website of the ministry of Environment, Forest and Climate Change at environment clearance portal.
- vi. The project proponent shall submit the environmental statement for each financial year in Form-V to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently and put on the website of the company.
- vii. The project proponent shall inform the Regional Office as well as the Ministry, the date of financial closure and final approval of the project by the concerned authorities, commencing the land development work and start of production operation by the project.
- viii. The project authorities must strictly adhere to the stipulations made by the State Pollution Control Board and the State Government.
- ix. The project proponent shall abide by all the commitments and recommendations made in the EIA/EMP report, commitment made during Public Hearing and also that during their presentation to the Expert Appraisal Committee.
- x. No further expansion or modifications in the plant shall be carried out without prior approval of the Ministry of Environment, Forests and Climate Change (MoEF&CC).
- xi. Concealing factual data or submission of false/fabricated data may result in revocation of this environmental clearance and attract action under the provisions of Environment (Protection) Act, 1986.
- xii. The Ministry may revoke or suspend the clearance, if implementation of any of the above conditions is not satisfactory.
- xiii. The Ministry reserves the right to stipulate additional conditions if found necessary. The Company in a time bound manner shall implement these conditions.



- xiv. The Regional Office of this Ministry shall monitor compliance of the stipulated conditions. The project authorities should extend full cooperation to the officer (s) of the Regional Office by furnishing the requisite data / information/monitoring reports.
- xv. The above conditions shall be enforced, inter-alia under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, the Air (Prevention & Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986, Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016 and the Public Liability Insurance Act, 1991 along with their amendments and Rules and any other orders passed by the Hon'ble Supreme Court of India / High Courts and any other Court of Law relating to the subject matter.
- xvi. Any appeal against this EC shall lie with the National Green Tribunal, if preferred, within a period of 30 days as prescribed under Section 16 of the National Green Tribunal Act, 2010.
- 28. The project proponent shall obtain fresh environmental clearance in case of change in scope of the project if any.
- 29. This issues with the approval of Competent Authority.

Yours faithfully,

(A.K. Agrawal) Director

#### Copy to:-

- i. The Secretary, Department of Environment, Government of Tamil Nadu Secretariat, Chennai.
- ii. The Dy. Director General (C), Ministry of Environment, Forest and Climate Change, Regional Office (SEZ), Ist and IInd Floor, Handloom Export Promotion Council, 34, Cathedral Garden Road, Nungambakkam, Chennai 34.
- iii. The Chairman, Central Pollution Control Board, Parivesh Bhawan, CBD-Cum-Office Complex, East Arjun Nagar, New Delhi-110 032.
- The Chairman, Tamil Nadu Pollution Control Board, 76, Mount Salai, Guindy, Chennai-600 032, Tamil Nadu.
- v. The Member Secretary, Central Ground Water Authority, West Block –II, Wing -3, Sector I, R.K.Puram, New Delhi 110086.
- vi. The District Collector, District, Salem, Government of Tamil Nadu.
- vii. Guard File/Record File/Monitoring File.

viii. MoEF&CC Website

(A.K. Agrawal) Director