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Ref. No: SMAL/EHS/REC/07

27-01-18

To
The Additional Principal chief conservator of Forest,
Ministry of Environment Forest and Climate Change,
Regional Office (SEZ),
1st and 11nd floor, Handloom Export Promotion Council,
34, Cathedral Garden Road, Nungambakkam,
Chennai – 34

Sub : Submission of Half yearly Compliance report of Environment Clearance- Reg

Ref : Environmental clearance Letter No. F.No. J11011/164/2009 IA.II (I) Dt. 26.11.2009 &
subsequent amendment dt 04.05.2010

Dear sir,

Please find enclosed herewith our 13^h Half Yearly compliance report (July'2017 to Dec '2017) as per the stipulated condition imposed in Environment Clearance (EC). We are also enclosing herewith Environment Monitoring Analysis report as per the condition no. XIV imposed in EC.

Thanking you with regards.

For Sarda Metals & Alloys Ltd.

A handwritten signature in black ink, appearing to read "Rajendra Vohra".

Authorized Signatory

Copy to:

1. The Regional Officer, Andhra Pradesh Pollution Control Board, Flat No.11, Shivaji colony, Pradeep Nagar, Vizianagram, A.P
2. The Member Secretary, Andhra Pradesh Pollution Control Board, Paryavaran Bhavan, A-3, Industrial Estate, Sanath Nagar, Hyderabad- 500018, Andhra Pradesh

Compliances for the Conditions Imposed as Per Environmental Clearance Issued by MoEF Letter no.- F. No. J-11011/164/2009-IA.II(I), Dt. 26.11.2009 and subsequent amendment on Dt. 04.05.2010 for M/s. Sarda Metals & Alloys Ltd., APIIC Industrial Area, At village- Kantakapalli, Mandal- Kothavalasa, Dist.- Vizianagaram, Andhra Pradesh.

A. SPECIFIC CONDITIONS

S. No.	Conditions	Compliances
1	Efforts shall be made to reduce RSPM levels in the ambient air and a time bound action plan shall be submitted. On-line ambient air quality monitoring and continuous stack monitoring facilities for all the stacks and sufficient air pollution control devices viz. Electrostatic precipitator (ESP), gas cleaning plant, multi-cyclone, bag filter, de-duster etc. shall be provided to keep the emission levels below 100 mg/Nm ³ . At no time, the emission level shall go beyond the prescribed standards. Interlocking facilities shall be provided so that process can be automatically stopped in case emission level exceeds the limit. Analysis reports shall be submitted to the Ministry's Regional Office at Bangalore, CPCB and APPCB.	Installed state of the art pollution control systems like ESP, Bag house, Dust extraction system, & dust suppression system to maintain ambient air quality. On line ambient air quality monitoring and stack monitoring devices are installed and connected to APPCB. Interlocking facilities has been provided for automatic shut down of the process in case of excess emission level. Analysis reports are attached. Online SO ₂ and NO _x monitoring system is installed for power plant and data is connected to CPCB server from 18.12.2018.
2	Hot gases from DRI kiln shall be passed through Dust Settling Chamber (DSC) to remove coarse solids and After Burning Chamber (ABC) to burn CO completely and used in waste heat recovery boiler (WHRB). The gas then shall be cleaned in ESP before leaving out into the atmosphere through ID fan and stack. Electrostatic precipitator (ESP) shall be provided to DRI plant, WHRB and ABC boilers to control air emissions within 100 mg/Nm ³ .	Presently not applicable; however shall be complied whenever required.
3	Electro static precipitator (ESP) to sinter plant; ESP/multi-cyclone bag filter, de-duster to pellet plant; ESP and bag filter to power plant and DRI plant shall be provided to control air emissions within 100 mg/Nm ³ . Bag filter and de-duster to coke oven plant; dust extraction system with bag filters to blast furnace stock house, ferro alloys plant and ladle furnace; gas cleaning plant and bag filter to blast furnace; fume extraction system with cyclone to Induction furnace and heat recuperator shall be provided to rolling mill. The flue gas from rolling mill shall be discharged into the atmosphere through stacks of adequate height. Stacks of adequate height shall also be provided to all the concerned plants for effective dispersion of emissions into the atmosphere.	Provided ESP for power plant and bag house for ferro alloys plant to control air emissions within 100 mg/Nm ³ . Provided adequate height of 120mts for CPP 80MW stack and 65mts for 2x33 MVA Ferro Furnace stack

Rajendra Vohra

4	Dry coke quenching method shall be adopted in the proposed coke oven plant as per the commitment submitted.	Presently not applicable; however shall be complied whenever required.
5	All the standards prescribed for the coke oven plants vide notification no. GSR 46 (E) dated 3 rd February, 2006 shall be followed as per the latest guidelines. Proper and full utilization of coke oven gases in power plant using waste heat recovery steam generators shall be ensured and no flue gases shall be discharged into the air.	Will be complied with as per standards, whenever required.
6	Gaseous emission levels including secondary fugitive emissions from all the sources shall be controlled within the latest permissible limits issued by the Ministry and regularly monitored. Guidelines / Code of Practice issued by the CPCB shall be followed. The emission standards issued by the Ministry in May, 2008 for the sponge plants shall be followed.	120mt height stack for power plant & 65mts height stack for FAD provided as per CPCB guidelines. An enclosed coal shed provided and close plantation done to control secondary emissions from coal stock pile. Presently not applicable however the emission standard for sponge plant will be followed whenever required.
7	Vehicular pollution due to transportation of raw material and finished product shall be controlled. Proper arrangements shall also be made to control dust emissions during loading and unloading of the raw material and finished product.	Only validity P.U.C certificate vehicles are allowed inside the plant premises. Dust suppression system is being used during loading and unloading of raw material and finished product
8	In-plant control measures for checking fugitive emissions from all the vulnerable sources shall be provided. Dust suppression system with spray nozzles shall be provided to raw material handling area and material transfer points. Cyclones, bag filters, venturi scrubber shall be provided to transfer points to control fugitive emissions. Fume extraction and dry de-dusting system with bag filters shall be provided at the screening stations of ore, coke and other raw material handling areas to control fugitive emissions. Dust suppression system shall be provided in unloading areas. All internal roads shall be asphalted to prevent the fugitive dust emissions. Further, specific measures like water sprinkling around the stockpiles shall be done to control fugitive emissions.	Dust suppression with spray nozzle system has been installed for raw material unloading/handling area. Dust Extraction System (bag filters) is provided at transfer points. Furthermore to control fugitive dust emissions of internal roads, water sprinkling is used.
9	Total water requirement from Tatipudi reservoir shall not exceed 396 m ³ /hr. No ground water shall be used. Air cooled condenser shall be provided to reduce the water consumption. Acidic and Alkaline effluent from DM water plant shall be neutralized and reused in the plant through ash pond. All the effluent shall be treated	Water required from Tatipudi reservoir is being maintained within the stipulated limit of less than 396 m ³ /hr. No Ground water is being used. Provided Air cooled condenser and neutralizing pit. To ensure zero effluent discharge, neutralized pit

	and recycled in the re-circulating system or used for ash handling, dust suppression and green belt development. All the wastewater from process and domestic sources shall be treated and recycled and reused. No wastewater shall be discharged outside the premises and Zero effluent discharge shall be ensured.	water, cooling tower effluent and Domestic waste water being used for dust suppression & green belt development.
10	Prior permission for the drawl of 396 m ³ /hr water from Tatipudi reservoir from the concerned department shall be obtained and a copy of the permission letter shall be submitted to the Ministry and its Regional Office at Bangalore	At present, permission for supply of 1500 KL/day is obtained from the Greater Visakhapatnam Municipal Corporation for Phase-I production. Permission copy is already submitted with previous reports.
11	The water consumption shall not exceed 16 m ³ /Ton of Steel as per prescribed standard.	Presently not applicable and will be followed whenever required.
12	Ground water monitoring around the solid waste disposal site / secured landfill (SLF) shall be carried out regularly and report submitted to the Ministry's Regional Office at Bangalore, CPCB and APPCB.	Test report is attached.
13	No coal fines shall be imported as proposed. DRI Fines, coke breeze, sinter dust, GCP dust, blast furnace dust, SMS dust, scale, iron ore fines shall be used in sinter plant. Scrap from rolling mill shall be used as raw material in SMS. Char/dolochar shall be used in power plant / brick manufacturing plants. Manganese slag from ferro alloy plant shall be used as raw material for Silico-Manganese production. All the other solid wastes including broken refractory mass shall be properly disposed off in environment-friendly manner. Oily waste shall be provided to authorized recyclers/reprocessors.	Shall be complied with as per standards, whenever required Manganese slag from ferro alloy plant is being used as a raw material for Silico-Manganese production. Waste Oil is being disposed to authorized recyclers only.
14	AFBC Plant shall be installed before installation of sponge iron plant so that utilization of char in the AFBC boiler is ensured. All the char from DRI plant shall be utilized in AFBC boiler of power plant and no char shall be disposed off anywhere else. All the blast furnace (BF) slag shall be granulated and provided to cement manufacturers for further utilization. Sludge from STP shall be used as manure for green belt development.	Not Applicable; however shall be complied whenever required.
15	All type of slag shall be used for road making only after passing through Toxic Chemical Leachability Potential (TCLP) test. Otherwise, toxic waste shall be recovered from the slag and output waste shall be disposed in secured landfill as per CPCB guidelines. Spent oil shall be sold to APPCB authorized recyclers.	Being complied. Report is enclosed.

Rajendra Vams

16	Proper handling, storage, utilization and disposal of all the solid waste shall be ensured and regular report regarding toxic metal content in the waste material and its composition, end use of solid/hazardous waste shall be submitted to the Ministry's Regional Office at Bangalore, APPCB and CPCB.	Solid waste is being sold to brick manufacture. Test report attached for toxic metal content in waste.																																																								
17	A time bound action plan shall be submitted to reduce solid waste, its proper utilization and disposal.	<p>Solid waste is being sold to brick manufactures. At Present 100% of solid waste generated is sold to manufacture.</p> <table border="1" data-bbox="904 678 1303 1025"> <thead> <tr> <th colspan="4">Fly ash generation and utilization Data</th> </tr> <tr> <th rowspan="2">Fin. Yr</th> <th rowspan="2">Ash Gen in Ton</th> <th colspan="2">Utilization of flyash (%)</th> </tr> <tr> <th>Sold to brick manufacture</th> <th>In house land for reclamation</th> </tr> </thead> <tbody> <tr> <td>2013-14</td> <td>32662.08</td> <td>4.1</td> <td>95.9</td> </tr> <tr> <td>2014-15</td> <td>22733.22</td> <td>2.18</td> <td>97.82</td> </tr> <tr> <td>2015 -16</td> <td>21444.38</td> <td>38.02</td> <td>61.98</td> </tr> <tr> <td>2016-17</td> <td>14654.49</td> <td>83.4</td> <td>16.59</td> </tr> <tr> <td>2017-31.12.17</td> <td>14670</td> <td>75</td> <td>25</td> </tr> </tbody> </table> <table border="1" data-bbox="904 1055 1303 1444"> <thead> <tr> <th colspan="4">SiMn slag Gen and Utilization Data</th> </tr> <tr> <th rowspan="2">Fin. yr</th> <th rowspan="2">SiMn gen in Ton</th> <th colspan="2">Utilization of SiMn (%)</th> </tr> <tr> <th>Sold to brick manufacture</th> <th>In house land for reclamation</th> </tr> </thead> <tbody> <tr> <td>2014-15</td> <td>18287.41</td> <td>0</td> <td>100</td> </tr> <tr> <td>2015-16</td> <td>16466.01</td> <td>94.46</td> <td>Stock in hand</td> </tr> <tr> <td>2016-17</td> <td>68335.23</td> <td>72.51</td> <td>Stock in hand</td> </tr> <tr> <td>2017-31.12.17</td> <td>111343.78</td> <td>119.54</td> <td>21854 MT (stock in hand)</td> </tr> </tbody> </table>	Fly ash generation and utilization Data				Fin. Yr	Ash Gen in Ton	Utilization of flyash (%)		Sold to brick manufacture	In house land for reclamation	2013-14	32662.08	4.1	95.9	2014-15	22733.22	2.18	97.82	2015 -16	21444.38	38.02	61.98	2016-17	14654.49	83.4	16.59	2017-31.12.17	14670	75	25	SiMn slag Gen and Utilization Data				Fin. yr	SiMn gen in Ton	Utilization of SiMn (%)		Sold to brick manufacture	In house land for reclamation	2014-15	18287.41	0	100	2015-16	16466.01	94.46	Stock in hand	2016-17	68335.23	72.51	Stock in hand	2017-31.12.17	111343.78	119.54	21854 MT (stock in hand)
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18	Proper utilization of fly ash shall be ensured as per Fly Ash Notification, 1999 and subsequent amendment in 2003. All the fly ash shall be provided to cement and brick manufacturers for further utilization and Memorandum of Understanding shall be submitted to the Ministry's Regional Office at Bangalore.	<p>Shall be complied. Fly ash utilization plan as per under:</p> <table border="1" data-bbox="904 1514 1303 1664"> <thead> <tr> <th>Fin. yr</th> <th>Sold to brick Manufacture</th> <th>In house land for reclamation</th> </tr> </thead> <tbody> <tr> <td>2015-2016</td> <td>38.02</td> <td>61.98</td> </tr> <tr> <td>2016 - 2017</td> <td>65</td> <td>35</td> </tr> <tr> <td>2017 – 2018</td> <td>100</td> <td>-</td> </tr> </tbody> </table>	Fin. yr	Sold to brick Manufacture	In house land for reclamation	2015-2016	38.02	61.98	2016 - 2017	65	35	2017 – 2018	100	-																																												
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19	As proposed, green belt shall be developed in 92.72 acres (33 %) out of total 280.96 acres in and around the plant as per the CPCB guidelines in consultation with DFO.	Complied.
20	Proper rain water harvesting measures shall be adopted to make use of water within the plant premises for various activities including dust suppression and green belt development	Adopted rain water harvesting pond within the site
21	All the environment management measures given in the EIA/EMP shall be implemented and complied with.	Complied.
22	All the recommendations made in the Charter on Corporate Responsibility for Environment Protection (CREP) for the Steel Sector including Coke Oven Plants shall be implemented.	Shall be implemented whenever required/applicable
23	Permission and recommendations of the State Forest Department regarding impact of proposed plant on Adanapalem RF shall be obtained regarding likely impact of the proposed steel plant on the surrounding reserve forest and recommendations, if any, shall be implemented.	As per the Study report made by the Divisional Forest Officer, Vizianagaram & Principal Chief Conservator of Forests; it is concluded that there will be no impact on the nearby Forest blocks due the proposed SMAL Project. A copy of the NOC issued by PCCF, Hyderabad is already provided with previous report.
24	The company shall provide housing for construction labor 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.	Project completed. All temporary structures were removed

GENERAL CONDITIONS

S No.	Conditions	Compliances
1	The project authorities shall strictly adhere to the stipulations made by the Andhra Pradesh Pollution Control Board (APPCB).	Being complied
2	At no time, the emissions shall exceed the prescribed limits. In the event of failure of any pollution control system adopted by the unit, the unit shall be immediately put out of operation and shall not be restarted until the desired efficiency has been achieved.	Being complied

Rajendra Vohra

3	No further expansion or modifications in the plant shall be carried out without prior approval of the Ministry of Environment and Forests. In case of deviations or alterations in the project proposal from those submitted to this Ministry for clearance, a fresh reference shall be made to the Ministry to assess the adequacy of conditions imposed and to add additional environmental protection measures required, if any.	Noted
4	The gaseous emissions from various process units shall conform to the load/mass based standards notified by this Ministry on 19 th May, 1993 and standards prescribed from time to time. The APPCB may specify more stringent standards for the relevant parameters keeping in view the nature of the industry and its size and location. At no time, the emission level shall go beyond the prescribed standards. Interlocking facilities shall be provided so that process can be automatically stopped in case emission level exceeds the limit.	Maintaining standards prescribed by APPCB. Interlocking facility is being provided for process to automatically stop in case of emission level exceeds the limit.
5	The project authorities shall strictly comply with the rules and regulations under Manufacture, Storage and Import of Hazardous Chemicals Rules, 1989 as amended in October, 1994 and January, 2000. Authorization from the APPCB shall be obtained for collection, treatment, storage, and disposal of hazardous wastes.	Being complied
6	The project authorities must strictly comply with the rules and regulations with regard to handling and disposal of hazardous wastes in accordance with the Hazardous Wastes (Management and Handling) Rules, 2003. Authorization from the A. P. Pollution Control Board must be obtained for collection / treatment / storage / disposal of hazardous wastes.	Being complied
7	The overall noise levels in and around the plant area shall be kept well within the standards (85 dBA) by providing noise control measures including acoustic hoods, silencers, enclosures etc. on all sources of noise generation. The ambient noise levels shall conform to the standards prescribed under Environment (Protection) Act, 1986 Rules, 1989 viz. 75 dBA (day time) and 70 dBA (night time).	In and around the plant area noise levels are measured. Third party analysis reports are enclosed.
8	The company shall develop rain water harvesting structures to harvest the rain water for utilization in the lean season besides recharging the ground water table.	Developed.

9	Occupational Health Surveillance of the workers shall be done on a regular basis and records maintained as per the Factories Act.	Occupational Health Surveillance of the workers is being done and records are maintained.
10	A separate Environmental Management Cell equipped with full fledged laboratory facilities shall be set up to carry out the environmental management and monitoring functions.	Being complied
11	As proposed, Rs. 100.00 Crores and Rs. 5.00 Crores shall be earmarked towards capital cost and recurring cost/annum for environment pollution control measures shall be judiciously used to implement the conditions stipulated by the Ministry of Environment and Forests as well as the State Government. A time bound implementation schedule shall be submitted to the Ministry and its Regional Office at Bangalore to implement all the conditions stipulated herein. The funds so provided shall not be diverted for any other purpose.	Shall be complied.
12	A copy of clearance letter shall be sent by the proponent to concerned Panchayat, Zilla Parishad / Municipal Corporation, Urban Local Body and the local NGO, if any, from whom suggestions / representations, if any, were received while processing the proposal. The clearance letter shall also be put on the web site of the company by the proponent.	Copies have been sent and available at website: www.seml.co.in
13	The project proponent shall upload the status of compliance of the stipulated environment clearance conditions, including results of monitored data on their website and shall update the same periodically. It shall simultaneously be sent to the Regional Office of the MOEF at Bangalore, the respective Zonal Office of CPCB and the APPCB. The criteria pollutant levels namely; SPM, RSPM, SO ₂ , NO _x (ambient levels as well as stack emissions) or critical sectoral parameters, indicated for the projects shall be monitored and displayed at a convenient location near the main gate of the company in the public domain.	Being complied. Third party analysis reports are enclosed.
14	The project proponent shall also submit six monthly reports on the status of the compliance of the stipulated environmental conditions including results of monitored data (both in hard copies as well as by e-mail) to the Regional Office of MOEF, the respective Zonal Office of CPCB and the APPCB. The Regional Office of this Ministry at Bangalore / CPCB / APPCB shall monitor the stipulated conditions.	Being complied

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15	The environmental statement for each financial year ending 31 st March in Form-V as is mandated to be submitted by the project proponent to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently, shall also be put on the website of the company along with the status of compliance of environmental conditions and shall also be sent to the respective Regional Offices of the MOEF by e-mail.	Being complied
16	The Project Proponent shall inform the public that the project has been accorded environmental clearance by the Ministry and copies of the clearance letter are available with the APPCB and may also be seen at Website of the Ministry of Environment and Forests at http://envfor.nic.in . This shall be advertised within seven days from the date of issue of the clearance letter, at least in two local newspapers that are widely circulated in the region of which one shall be in the vernacular language of the locality concerned and a copy of the same should be forwarded to the Regional office.	Complied.
17	Project authorities 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 and the date of commencing the land development work.	Financial closures have been completed, term loans sanctioned by Bank/ FI and project has been completed.

Rajendra Kumar

Registered Office :

B-115, 116, 117 & 509, Annapoorna Block, Aditya Enclave, Ameerpet, Hyderabad - 530038.

Ph. : (O) 040-23748555 / 23748616, Fax : 040-23748666, Email : teamlabs@gmail.com

ISO 9001 : 2008, ISO 14001 : 2004 and OHSAS 18001 : 2007 Certified Organization

Laboratory Recognised by Ministry Environment, Forests and Climate Change, Gol, New Delhi

TEST REPORT

Test Report No.TLC/V/ENV/SMAL/ 02/1117

DT 09.12.2017

Description of Test: Stack Emissions Analysis

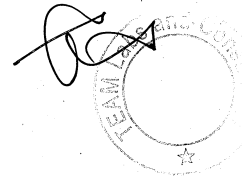
Name of the client: M/s Sarda Metals & Alloys Limited
Kothavalasa, Vizianagram

Location of sampling: As per details given

Parameter	Stack attached to FAD
Date of sampling/time	30.11.2017
Stack height(m)	65
Stack diameter (m)	4.0
Stack area (m) ²	12.57
Flue gas temp ⁰ c	157
Exit gas velocity (m/s)	7.08
Flue gas flow rateNM ³ /hr	222034
Emission Rates	
Dust concentration mg/NM ³	28

*Test Method:IS11255

For Team Labs and Consultants



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TEST REPORT

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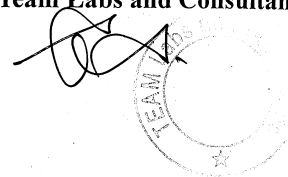
Name of the client: M/s Sarda Metals & Alloys Limited
Kothavalasa, Vizianagram

Location of sampling: As per details given

Parameter	Stack attached to CPP		
	29.11.2017 11.00 hrs	29.11.2017 15.30 hrs	30.11.2017 14.45 hrs
Stack height(m)	120	120	120
Stack diameter (m)	6.7	6.7	6.7
Stack area (m) ²	35.27	35.27	35.27
Flue gas temp ^o c	161	160	158
Exit gas velocity (m/s)	7.30	7.04	7.12
Flue gas flow rateNM ³ /hr	636440	615189	625068
Emission Rates			
Dust concentration mg/NM ³	20	21	25
SO ₂ mg/NM ³	160	170	165
NO _x mg/NM ³	290	305	310
Hg mg/NM ³	<0.01	<0.01	<0.01

*Test Method:IS11255

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TEST REPORT

Test Report No .TLC/V/ENV/SMAL/ 03/1117

DT09.12.2017

Description of test: Ambient Air Quality Monitoring

Name of the Industry: M/s Sarda Metals & Alloys Limited

Date of Sampling: 29.11.2017 to 30.11.2017

Location of industry: APIIC, Sarda Industrial Park , Kantakapalli,
Kothavalasa, Vizianagram

S.No.	Location	PM ₁₀	PM _{2.5}	SO ₂	NO _x
1	Near Security Gate	85	41	15.6	18.9
2	Beside Conveyor belt	88	44	16.9	19.5
3	Near ETP	78	31	13.8	16.6
	Protocol	IS5182 PART-23 -2006	Gravimetric, CPCB Manual page15-30	IS5182 PART-2 - 2001	IS5182 PART-6 -2004
	APPCB STANDARD	100	60	80	80

For Team Labs and Consultants



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TEST REPORT

Test Report No .TLC/V/ENV/SMAL/ 04/1117

DT09.12.2017

Description of test: **Drinking Water Analysis**Name of the Industry: **M/s Sarda Metals & Alloys Limited**Date of Sampling: **29.11.2017**Location of industry: **APIIC, Sarda Industrial Park , Kantakapalli,
Kothavalasa, Vizianagram**

No	Parameter	Test method	Drinking water	Acceptable limit as per IS10500-2012
1	Colour (Hazen Units)	IS:3025 Part 4-1983	5	5 Max.
2	Turbidity, NTU	IS:3025 Part 10-1984	0.8	1 Max.
3	pH	IS:3025 Part 11-1983	7.25	6.5 to 8.5
4	Total Dissolved Solids, mg/l	IS:3025 Part 16-1984	185	500 Max.
5	Aluminium as Al, mg/l	SM 3125	0.02	0.03max
6	Barium as Ba, mg/l	SM 3125	0.01	0.7max
7	Chlorides as Cl, mg/l	IS:3025 Part 32-1988	21	250 Max.
8	Copper as Cu, mg/l	SM 3125	<0.01	0.05 Max.
9	Fluoride as F, mg/l	SM 4500 F- D	0.5	1.0 Max.
10	Iron as Fe, mg/l	SM 3125	0.04	0.3 Max.
11	Magnesium as Mg, mg/l	IS:3025 Part 46-1994	9.72	30 Max.
12	Manganese as Mn, mg/l	SM 3125	0.01	0.1 Max.
13	Sulphate as SO ₄ , mg/l	IS:3025 Part 24-1986	32	200 Max.
14	Sulohide as H ₂ S, mg/l	IS 3025 (Part 29)	<0.01	0.005 max
15	Total Alkalinity as calcium carbonates, mg/l	IS:3025 Part 23-1986	40	200 Max.
16	Total Hardness as CaCO ₃ ,mg/l	IS:3025 Part 21-2009	120	200 Max.
17	Zinc as Zn, mg/l	SM 3125	0.03	5 Max.
18	Calcium as Ca, mg/l	IS:3025 Part 40-1991	32	75 max
19	Nitrate as NO ₃ , mg/l	SM 4500 NO3-B	1.2	45 max
20	Cadmium, mg/L	SM 3125	<0.001	0.003
21	Cyanide as CN, mg/L	SM 4500CN F	<0.01	0.05
22	Lead as Pb, mg/L	SM 3125	<0.01	0.01
23	Mercury as Hg, mg/L	EPA 200.8	<0.001	0.001
24	Nickel as Ni, mg/L	SM3125	<0.01	0.02
25	Total Arsenic as As, mg/L	SM 3125	<0.001	0.01
26	Total Chromium as Cr, mg/L	SM 3125	<0.01	0.05
27	Standard Plate Count at 37°C No of colonies/ml	IS 1622:1981	3	10
28	Total Coliform Bacteria at 37°C MPN/100 ml	IS 1622:1981	Nil	Nil

For Team Labs and Consultants

Registered Office :

B-115, 116, 117 & 509, Annapoorna Block, Aditya Enclave, Ameerpet, Hyderabad - 530038.

Ph. : (O) 040-23748555 / 23748616, Fax : 040-23748666, Email : teamlabs@gmail.com

ISO 9001 : 2008, ISO 14001 : 2004 and OHSAS 18001 : 2007 Certified Organization

Laboratory Recognised by Ministry Environment, Forests and Climate Change, GoI, New Delhi

TEST REPORT

Test Report No .TLC/V/ENV/SMAL/ 05/1117

DT09.12.2017

Description of test: STP Waste Water Analysis

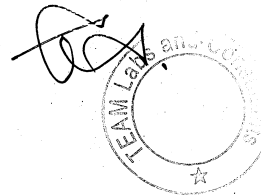
Name of the Industry: M/s Sarda Metals & Alloys Limited

Date of Sampling: 29.11.2017

Location of industry: APIIC, Sarda Industrial Park , Kantakapalli,
Kothavalasa, Vizianagram

S.No.	Parameter	STP Outlet	APPCB discharge standard	protocol
1	p ^H	7.35	6.5-8.5	IS:3025 Part 11-1983
2	TDS as mg/l	850	2100	IS:3025 Part 16-1984
3	TSS as mg/l	28	100	IS:3025 Part 17-1984
4	BOD as mg/l	20	30	IS:3025 Part 44-1993
5	COD as mg/l	105	250	IS:3025 Part 58-2006
6	Oil & Grease as mg/l	1.2	10.0	IS:3025 Part 39-1991

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TEST REPORT

Test Report No .TLC/V/ENV/SMAL/ 06/1117

DT09.12.2017

Description of test: Water Analysis

Name of the Industry: M/s Sarda Metals & Alloys Limited

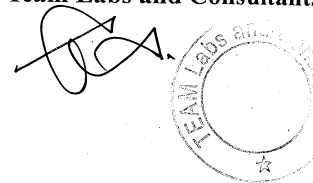
Date of Sampling: 29.11.2017

Source of collection: As per details given

Location of industry: APIIC, Sarda Industrial Park , Kantakapalli,
Kothavalasa, Vizianagram

S.No.	Parameter	FAD Cooling Tower	CPP Cooling Tower	Neutralization Pit	APPCB discharge standard	protocol
1	p ^H	8.5	8.45	8.05	6.5-8.5	IS:3025 Part 11-1983
2	TDS as mg/l	1915	825	1275	2100	IS:3025 Part 16-1984
3	TSS as mg/l	18	15	15	100	IS:3025 Part 17-1984
4	BOD as mg/l	10	9	5	30	IS:3025 Part 44-1993
5	COD as mg/l	70	62	25	250	IS:3025 Part 58-2006
6	Oil & Grease as mg/l	Nil	Nil	Nil	10.0	IS:3025 Part 39-1991

For Team Labs and Consultants



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TEST REPORT

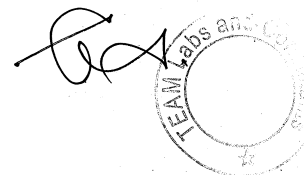
Test Report No.TLC/V/ENV/SMAL/ 07/1117

DT09.12.2017

Description of Test: Ambient Noise Level Monitoring**Name of the client:** M/s Sarda Metals & Alloys Limited
Kothavalasa, Vizianagram**Location of Monitoring:** As per details Given**Date of monitoring:** 29.11.2017

No	Location	Noise level dB(A)	
		Day	Night
1	Near Main gate	67.7	60.7
2	Near DM Plant .	59.5	52.7
3	Near Project office	68.5	62.9
4	Near Boiler Area	71.8	69.1
5	Near Store area	63.6	55.5
6	Canteen area	67.4	62.8
7	Near CHP Area	63.0	60.0
8	Furnace-1 area	73.5	69.2
9	Furnace-2 area	72.7	68.0
	CPCB Standard for Ambient Noise Levels	75	70

For Team Labs and Consultants



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TEST REPORT

Test Report No.TLC/V/ENV/SMAL/ 08/1117

DT09.12.2017

Description of Test: Stack Emissions Analysis

Name of the client: M/s Sarda Metals & Alloys Limited
Kothavalasa, Vizianagram

Location of sampling: As per details given

Parameter	Stack attached to DGI 250KVA	Stack attached to DGII 250KVA	CPCB Standard g/kWh
Date of sampling/time	29.11.2017	29.11.2017	
Stack height(m)	10.0	10.0	
Stack diameter (m)	0.125	0.125	
Stack area (m) ²	0.0123	0.0123	
Flue gas temp ^o c	182	197	
Exit gas velocity (m/s)	15.0	17.0	
Flue gas flow rateNM ³ /hr	435	477	
Emission Rates			
Dust concentration g/kWh	0.153	0.164	0.3
CO g/kWh	0.520	0.455	3.5
NOx g/kWh	0.660	0.795	9.2
HC g/kWh	0.04	0.04	1.3

*Test Method:IS11255

For Team Labs and Consultants



TEST REPORT

Report Number and date	CTL/CH/M-0267/2017-18 & 26.04.2017		
Sample Number	M-0267/17-18		
Customer Name & Address	M/s. Sarda Metals & Alloys Ltd., D.No.50-96-4/1, Floor II & III, Srigowri Nilayam, Seethammadhara NE, Visakhapatnam - 530 013.		
SAMPLE DETAILS			
Sample Description By Customer	Fly Ash		
Sampling Date	NA	Sampled By	Customer
Sampling Location	NA	Sampling Method	NA
Quantity Received	1 Kg	Lot / Batch No	Not Available
Date of Receipt	13.04.2017	Sample Condition	Good & Received in Packed Condition
Analysis Starting Date	17.04.2017	Analysis Completion Date	25.04.2017

Test Results:

The above sample tested as received, and results are as follows:

S.NO	PARAMETERS	METHOD	UNITS	RESULTS
TCLP Analysis:				
1	Arsenic	SW - 846 Methods 1311 TCLP	mg/l	BDL(DL:0.01)
2	Barium		mg/l	BDL(DL:0.5)
3	Cadmium		mg/l	BDL(DL:0.05)
4	Chromium		mg/l	BDL(DL:0.1)
5	Lead		mg/l	BDL(DL:0.1)
6	Mercury		mg/l	BDL(DL:0.01)
7	Selenium		mg/l	BDL(DL:0.01)
8	Silver		mg/l	BDL(DL:0.1)
9	Manganese		mg/l	0.86
10	Antimony		mg/l	BDL(DL:0.01)
11	Hexavalent Chromium as Cr ⁶⁺		mg/l	BDL(DL:0.05)
12	Cobalt		mg/l	BDL(DL:0.1)
13	Copper		mg/l	0.09
14	Molybdenum		mg/l	BDL(DL:0.1)
15	Nickel		mg/l	0.21
16	Zinc		mg/l	0.12
17	Beryllium		mg/l	BDL(DL:0.1)
18	Thallium		mg/l	BDL(DL:0.5)
19	Vanadium		mg/l	BDL(DL:2.0)

BDL - Below Detection Limit; DL - Detection Limit

END OF REPORT

For Chennai Testing Laboratory Pvt Ltd

N.D.L.
Verified by

A. Raju
Authorised Signatory

TEST REPORT

Report Number and date	CTL/CH/M-0268/2017-18 & 26.04.2017		
Sample Number	M-0268/17-18		
Customer Name & Address	M/s. Sarda Metals & Alloys Ltd., D.No.50-96-4/1, Floor II & III, Srigoowri Nilayam, Seethammadhara NE, Visakhapatnam - 530 013.		
SAMPLE DETAILS			
Sample Description By Customer	Bag House Dust		
Sampling Date	NA	Sampled By	Customer
Sampling Location	NA	Sampling Method	NA
Quantity Received	1 Kg	Lot / Batch No	Not Available
Date of Receipt	13.04.2017	Sample Condition	Good & Received in Packed Condition
Analysis Starting Date	17.04.2017	Analysis Completion Date	25.04.2017

Test Results:

The above sample tested as received, and results are as follows:

S.NO	PARAMETERS	METHOD	UNITS	RESULTS
TCLP Analysis:				
1	Arsenic	SW - 846 Methods 1311 TCLP	mg/l	BDL(DL:0.01)
2	Barium		mg/l	BDL(DL:0.5)
3	Cadmium		mg/l	BDL(DL:0.05)
4	Chromium		mg/l	BDL(DL:0.1)
5	Lead		mg/l	1.22
6	Mercury		mg/l	BDL(DL:0.01)
7	Selenium		mg/l	BDL(DL:0.01)
8	Silver		mg/l	BDL(DL:0.1)
9	Manganese		mg/l	7.3
10	Antimony		mg/l	BDL(DL:0.01)
11	Hexavalent Chromium as Cr ⁶⁺		mg/l	BDL(DL:0.05)
12	Cobalt		mg/l	BDL(DL:0.1)
13	Copper		mg/l	0.09
14	Molybdenum		mg/l	BDL(DL:0.1)
15	Nickel		mg/l	0.16
16	Zinc		mg/l	48.2
17	Beryllium		mg/l	BDL(DL:0.1)
18	Thallium		mg/l	BDL(DL:0.5)
19	Vanadium		mg/l	BDL(DL:2.0)

BDL - Below Detection Limit; DL - Detection Limit

END OF REPORT

For Chennai Testing Laboratory Pvt Ltd

N.D.L.
Verified by

A. Raju
Authorised Signatory

CIN : U74999TN2008PTC067568

TEST REPORT

Report Number and date	CTL/CH/M-0269/2017-18 & 26.04.2017		
Sample Number	M-0269/17-18		
Customer Name & Address	M/s. Sarda Metals & Alloys Ltd., D.No.50-96-4/1, Floor II & III, Srigowri Nilayam, Seethammadhara NE, Visakhapatnam - 530 013.		
SAMPLE DETAILS			
Sample Description By Customer	Silico Manganese Slag		
Sampling Date	NA	Sampled By	Customer
Sampling Location	NA	Sampling Method	NA
Quantity Received	1 Kg	Lot / Batch No	Not Available
Date of Receipt	13.04.2017	Sample Condition	Good & Received in Packed Condition
Analysis Starting Date	17.04.2017	Analysis Completion Date	25.04.2017

Test Results:

The above sample tested as received, and results are as follows:

S. NO	PARAMETERS	METHOD	UNITS	RESULTS
TCLP Analysis:				
1	Arsenic	SW - 846 Methods 1311 TCLP	mg/l	BDL(DL:0.01)
2	Barium		mg/l	BDL(DL:0.5)
3	Cadmium		mg/l	BDL(DL:0.05)
4	Chromium		mg/l	BDL(DL:0.1)
5	Lead		mg/l	BDL(DL:0.1)
6	Mercury		mg/l	BDL(DL:0.01)
7	Selenium		mg/l	BDL(DL:0.01)
8	Silver		mg/l	BDL(DL:0.1)
9	Manganese		mg/l	6.7
10	Antimony		mg/l	BDL(DL:0.01)
11	Hexavalent Chromium as Cr ⁶⁺		mg/l	BDL(DL:0.05)
12	Cobalt		mg/l	BDL(DL:0.1)
13	Copper		mg/l	0.05
14	Molybdenum		mg/l	BDL(DL:0.1)
15	Nickel		mg/l	0.14
16	Zinc		mg/l	0.26
17	Beryllium		mg/l	BDL(DL:0.1)
18	Thallium		mg/l	BDL(DL:0.5)
19	Vanadium		mg/l	BDL(DL:2.0)

BDL - Below Detection Limit; DL - Detection Limit

*****END OF REPORT*****

For Chennai Testing Laboratory Pvt Ltd

A. Jayaram
Authorised Signatory

N.D.L.
Verified by