SHYAM STEEL

Shyam Steel Industries Ltd
Shyam Towers, EN-32, Sector V, Salt Lake, Kolkata 700091
Tel +91 33 4007 4007 Fax +91 33 4007 4010
Mail ssi@shyamsteel.com | www.shyamsteel.com
CIN : U27100WB2002PLC094339

SSIL/19-20/ENV/DGM/299 **Date : 20-11-2019**

To,
The APPFC (Central),
Eastern Regional Office,
MoEF & Climate Change, Government of India,
A/3, Chandra Sekharpur,
Bhubaneswar – 751 023, Odisha.

Sub : **Six Monthly Compliance to the Environmental Clearance condition vide MoEF Letter No. F No. J-11011/97/2008- IA II (I) Date-08.06.2009 of M/s Shyam Steel Industries Limited. Expansion of Steel Plant (60,000 TPA to 2,50,000 TPA TMT Bars) by installing Ladle Refining Furnace (LRF,1x30MT), Electric arc Furnace (EAF, 1 x 30 MT) with Billet Caster along with Captive Power Plant (10MW) at Raturia Industrial Area, Angadpur, Durgapur, District-Burdwan, West Bengal, Pin-713215. (For the period of April 2019 to September 2019)**

Respected Sir,

With reference to above, please find enclosed herewith six month compliance report for the period April' 2019 to September' 2019 along with the annexure for the Environmental Clearance conditions stipulated by the Ministry of Environment & Forest, Government of India, New Delhi vide letter file no. J-11011/97/2008-IA II (I) Date - 08.06.2009 of M/s Shyam Steel Industries Limited. Expansion of Steel Plant (60,000 TPA to 2,50,000 TPA TMT Bars) by installing Ladle Refining Furnace (LRF,1x30MT), Electric arc Furnace (EAF, 1 x 30 MT)with Billet Caster along with Captive Power Plant (10MW) At Raturia Industrial Area, Angadpur Durgapur, District-Burdwan, West Bengal, Pin-713215.

We shall sincerely implement all the measures for preventing pollution and develop an eco-friendly atmosphere in and around the factory. This is for your kind information and record.

Thanking You.
Yours faithfully,

for Shyam Steel Industries Ltd.

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F No. J-11011/97/2008- IA II (I) Date-08.06.2009

Six Monthly Compliance of conditions stipulated in the Environmental Clearance of M/s Shyam Steel Industries Limited. Expansion of Steel Plant (60,000 TPA to 2,50,000 TPA TMT Bars) by installing Ladle Refining Furnace (LRF,1x30MT),Electric arc Furnace (EAF,1 x 30 MT)with Billet Caster along with Captive Power Plant (10MW) At Raturia Industrial Area, Angadpur ,Durgapur, District-Burdwan, West Bengal, Pin-713215.

(For the period of April 2019 to September 2019)

<table>
<tr><th>Sl. No.</th><th>Details of Infractions</th><th></th><th>Action taken/to be taken</th></tr>
<tr><td colspan="4">A. Specific Conditions</td></tr>
<tr><td>i</td><td>Efforts shall be made to reduce RSPM levels in the ambient air and a time bound action plan shall be submitted. Continuous stack monitoring facilities for all the stacks shall be provided and sufficient air pollution control devices 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</td><td></td><td>➢ Ambient air quality is monitored quarterly by SHRI OM TESTING & RESEARCH LABORATORY which is the approved testing authority of WBPCB and NABL. Their report which they submitted to WBPCB has been provided for your perusal. As per the report
<table>
<tr><td colspan="2">Ambient Air monitoring report dated 20.08.19</td></tr>
<tr><td>Parameters</td><td>Near Main Gate</td></tr>
<tr><td>PM_{10} (ug/m^3)</td><td>75.4</td></tr>
<tr><td>$PM_{2.50}$ (ug/m^3)</td><td>37.91</td></tr>
<tr><td>SO_2 (ug/m^3)</td><td>11.56</td></tr>
<tr><td>NO_2 (ug/m^3)</td><td>42.54</td></tr>
<tr><td>CO (ug/m^3)</td><td>0.761</td></tr>
<tr><td>Pb (ug/m^3)</td><td>BDL</td></tr>
<tr><td>O_3 (ug/m^3)</td><td>39.1458</td></tr>
<tr><td>NH_3 (ug/m^3)3</td><td>32.14</td></tr>
<tr><td>BaP (ug/m^3)</td><td>BDL</td></tr>
<tr><td>Ni (ug/m^3)</td><td>BDL</td></tr>
<tr><td>C_6H_6 (ug/m^3)</td><td>BDL</td></tr>
<tr><td>As (ug/m^3)</td><td>BDL</td></tr>
</table>
➢ We have installed 8 Bag filters, 3 ESP, Dry Fog system & Water Sprinkler to reduce the RSPM levels.
➢ We have installed online monitoring system and data transmission system in all stacks as per CPCB guideline and keep a vigilant observation of the readings. In case of high RSPM value of more than 50 mg/Nm3, we get alert through the system and stop the plant to take the necessary corrective action.
➢ We have submitted the data on ambient air quality and stack emission report submitted in MOEF Regional's Office Bhubaneswar up to 31.03.19.
➢ We are also planning to use the accumulated dust in the bag filters of DRI in AFBC for combustion and hence recycling.</td></tr>
<tr><td>ii</td><td>Electrostatic precipitator (ESP) shall be provided to WHRB and AFBC boilers. Fume extraction system with bag house shall be provided to electric arc furnace (EAF) and the exhaust gases shall be discharged through a stack of adequate height. Dust extraction system with bag filters shall be provided to ladle refining furnace (LRF). Fume extraction system with bag filters shall be provided to steel melting shop (SMS). Stack of adequate shall be provided to rolling mill to control the gaseous</td><td></td><td>➢ We have installed two ESP for two WHRB Boilers and one ESP for AFBC Boiler.
➢ Two Fume Extraction system with hoods have been installed for the Induction Furnace and Electric Arc Furnace (EAF). Moreover 5 nos. of Dust extraction system with Bag filter is in place to control the dust level. ESP and bag filters are well maintained to keep the efficiency of minimum 97%.</td></tr>
</table>

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	emissions within the permissible limit. 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. All the gaseous emissions shall be within 100 mg/Nm^3		<table><tr><td></td><td>DRI</td><td>SMS</td><td>Captive Power</td></tr><tr><td>ESP</td><td>2</td><td></td><td>2</td></tr><tr><td>Bag Filters</td><td>5</td><td>2</td><td></td></tr></table> ➢ Currently we have changed our rolling process at our rolling mill and we are not using reheating Furnace at Rolling Mill as we roll our TMT bar through hot rolling system ➢ We have installed After Burner Chamber (ABC) to burn the CO completely present in the hot flue gases coming from DRI Kiln and is used in Waste heat recovery boiler (WHRB). The recovered heat is effectively being used for generation of power, thereby saving upon fossil fuel usage & reduction of Carbon Footprint.
iii	Data on ambient air quality stack emissions and fugitive emissions shall be uploaded on the Company's website and also regularly submitted on-line to the Ministry's Regional Office at Bhubaneswar, West Bengal Pollution Control Board (WBPCB) and Central Pollution Control Board (CPCB) as well as hard copy once in six months. Data on SPM, SO2 and NOx shall also be displayed prominently outside the premises at the appropriate place for the information of general public.		➢ Data on ambient air quality stack emission, are being transferred to WBPCB & CPCB at any point of time during plant operation. ➢ Ambient Air are measured by M/S SHRI OM TESTING & RESEARCH LABORATORY, approved testing authority of WBPCB and NABL. As per last monitored report PM_{10} is 75.4 µg/m3 which is well within the control limits. Detailed report attached in **Annexure -I** ➢ The data of the emissions are displayed outside the Main gate for information of general public. ➢ We upload the data on ambient air quality stack emissions and fugitive emissions on the company's website and then we submit the data on ambient air quality and stack emission report in MOEF Regional's Office Bhubaneswar. Data on the emissions are submitted to West Bengal Pollution Control Board (WBPCB) and Central Pollution Control Board (CPCB) by hard copy once in every six months.
iv	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 in this regard by the CPCB shall be followed. New Standards issued by the Ministry for the sponge iron plant in May, 2008 shall be followed.		➢ The fugitive air emission data reveals that PM10 73 µg/m3 and 83 µg/m3 Near Product House and Near Raw Material Handling yard respectively, which is well within the prescribed standard for fugitive emissions. Detailed report attached in **Annexure -I** ➢ The control monitoring is in place for identifying fugitive emissions from leakages in raw materials handling & consumption. ➢ Dust extraction system at different unloading bunkers for the product and raw materials handling system has been installed. ➢ Bag filters have been provided at stock house, product house, magnetic product separator, cooler discharge area and transfer points to minimize fugitive dust emission. ➢ Water sprinkling at 09 locations and Dry Fog System at 4 locations are being carried out to control fugitive dust emission.

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<table>
<tr><td></td><td></td><td></td><td>➢ One number of dust collector system which is utilized for road cleaning to control fugitive dust emission.
➢ One number of water tanker spraying system are utilized at the waste disposal area and on the road to control fugitive dust emission.
➢ The project also have designated raw material yards.</td></tr>
<tr><td>v</td><td>Vehicular pollution due to transportation of raw material and finished product shall be controlled. Proper arrangements should also be made to control dust emissions during loading and unloading of the raw material and finished product.</td><td></td><td>➢ All vehicles that enters or leaves the plant with raw materials or finished goods are duly covered with tarpaulin to control the dust scattering into the atmosphere and to protect the materials from the moisture contamination as well as to protect the materials inside the Vehicles from any damage.
➢ All vehicles used in transportation are loaded as per the Motors Vehicle Act.
➢ To suppress dust, water is sprinkled on the road, material unloading area & finished product loading area inside the plant so that no dust is propelled in air by vehicle transportation.</td></tr>
<tr><td>vi</td><td>In-plant control measures for checking fugitive emissions from all the vulnerable sources shall be provided. Dust suppression & extraction system with bag filters shall be installed at various dust generating points including raw material handling area and material transfer points. Bag filters shall be provided in coal stacking, reclaiming, crushing, feeding and ESP dust handling areas to control fugitive dust in power plant.</td><td></td><td>➢ Control measures for checking fugitive emissions from spillage/raw material handling area are in place. Dust extraction systems at different unloading bunkers for the finished goods and raw material handling system have been installed. Bag filters have been provided at stock house, product house, cooler discharge area and transfer points to minimize dust emission. Water sprinkling at 9 locations and Dry Fog system at 4 locations are being carried out to control fugitive dust emission. 1 number of truck mounted water spraying system are utilized at the waste disposal area and also on the road to control fugitive dust emission. One number of dust collector system which is utilized for road cleaning to control fugitive dust emission.
Third party analysis of the fugitive analysis is being done by M/s SHRI OM TESTING & RESEARCH LABORATORY, which is a NABL accredited laboratory. Fugitive air analysis report are as follows:
<table><tr><td colspan="4">Fugitive Air Analysis report dated 21.08.19</td></tr><tr><td>SN</td><td>Parameters</td><td>Near raw material handling area</td><td>Near Product house</td></tr><tr><td>1</td><td>PM_{10} (ug/m^3)</td><td>83</td><td>73</td></tr><tr><td>2</td><td>$PM_{2.50}$ (ug/m^3)</td><td>122</td><td>121</td></tr><tr><td>3</td><td>SO_2 (ug/m^3)</td><td>27.4</td><td>29.6</td></tr><tr><td>4</td><td>NO_2 (ug/m^3)</td><td>58.2</td><td>52.4</td></tr></table>It has been observed that good housekeeping practices are being followed and there are no spillages observed.</td></tr>
<tr><td>vii</td><td>As proposed, total water requirement shall not exceed 103 m^3/hr (existing 45 m^3/hr& proposed 58 m^3/hr) as per the agreement signed with Durgapur</td><td></td><td>➢ Water consumption is within 103 m3/hour. Average water consumption for all the existing facilities in operation is 66 m3/hour.</td></tr>
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	Municipal Corporation dated 28th May, 2004 for 140 m^3/hr. No ground water shall be used. Acid and alkaline effluents from the de-mineralization (DM) plant shall be neutralized and used for dust suppression and green belt development. Process waste water shall be treated in Effluent Treatment Plant (ETP). Boiler blow down, effluent from billet caster and hot rolling mills shall be reused for dust suppression after treatment for oil & grease in settling tank. All the treated wastewater shall be recycled and reused in the process to the maximum extent possible and reused either in the process and / or for dust suppression, green belt development etc. .		➢ Domestic waste water generated from office toilet, canteen is disposed off in soak pit via septic tank. ➢ Waste water generated from CPP, because of Boiler blow down is being used for ash quenching, cooling of Rolling Mill Rolls, Secondary cooling of Billet and DRI Cooler. There is no waste water discharge outside the plant premises. ➢ The waste water from CCM and Hot Rolling mills are reused in the process itself after treatment for oil, grease, ash, sludge and scales in settling tank. ➢ Moreover, we are in the process of installing Effluent treatment plant ETP for reducing the TDS & TSS value of the Drainage Water, thereby recycling it for water spraying in the dust prone areas & green belt developments inside the plant.
viii	Zero effluent discharge shall be strictly followed and no wastewater shall be discharged outside the premises. Domestic effluent shall be appropriately treated in septic tank followed by soak pit and used for green belt development within the premises.		➢ Zero effluent discharge is strictly complied with the measures mentioned against the Clause-vii.
ix	The water consumption should not exceed 16 m^3/Ton of Steel as per prescribed standard.		➢ It is being complied with the prescribed standard. The water consumption is below 3 m^3/Ton of Steel (Finished Product) ➢ We have also constructed small surface water harvesting structure in phase one. As informed by the project proponent 20 years rainfall data collected from IMD. Considering maximum rainfall value and for land 20 acres area the size of rainwater holding pond has been considered. As stated by the project proponent it has been implemented in phases which will reduce the requirement of purchased water from DMC & DPL.
x	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 Bhubaneswar, CPCB and WBPCB.		➢ All the dust & sludge collected in the plant is used as land filling material in low lying areas.
xi	All the char from DRI plant shall be utilized in AFBC boiler of power plant and no char shall be disposed off anywhere else. AFBC boiler shall be installed simultaneously along with the DRI plant to ensure full utilization of char from the beginning. SMS slag should also be properly utilized. All the other solid waste including broken refractory mass shall be properly disposed off in environment-friendly manner. Oily waste/ lubricants shall be provided to authorized recyclers/ re-processors or properly disposed off as per the Hazardous Waste (Management & Handling) Rules, 1989 and subsequent amendments		➢ All the char generated from DRI plant is effectively utilized in AFBC boiler of the Captive Power plant. ➢ Slag generated from SMS is used for filling low lying area after TCLP test. ➢ Broken Refractory mass from furnace & ladle is crushed & reused for making the spout of the furnace. The material is gradually disintegrated & disposed along with the slag for land filling. ➢ Used grease & oil, carton boxes etc. are sold to recyclers for recycling purposes. ➢ Presently Fly Ash is being used in the manufacturing of Composite Bricks at Shyam Steel Industries Ltd, Bamunara Plant and also supplied to Ultratech Cement plant for cement manufacturing.
xii	No slag and fly ash shall be disposed off in abandoned Raniganj mining area without prior permission from the concerned authority and a commitment in this regard shall be submitted to the Ministry's Regional Office at Bhubaneswar, WBPCB and CPCB. All the slag from induction		➢ No slag and fly ash is disposed off in the abandoned Raniganj mining area ➢ Solid waste is being handled, utilized and disposed off in proper manner described against the Clause no xi.

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	furnace/EAF/LRF shall be used for land filling inside the plant or used as building material only after passing through Toxic Chemical Leachability Potential (TCLP) test. Toxic slag shall be disposed in secured landfill as per CPCB guidelines. Otherwise, hazardous substances shall be recovered from the slag and output waste and be disposed in secured landfill as per CPCB guidelines.		
xiii	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 Bhubaneswar. Negotiations are going on with manufacturers of cement plants & fly ash bricks plants.		➢ Total generated Fly Ash is being consumed by our bricks plant at Bamunara unit and rest is being supplied to Ultratech Cement plant.
xiv	A time bound action plan shall be submitted to reduce solid waste, its proper utilization and disposal to the Ministry's Regional Office at Bhubaneswar.		➢ Solid waste is being handled, utilized and disposed in proper manner. Dolochar is used in AFBC boiler as fuel, dust from ESP is given to our bricks plant at Bamunara, slag is crushed and after recovery of iron given to our brick Plant at Bamunara. We have submitted a report containing the Solid Waste management plan and actions at our end to the Ministry's Regional Office at Bhubaneswar.
xv	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 Bhubaneswar, WBPCB and CPCB.		➢ Nontoxic, non-hazardous solid wastes like carton, woods, glass, oil tank, end cuts are used by us.. Toxic & hazardous solid wastes are tested for TCLP test. Wastes passing TCLP test are used for filling purposes & hazardous wastes are stored with proper care and we sell the same to authorized vendors. Solid wastes generated from the plant are being utilized as per the norms.
xvi	As proposed, green belt shall be developed in 6.6 acres (33 %) out of total 20 acres within and around the plant premises to mitigate the effects of fugitive emissions as per the CPCB guidelines in consultation with DFO		➢ We are regularly planting the trees and saplings inside and outside of the factory premises and the same is informed to WBPCB on timely basis. ➢ We have covered 20% approx. area (inside and outside) of land for plantation. ➢ The plantation has been undertaken in phased manner as per the CPCB guidelines. Partly Green belt has been developed and partly is being developed within and around the plant premises in consultation with DFO in phased manner. ➢ We have started action on three tier green belt around & outside the factory premises. Every year we are planting seedlings in our factory & outside the factory in consultation with local forest range officer. ➢ The plantation has been raised comprising trees species like Karanj, Mehguni, Chalta, Mango, Kadam, Sissoo, Shrirs, Akashmoni, Neem, Sonajori, Ashok, Amloki, Radhachura, Krishnachura etc.
xvii	All the recommendations made in the Charter in Corporate Responsibility for Environment		CREP recommendations on Fugitive emissions, solid & hazardous waste

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	Protection (CREP) for the Steel Plants shall be implemented.		management, water conservations, continuous stack monitoring, adoption of clean technology etc. have been implemented.
xviii	The company shall provide housing for 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.		➢ Housing for labours with necessary infrastructure facility have been provided at the time of project. ➢ Currently there is no project going on and at present there is no construction labour present at our site.
Sl. No.	**Details of Infractions**		**Action taken/to be taken**
	B. General Conditions		
i	The project authorities shall adhere to the stipulations made by the West Bengal Pollution Control Board (WBPCB) and the State Government.		➢ We have obtained Consent to Operate (CTO) from WBPCB vide CTO No CO107805, CO107519, CO110217, CO107598 dated 16.06.2017, 17.07.2017, 30.07.2018 & 19.06.2019 valid till 30.06.2022, 31.03.2022, 31.07.2023 & 30.06.2022. We have also obtained Hazardous waste authorization from WBPCB vide letter no 132/2S(HW)-2881/2012 .dated 29.06.2018 valid till 30.11.2022 .
ii	No further expansion or modification of the plant shall be carried out without prior approval of this Ministry.		➢ Any modification or expansion of the unit is done after obtaining prior permission from the MOEF.
iii	The gaseous emissions from various process units shall conform to the load/mass based standards notified by this Ministry on 19th May, 1993 and standards prescribed from time to time. The West Bengal Pollution Control Board (WBPCB) may specify more stringent standards for the relevant parameters keeping in view the nature of the industry and its size and location.		➢ Online monitoring system has been installed in all stacks to monitor the emission level. It is also stated that interlocking facility has been provided in the various units of the plant.
iv	Ambient air quality monitoring stations shall be set up as per statutory requirement in consultation with the WBPCB. Ambient air quality including ambient noise levels shall not exceed the standards stipulated under EPA or by the State authorities. Monitoring of ambient air quality and shall be carried out regularly in consultation with WBPCB and data submitted to the CPCB and WBPCB regularly. The instruments used for ambient air quality monitoring shall be calibrated time to time		➢ Ambient air quality is monitored quarterly by M/S SHRI OM TESTING & RESEARCH LABORATORY which is the approved testing authority of WBPCB/NABL. The report generated by them is submitted to WBPCB for perusal. As per the report the RSPM level is limited to 100 mg/Nm3 ➢ We are planning to install OPEN PATH TECHNOLOGY for ambient air quality monitoring & suspected chlorine gas leakage from the neighbouring plant. Once the installation is done online data will be transferred to WBPCB & CPCB.
v	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 Environmental (Protection) Act, 1986 Rules, 1989 viz. 75 dBA (day time) and 70 dBA (night time).		➢ We have installed noise control measures like acoustic hoods, silencers, sound proof enclosures on all sources of noise generations to keep the overall noise level in and around the plant area well within the prescribed standards. ➢ We also provide Ear plugs to all our employees to relieve them of any discomfort due to noise. ➢ Noise levels at different locations are:

Location	Day Time (dB)	Night Time (dB)
Near Administrative Building	67.81	61.5

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			Near Main gate | 70.5 | 62.5 ➢ There is no area inside the plant with noise level above 85dBA.
vi	Occupational health surveillance of the workers shall be done on a regular basis and records maintained as per the Factories Act.		➢ On contract basis Doctor visits plant on regular basis for pre-joining and periodical medical check-up of all workers including contract labours. ➢ The dispensary is well equipped with necessary amenities required for basic first aid along with the presence of compounder & medical attendants all the time. ➢ Total employee strength of the company is 749 on company roll and 862 on contractual staff are working. ➢ Ambulance is available in the plant 24x7 for immediate shifting of patients to nearby hospitals in case of emergency. ➢ Organized eye and blood test camp for workers. Occupational health surveillance/ Health check-up program is organized at regular intervals for all employees. ➢ We duly comply with the standards prescribed in Factory Act. & also, are certified in OHSAS-18001, standard pertaining to Occupational Health and Safety. ➢ All the workers are equipped with best quality of Personnel Protective Equipment. Following are the list of equipment provided and their standards: 1. Safety Helmet - IS 2925:194 & EN-367 2. Goggles- EN 166F & ANSI Z87 3. Eye & Face protection (Welding)- IS 1179: 1967 4. Nose mask – IS 9473:2002 5. Cotton & Leather Hand gloves – IS 6994-1973 & EN-388 & EN-407 6. Ear Plug – 3M 7. Leather Safety Shoes- IS 15298-2011 8. Asbestos Apron- EN-531 9. Safety Harness- IS-3521-1989 & EN-361:2002 10. Lifeline- EN-361
vii	All the environment management measures given in the EIA/EMP shall be implemented and complied with.		➢ Various environmental protection measures and safety aspects are undertaken as recommended in the EIA/EMP report. ➢ General Manager of the plant and Safety & Environmental Officer jointly coordinates all the environmental management activities as per the EMP and recommendation of the relevant statutory bodies. ➢ We are also certified in ISO 14001, standard pertaining to Environment management system.
viii	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.		➢ We have constructed small surface water harvesting structure in phase one. ➢ 20 years' rainfall data collected from IMD. Considering maximum rainfall value and for 20

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			acres' area the size of rainwater holding pond has been considered. ➢ The action has been planned to be implemented in phases.
ix	Proper housekeeping shall be ensured		➢ It is being complied with. We are aiming for establishing 5S within our plant.
X	The company shall undertake eco-development measures including community welfare measures in the project area.		➢ We have been actively involved in upbringing livelihood in and around our surroundings undertaking various socio-economic activities. In line with company's CSR objective to improve the quality of life of the communities they serve through long term value creation for all. ➢ Our thrust areas include healthcare, sanitation & providing drinking water, enhancement of livelihood, environmental sustainability and rural development. Besides that that they also undertake programs to promote rural sports and regional culture. Also expenses in affinity to the same includes digging of Ponds, repairing of village & nearby area roads, construction of temples, water projects involving distribution of water along with construction of pipelines, building sports grounds, free distribution of school books, free medical health check-up, blood donation camp, ambulance facility, various religious activities, construction & repairing of worship place and many more. ➢ Following are the detailed activities: ➢ We have started a Mobile Healthcare Unit to support poor people, the unit is going to 10 villages in a week and provided healthcare facilities every week. ➢ We are also distributing approx. 130000 sanitary napkin every month to poor village ladies to empower women through Menstrual Hygiene. In this program we are providing ladies 10 no of sanitary pads with 2 no of innerwear up to 1 year. ➢ Shyam Steel has always believed that helping schools to build up their proper educational system and the students can lead a better future. We have built up a school named Saraswati Vidya Mandir in Bankura Dist., Angadpur High School at Angadpur and Vivekanand Primary School at Baradhemo.
xi	A separate environmental management cell to carry out various management and monitoring functions shall be set up under the control of Senior Executive.		An environmental management cell has been created wherein an environmental manager has been assigned to look after all the environmental Issues and ensure compliance with Environmental Clearance conditions which will report to the Plant Head and ultimate reporting would be to the Managing Director. Subsequently it will be discussed in the Board meeting and the board will be made aware of the Environmental Policy and

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			compliance on Environmental Clearance norms. Necessary Fund allocation will be approved in the Board Meetings and accordingly corrective measures will be taken upon in priority basis.
xii	As proposed, Rs 223.00 Lakhs and Rs. 44.5 Lakhs shall be earmarked towards the capital cost recurring cost/annum for environment pollution control measures and used judiciously to implement the conditions stipulated by the Ministry of Environment and Forests as well as the State Government. The funds so provided shall not be diverted for any other purpose.		➢ It has been stated that funds allocated for installation of pollution control equipment and implementing various environment protection measures is being utilized to fulfil the conditions stipulated by the Ministry as well as the State Pollution Control Board. As per the detail expenditure statement under this head as submitted by them they have undertaken various measures for protection of Environment at their factory which include installation of various pollution control devices (ESP, Bag filters), constriction of RCC Roads, within the premises, Dust conveying system, at DRI units, installation of water sprinklers at requisite locations and so on. Online stack monitoring systems have been installed for continuous monitoring of air quality and stack emission parameters.
xiii	The Regional Office of this Ministry at Bhubaneswar /CPCB/WBPCB shall monitor the stipulated conditions. A six-monthly compliance report and the monitored data along with statistical interpretation shall be submitted to them regularly.		➢ A six-monthly compliance report along with monitoring data is being submitted on a regular basis to The Regional Office of this Ministry at Bhubaneswar /CPCB/WBPCB.
xiv	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.		➢ It has been duly complied with.
xv	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 W.B. Pollution Control Board 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 at Bhubaneswar.		➢ The environmental Clearance Letter has been advertised in two local newspapers namely "The Echo of India"(English Daily) dated. 17-06-2009 and "Arthik Lipi" (Bengali Daily) dated 17.06.2009.

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Sl. No.	CREP RECOMMENDATIONS	COMPLIANCE STATUS
	CEMENT INDUSTRY	NA
1	Cement plants, which are not complying with notified standard, shall do the following to meet the standards; Augmentation of existing Air Pollution Control Devices- By July 2003 Replacement of existing Air Pollution Control Devices- By July 2004	
2	Cement plants located in critically polluted or urban areas (including 5 km distance outside urban boundary) will meet 100mg/Nm3 limit or particulate matter by December 2004 and continue working to reduce the emission of particulate matter to 50mg/Nm3.	
3	The new cement kilns to be accorded NOC/ Environmnetal Clearance w.e.f 01.04.2003 will meet the limit of 50 mg/Nm3 for particulate matter emissions.	
4	CPCB will evole load based standards by December 2003	
5	CPCB and NCBM will evolve SO2 and Nox emission standards by June 2004	
6	The Cement industries will control fugitive emissions from all the raw material and products storage and transfer points by December 2003. However, the feasibility for the control of fugitive emissions form limestones and coal storage areas will be dicided by the National Task Force (NFT). The BTF shall submit its recommendations within three months.	
7	CPCB, NCBM, BIS and Oil refineries will jointly prepare the policy on use of petroleum cokes as fuel in cement kiln by July 2003.	
8	After performance evaluation of various types of continous monitoring equivalent and feedback form the industries and equipment manufacturers, NTF will decide feasible unit operations/ sections for installation of continous monitoring equipment. The industry will install the continous monitoring systems (CMS) by December 2003	
9	Tripping in Kiln ESP to be minimized by July 2003 as per the recommendations of NTF.	
10	Industries will submit the target date to enhance the utilization of waste material by April, 2003.	
11	NCBM will carry out a study on hazardous waste utilization in cement kiln by December 2003.	
12	Cement industries will carry out feasibility study and submit target dates to CPCB for co-generation of power by July 2003.	
*	Non complying units shall given bank guarantee to respective SPCBs.	
	INTEGRATED IRON & STEEL INDUSTRY	
1	COKE OVEN PLANTS- To meet the parameters PLD(% leaking coolers), PLL (% leaking lids), PLO (% leaking off take), of the notified standards under EPA within three years by December 2005). Industry will submit time bound action plan and PER Chart along with the Bank Guarantee for the implementation or the time. To rebuild at least 40% of the coke oven batteries in next 10 years (by December 2012).	NA
2	STEEL MELTING SHOP- Fugitive emissions- To reduce 30% by March 2004 and 100% by March 2008(including installation of secondary dedusting facilities).	Fugitive emission is under control with PCD
3	BLAST FURNACE- Direct inject of reducing agents--------- by June 2013.	NA
4	SOLID WASTE/ HAZARDOUS WASTE MANAGEMENT- Utilisation of Steel Melting Shop (SMS)/ Blast Furnace (BF) slag as per the following sehedule: * By 2004 - 70% * By 2006 - 80% * By 2007 - 100% Hazardous Waste- Charge of tar sludge/ ETP sludge to Coke Oven by June 2003. Inventorization of the Hazardous waste as per Hazardous Waste (M&H), Rules, 1989 as amended in 2000 and implementation of the Rules by Dec, 2003. (Tar sludge, acid sludge, waste lubricating oil and type fuel falls in the category of Hazardous waste).	We have valid Hazardous Waste authorization and disposing the waste to authorised agency.
5	WATER CONSERVATION/ WATER POLLUTION- To reduce specific water consumption to 5 m3/t for long products and 8 m3/t for flat products by December 2005.	We are maintaining water consumption within the limit.
6	Installation of Continous stack monitoring system & its calibration in major stacks and setting up of the online ambient air quality monitoring stations by June 2005.	Online stack monitoring system is installed.
7	To operate the existing pollution control equipment efficiently and to keep proper record of run hours, failure time and efficiency with immediate effect. Compliance report in this regard be submitted to CPCB/ SPCB every three months.	Shall be complied.
8	To implement the recommendations of Life Cycle Assessment (LCA) study sponsored by MoEF by December 2003.	To be complied.
9	The industry will initiate the steps to adopt the following clean technologies measures to improve the performance of industry towards production, energy land environment. - Energy recovery of top Blast Furnace (BF) gas. - Use of Tar- free runner linings. - De- dusting of Cast house at tap holes, runners, skimmers ladle and cahrging points. - Suppression of fugitive emissions using nitrogen gas or other inert gas. - To study the possibilities of slag and fly ash transportation back to the abandoned mines, to fill up the cavities through empty railway wagons while they return back to the mines and its implementation. - Procession of the waste containing flux & ferrous wastes through waste recycling plant. - To implement rain water harvesting - Reduction Green House Gases by: Reduction in power consumption Use of by- products gases for power generation Promotion of Energy Optimisation Technology including energy/ audit - To set targes for resource conservation such as Raw materil, energy and water consumption to match International Standards. - Up- gradation in the monitoring and analysis facilities for air and water pollution. Also to impart elaborate training to the manpower so that realistic data is obtained in the environmental monitoring laboratories. - To improve overall house keeping.	NA

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10	SPONGE IRON PLANTS Inventorisation of sponge iron plants to be completed by SPCBs/ CPCE by June 2003 and units will be asked to install proper air pollution control equipment by December 2003 to control primary and secondary emissions. As per rebuilding schedule submitted to CPCB/ MoEF.	All required PCD are installed as per the guidelines of SPCB.

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20.11.2024

MINISTRY OF ENVIRONMENT AND FORESTS
EASTERN REGIONAL OFFICE
A/3, CHANDRASEKHARPUR, BHUBANESWAR- 751023

FORMAT FOR PROVIDING PARTICULARS ON GREEN BELT/ PLANTATION UNDER F (C) ACT 1980 AND E (P) ACT 1986

1	a)	Name of Project	: SHYAM STEEL INDUSTRIES LIMITED
	b)	Envt./ Forest Clearance Nos.	: F No. J-11011/97/2008- IA II (I) Date-08.06.2009
2	**Location, Block/ Sub. Divn./ Dist./ State**		: Angadpur, Durgapur, Burdwan, West Bengal
3	**Address of communication**		: Shyam Steel Industries Limited "Shyam Towers", EN- 32, Sector- V Salt Lake, Kolkata - 700091
4	**Existing vegetation in the area/ region**		:
	a)	Species (trees/ shrubs/ grasses/ climbers)	: Trees
	b)	Major prevalent species of each type	Ashoka, Babul, Bakul, Chatim, Gouva, Kadam, Karanj, Krishnachura, Mehguni, Sal, Simul, Sisu, Sonajury, Chalta, Jarul, Akashbani, Kadam, Siris, Siso, Kanchan, Jam
5	**Land coverage by the project**		:
	a)	Total area under the project	: 80000 Sqm
	b)	Area covered for basic infrastructure (roads/ building/ factory etc.)	: 80 %
6	**Details about natural vegetation**		:
	a)	Name and number of plant of tree/ species felled	: Nil
	b)	Name and number of plant species still available in the area	:
	c)	By protecting the area will indigenous stock come up	:
	d)	Extent of greenbelt enveloped	: 20%(Approx) Inside & Outside the Plant
7	**Plantations required to be carried out as per**		:
	a)	Conditions of Environmental clearance in ha. / Nos.	: 20%(Approx) Inside & Outside the Plant
	b)	Conditions for Forest Act © clearance in ha./ Nos.	: 20%(Approx) Inside & Outside the Plant
	c)	Voluntarily in ha./ nos.	: 20%(Approx) Inside & Outside the Plant
8	**Details of plantation**		
	a)	Total area available for plantation in each category	:

i) Green Belt	ii)Dumps	iii) Back filled area	iv)Road sides	Block plantation
16000 sqm			7000 sqm	700 sqm

	b)	Plantation details (category wise & methodology used)	:

SHYAM STEEL INDUSTRIES LTD.

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20.11.2019

MINISTRY OF ENVIRONMENT AND FORESTS
EASTERN REGIONAL OFFICE
A/3, CHANDRASEKHARPUR, BHUBANESWAR- 751023

FORMAT FOR PROVIDING PARTICULARS ON GREEN BELT/ PLANTATION UNDER F (C) ACT 1980 AND E (P) ACT 1986

Year of Plantation	Species Planted	Spacing	Height Attained	Total Area Covered	Area Still Available
2019	420 Saplings - Planted inside plant premises.	5- 6 ft.	All are of different height		
	1360 Saplings - Planted outside the plant premises.				
	445 Saplings - Distributed to different social institutions and among students of primary schools.				

		2015	2016	2017	2018	2019
c)	Survival of Plantation					
	Total plantations (No.) -	100	200	200	350	420
	Survival (No.) -	63	109	146	350	420
	Survival -	63	54.5	73	100	100

9	Agency carrying out plantation and maintenance	: Self (Every tree has one guardian from the employees, apart from this a team of four members including one supervisor for maintenance of gardens and spraying water.)
10	Financial details (year wise) plantation wise and item wise	

Sl. No.	Year	Fund allocated	Expenditure made	Average cost of each surviving plant in Rs.
1	2014		360000	
2	2015		400000	
3	2016		420000	
4	2017		460000	
5	2018		500000	
6	2019		560000	

11	Inspection of plantation by field experts and their comments and their comments and follow up actions	:
12	Remarks/ any other information	:

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20.11.2019

SHRI OM TESTING & RESEARCH LABORATORY

Plot No. 296, 1st FNG Road, Sector-121, Ghari Chaukhandi, Noida - 201301
Mob. : 7838764001, 9868546270, 9821154906
E-mail. : shriomlab@gmail.com, Web. : www.shriomlab.com, www.shriomlab.in

N.A.B.L. Accredited, ISO 9001, ISO 14001 & ISO 18001 Certified Laboratory.

Report Code no: AA/SSWB-01
Issue to: Shyam Steel, Industries Ltd.
Raturia Industrial Area Angadpur Durgapur 7132315 Burdwan
West Bengal INDIA

Issue Date : 20.08.2019
Analysis Date: 17.08.2019 to 21.08.2019

RESULT
(Ambient Air Level)

Sampling Location	: Near Main Gate
Sample Received On	: 16.08.2019
Sample Collected By	: STRL Staff
Sampling Protocol	: STRLL/LAB/SOP/01
Weather Condition	: Clean Sky
Sampling Duration	: 24 hours
Flow Rate of Air	: 0.9 M3/Min
Flow Rate of Gases	: 1.0 LPM
Sampling Location w.r.t/Height	: 3.9 Meter above Ground Level

S.No.	Parameter	Unit	Result	Specification/Limit (As per CPCB)	Test Method
1	Particulate Matter(PM10)	$\mu g/m^3$	75.40	For 24 Hr=100	IS:5182(Part-23)
2	Particulate Matter(PM2.5)	$\mu g/m^3$	37.91	For 24 Hr=60	Gravimetric Method
3	Sulphur dioxide (SO2)	$\mu g/m^3$	11.56	For 24 Hr=80	IS:5182(Part-2)
4	Carbon Monoxide (CO)	mg/m^3	0.761	For 8 Hr=2/for 1hr=4	IS:5182(Part-10)
5	Nitrogen dioxide (NO2)	$\mu g/m^3$	42.54	For 24 Hr=80	IS:5182(Part-6)
6	Lead (Pb)	$\mu g/m^3$	BDL	For 24 Hr=1	IS:5182(Part-22)
7	Ozone (O3)	$\mu g/m^3$	39.1458	For 8 Hr=100/for 1hr=180	IS:5182(Part-9)
8	Ammonia (NH3)	$\mu g/m^3$	32.14	For 24 Hr=400	Indophenol Blue Method
9	Benzo (a) Pyrine (BaP)	ng/m^3	BDL	For Annual=1	IS:5182(Part-12)
10	Nickel (Ni)	ng/m^3	BDL	For Annual=20	IS:5182(Part-22)
11	Benzene (C6H6)	$\mu g/m^3$	BDL	For 24 Hr=5	IS:5182(Part-11)
12	Arsenic (As)	ng/m^3	BDL	For Annual=6	IS:5182(Part-22)

End of Report

Shri Om Testing & Research Laboratory
Technical Manager

Authorized Signatory
(Name, Designation & Signature Seal)

SHRI OM TESTING & RESEARCH LABORATORY

Plot No. 296, 1st FNG Road, Sector-121, Ghari Chaukhandi, Noida - 201301
Mob. : 7838764001, 9868546270, 9821154906
E-mail. : shriomlab@gmail.com, Web. : www.shriomlab.com, www.shriomlab.in

N.A.B.L. Accredited, ISO 9001, ISO 14001 & ISO 18001 Certified Laboratory.

Report Code no.:FA/SSWB-02
Issue to: Shyam Steel, Industries Ltd.
Raturia Industrial Area Angadpur Durgapur 7132315 Burdwan
West Bengal INDIA

Issue Date : 21.08.2019
Analysis Date: 16.08.2019 to 20.08.2019

RESULT
(FUGITIVE AIR MONITORING)

Sampling Location	: Near Product House
Sample Received On	: 15.08.2019
Sample Collected By	: STRL Staff
Sampling Protocol	: STRLL/LAB/SOP/0
Weather Condition	: Clean Sky
Sampling Duration	: 7 hours
Flow Rate of Air	: 0.8 M3/Min
Flow Rate of Gases	: 1.0 LPM
Sampling Location w.r.t/Height	: 4.2 Meter above Ground Level

Time Weight Average Concentration (8 hrs)

S.No.	Parameter	Unit	Result	Permissible Limit of Exposure As Per Factory Act	Test Method
1	Particulate Matter(PM10)	$\mu g/m^3$	73.0	As per CPCB = 100	IS:5182(Part-23)
2	Suspended Particulate Matter (SPM)	$\mu g/m^3$	121	As per CPCB = 600	IS:5182(Part-2)
3	Sulphur dioxide (SO2)	$\mu g/m^3$	29.6	80	IS:5182(Part-2)
4	Nitrogen dioxide (NO2)	$\mu g/m^3$	52.4	80	IS:5182(Part-6)

End of Report

Shri Om Testing & Research Laboratory
Technical Manager

Authorized Signatory
(Name, Designation & Signature Seal)

SHRI OM TESTING & RESEARCH LABORATORY

Plot No. 296, 1st FNG Road, Sector-121, Ghari Chaukhandi, Noida - 201301
Mob. : 7838764001, 9868546270, 9821154906
E-mail. : shriomlab@gmail.com, **Web.** : www.shriomlab.com, www.shriomlab.in

N.A.B.L. Accredited, ISO 9001, ISO 14001 & ISO 18001 Certified Laboratory.

Report Code no.: AA/SSWB-03 **Issue Date : 20.08.2019**
Issue to: Shyam Steel, Industries Ltd. **Analysis Date: 15.08.2019 to 19.08.2019**
Raturia Industrial Area Angadpur Durgapur 7132315 Burdwan West Bengal INDIA

RESULT
(FUGITIVE AIR MONITORING)

Sampling Location	: Near Raw Material Handling Yard(DRI)
Sample Received On	: 14.08.2019
Sample Collected By	: STRL Staff
Sampling Protocol	: STRLL/LAB/SOP/0
Weather Condition	: Clean Sky
Sampling Duration	: 8 hours
Flow Rate of Air	: 0.8 M3/Min
Flow Rate of Gases	: 1.0 LPM
Sampling Location w.r.t/Height	: 3.8 Meter above Ground Level

Time Weight Average Concentration (8 hrs)

S.No.	Parameter	Unit	Result	Permissible Limit of Exposure As Per Factory Act	Test Method
1	Particulate Matter(PM10)	$\mu g/m^3$	83.0	As per CPCB = 100	IS:5182(Part-23)
2	Suspended Particulate Matter (SPM)	$\mu g/m^3$	122	600	IS:5182(Part-2)
3	Sulphur dioxide (SO2)	$\mu g/m^3$	27.4	80	IS:5182(Part-2)
4	Nitrogen dioxide (NO2)	$\mu g/m^3$	58.2	80	IS:5182(Part-6)

Shri Om Testing & Research Laboratory
Ravindra Sharma
Technical Manager

Authorized Signatory
(Name, Designation & Signature Seal)

SHRI OM TESTING & RESEARCH LABORATORY

Plot No. 296, 1st FNG Road, Sector-121, Ghari Chaukhandi, Noida - 201301
Mob. : 7838764001, 9868546270, 9821154906
E-mail. : shriomlab@gmail.com, Web. : www.shriomlab.com, www.shriomlab.in

N.A.B.L. Accredited, ISO 9001, ISO 14001 & ISO 18001 Certified Laboratory.

Report Code no.:AN/SSWB-04
Issue to: Shyam Steel, Industries Ltd.
Raturia Industrial Area Angadpur Durgapur 7132315 Burdwan
West Bengal INDIA

Issue Date : 17.08.2019
Analysis Date: 14.08.2019 to 16.08.2019

RESULT
(AMBIENT NOISE MONITORING)

Sampling Location	:	Near ADMINISTRATIVE BULDING
Sample Monitoring	:	13.08.2019
Monitoring Duration	:	24.0 hours
Sample Collected By	:	STRL Staff
Weather Condition	:	Clean Sky
Category of Area	:	Industrial Area

S.No.	Description Noise Level dB (A)	Result		Ambient Noise Standards/Specification(CPCB/Factories Act)Leq dB(A)	
		Day Time	Night Time	Day Time	Night Time
1	Average	68.81	61.50		
2	Maximum	72.00	63.00		
3	Minimum	63.00	57.00		
4	Leq dB (A)	64.01	61.70	75/90	70.00

Remark: Day time is reckoned in between 06:00 am and 10:00 pm
Night time is reckoned in between 10:00 pm and 06:00 am

End of Report

Shri Om Testing & Research Laboratory
Authorized Signatory
(Name, Designation & Signature Seal)

SHRI OM TESTING & RESEARCH LABORATORY

Plot No. 296, 1st FNG Road, Sector-121, Ghari Chaukhandi, Noida - 201301
Mob. : 7838764001, 9868546270, 9821154906
E-mail. : shriomlab@gmail.com, Web. : www.shriomlab.com, www.shriomlab.in

N.A.B.L. Accredited, ISO 9001, ISO 14001 & ISO 18001 Certified Laboratory.

Report Code no.: AN/SSWB-05
Issue Date : 22.08.2019
Issue to: Shyam Steel, Industries Ltd.
Analysis Date: 17.08.2019 to 21.08.2019
Raturia Industrial Area Angadpur Durgapur 7132315 Burdwan
West Bengal INDIA

RESULT

(Ambient Noise Level)

Sampling Location	:	Near Main Gate
Sample Monitoring	:	16.08.2019
Monitoring Duration	:	24.0 hours
Sample Collected By	:	STRL Staff
Weather Condition	:	Clean Sky
Category of Area	:	Industrial Area

S.No.	Description Noise Level dB (A)	Result		Ambient Noise Standards/Specification(CPCB/Factories Act)Leq dB(A)	
		Day Time	Night Time	Day Time	Night Time
1	Average	70.50	62.50		
2	Maximum	71.00	67.00		
3	Minimum	62.00	60.00		
4	Leq dB (A)	70.70	61.70	75/90	70.00

Remark: Day time is reckoned in between 06:00 am and 10:00 pm
Night time is reckoned in between 10:00 pm and 06:00 am

End of Report

Shri Om Testing & Research Laboratory
Authorized Signatory
(Name, Designation & Signature Seal)
Technical Manager

SHRI OM TESTING & RESEARCH LABORATORY

Plot No. 296, 1st FNG Road, Sector-121, Ghari Chaukhandi, Noida - 201301
Mob. : 7838764001, 9868546270, 9821154906
E-mail. : shriomlab@gmail.com, Web. : www.shriomlab.com, www.shriomlab.in

N.A.B.L. Accredited, ISO 9001, ISO 14001 & ISO 18001 Certified Laboratory.

Report Code no.: SEA/SSWB-06

Issue to: Shyam Steel, Industries Ltd.
Raturia Industrial Area Angadpur Durgapur 7132315 Burdwan
West Bengal INDIA

Issue Date : 24.08.2019
Analysis Date: 19.08.2019 to 23.08.2019

RESULT

(Stack Emission Analysis)

Sample Received On	: 18.08.2019
Sample Collected By	: STRL Staff
Sampling Protocol	: STRLL/LAB/SOP
Normal Operation Schedule	: As Per Requirement
Sampling Duration	: 60.0 Min
Stack Attached to	: Cooler Discharge
Type of Fuel Used	: --
Stack Height above the Ground	: 30.0 Mtr
Flue Gas Temperature	: 39.0^{0}C
Velocity of Flue Gases	: 7.25 Mtr/Sec
Quantity of Emission Discharged	: 7375.86m^3/hr

S.No.	Parameter	Unit	Result	Specification/Limit (As per CPCB)	Test Method
1	Particulate Matter(PM)	mg/m^3	12.0	-	IS:11255 (Part-1)
2	Sulphur dioxide (SO2)	mg/m^3	-	-	IS:11255 (Part-2)
3	Nitrogen dioxide (NO2)	mg/m^3	-	Not Specified	IS:11255 (Part-7)
4	Carbon Monoxide (CO)	% by Vol	0.04	1% By Volume	IS:13270
5	Carbon Dioxide (CO2)	% by Vol	1.8	Not Specified	IS:13270

End of Report

Shri Om Testing & Research Laboratory
Authorized Signatory
(Name, Designation & Signature Seal)
Date: 10.01.2017

SHRI OM TESTING & RESEARCH LABORATORY

Plot No. 296, 1st FNG Road, Sector-121, Ghari Chaukhandi, Noida - 201301
Mob. : 7838764001, 9868546270, 9821154906
E-mail. : shriomlab@gmail.com, Web. : www.shriomlab.com, www.shriomlab.in

N.A.B.L. Accredited, ISO 9001, ISO 14001 & ISO 18001 Certified Laboratory.

Report Code no.: SEA/SSWB-05 **Issue Date : 21.08.2019**

Issue to: Shyam Steel, Industries Ltd. **Analysis Date: 16.08.2019 to 20.08.2019**

Raturia Industrial Area Angadpur Durgapur 7132315 Burdwan
West Bengal INDIA

RESULT

(Stack Emission Analysis)

Sample Received On	: 15.08.2019
Sample Collected By	: STRL Staff
Sampling Protocol	: STRLL/LAB/SOP/0
Normal Operation Schedule	: As Per Requirement
Sampling Duration	: ONE HOUR
Stack Attached to	: Rotary Kiln
Type of Fuel Used	: Coal
Stack Height above the Ground	: 25.25 Mtr
Flue Gas Temperature	: 43.0 ^{0}C
Velocity of Flue Gases	: 6.50 Mtr/Sec
Quantity of Emission Discharged	: 6612.84 m^3/hr

S.No.	Parameter	Unit	Result	Specification/Limit (As per CPCB)	Test Method
1	Particulate Matter(PM)	mg/m^3	11.47	-	IS:11255 (Part-1)
2	Sulphur dioxide (SO2)	mg/m^3		-	IS:11255 (Part-2)
3	Nitrogen dioxide (NO2)	mg/m^3		Not Specified	IS:11255 (Part-7)
4	Carbon Monoxide (CO)	% by Vol	0.04	1% By Volume	IS:13270
5	Carbon Dioxide (CO2)	% by Vol	1.7	Not Specified	IS:13270

End of Report

Shri Om Testing & Research Laboratory
Authorized Signatory
(Name, Designation & Signature Seal)
Technical Manager

SHRI OM TESTING & RESEARCH LABORATORY

Plot No. 296, 1st FNG Road, Sector-121, Ghari Chaukhandi, Noida - 201301
Mob. : 7838764001, 9868546270, 9821154906
E-mail. : shriomlab@gmail.com, Web. : www.shriomlab.com, www.shriomlab.in

N.A.B.L. Accredited, ISO 9001, ISO 14001 & ISO 18001 Certified Laboratory.

Report Code no.:SEA/SSWB-10

Issue to: Shyam Steel, Industries Ltd.
Raturia Industrial Area Angadpur Durgapur 7132315 Burdwan West Bengal INDIA

Issue Date : 22.08.2019
Analysis Date: 17.08.2019 to 21.08.2019

RESULT

(Stack Emission Analysis)

Sample Received On	: 16.08.2019
Sample Collected By	: STRL Staff
Sampling Protocol	: STRLL/LAB/SOP/0
Normal Operation Schedule	: As Per Requirement
Sampling Duration	: 60.0 Min
Stack Attached to	: Induction Furnace
Type of Fuel Used	: Electricity
Stack Height above the Ground	: 38.0 Mtr
Flue Gas Temperature	: 72.0 ^{0}C
Velocity of Flue Gases	: 10.25 Mtr/Sec
Quantity of Emission Discharged	: 36308.2 m^3/hr

S.No.	Parameter	Unit	Result	Specification/Limit (As per CPCB)	Test Method
1	Particulate Matter(PM)	mg/m^3	21.0	-	IS:11255 (Part-1)
2	Sulphur dioxide (SO2)	mg/m^3	5.9	-	IS:11255 (Part-2)
3	Nitrogen dioxide (NO2)	mg/m^3	10.6	Not Specified	IS:11255 (Part-7)
4	Carbon Monoxide (CO)	% by Vol	0.36	1% By Volume	IS:13270
5	Carbon Dioxide (CO2)	% by Vol	4.2	Not Specified	IS:13270

End of Report

Shri Om Testing & Research Laboratory
Authorized Signatory
(Name, Designation & Signature Seal)

SHRI OM TESTING & RESEARCH LABORATORY

Plot No. 296, 1st FNG Road, Sector-121, Ghari Chaukhandi, Noida - 201301
Mob. : 7838764001, 9868546270, 9821154906
E-mail. : shriomlab@gmail.com, Web. : www.shriomlab.com, www.shriomlab.in

N.A.B.L. Accredited, ISO 9001, ISO 14001 & ISO 18001 Certified Laboratory.

Report Code no.: WWA/SSWB-11
Issue to: Shyam Steel, Industries Ltd.
Raturia Industrial Area Angadpur Durgapur 7132315 Burdwan West Bengal INDIA

Issue Date : 22.08.2019
Analysis Date: 17.08.2019 to 21.08.2019

Sample Description: Waste Water

RESULTS
(Waste water Analysis)

SAMPLING DETAILS

Date of Sampling	: 16.08.2019
Sample Location	: Drain of DRI Plant
Sample Collected by	: STRL Staff
Sampling Protocol	: IS-3025(P-1)1987 Reaff:
Weather Condition	: Clear Sky
Sampling Quantity	: 5L+ 500ml
Sample Packing	: Plastic/Glass Bottle

S.No.	Parameter	Unit	Result	Test Method
1	pH	-	7.15	APHA -4500-H+
2	Oil & Grease (O & G)	mg/l	5.4	APHA -5520-C
3	Biological Oxygen Demand(BOD 3day at 27°C)	mg/l	32	APHA -5212-B
4	Chemical Oxygen Demand(COD 3day at 27°C)	mg/l	63.2	APHA -5212-B
5	Total Suspended Solids (TSS)		40.2	

End of Report*

Shri Om Testing & Research Laboratory
Ravindra Sharma
Technical Manager

Authorized Signatory
(Name, Designation & Signature Seal)

SHRI OM TESTING & RESEARCH LABORATORY

Plot No. 296, 1st FNG Road, Sector-121, Ghari Chaukhandi, Noida - 201301
Mob. : 7838764001, 9868546270, 9821154906
E-mail. : shriomlab@gmail.com, Web. : www.shriomlab.com, www.shriomlab.in

N.A.B.L. Accredited, ISO 9001, ISO 14001 & ISO 18001 Certified Laboratory.

Report Code no.: WWA/SSWB-13
Issue to: Shyam Steel, Industries Ltd.
Raturia Industrial Area Angadpur Durgapur 7132315 Burdwan West Bengal INDIA

Issue Date : 25.08.2019
Analysis Date: 20.08.2019 to 24.08.2019

Sample Description: Waste Water

RESULTS
(Waste Water Analysis)

SAMPLING DETAILS

Date of Sampling	: 19.08.2019
Sample Location	: Drain Near Security Gate
Sample Collected by	: STRL Staff
Sampling Protocol	: IS-3025(P-1)1987 Reaff:
Weather Condition	: Clear Sky
Sampling Quantity	: 5L+ 500ml
Sample Packing	: Plastic/Glass Bottle

S.No.	Parameter	Unit	Result	Test Method
1	pH	-	7.65	APHA -4500-H+
2	Oil & Grease (O & G)	mg/l	4.1	APHA -5520-C
3	Biological Oxygen Demand(BOD 3day at 27°C)	mg/l	33	APHA -5212-B
4	Chemical Oxygen Demand(COD 3day at 27°C)	mg/l	78.0	APHA -5212-B
5	Total Suspended Solids (TSS)		32.0	

End of Report

Shri Om Testing & Research Laboratory
Ravindra Sharma
Technical Manager

Authorized Signatory
(Name, Designation & Signature Seal)

SHRI OM TESTING & RESEARCH LABORATORY

Plot No. 296, 1st FNG Road, Sector-121, Ghari Chaukhandi, Noida - 201301
Mob. : 7838764001, 9868546270, 9821154906
E-mail. : shriomlab@gmail.com, Web. : www.shriomlab.com, www.shriomlab.in

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Report Code no.: WQA/SSWB-14 **Issue Date : 22.08.2019**
Issue to: Shyam Steel, Industries Ltd. **Analysis Date: 17.08.2019 to 21.08.2019**
Raturia Industrial Area Angadpur Durgapur 7132315 Burdwan West Bengal INDIA

RESULTS
(Water Quality Analysis)

SAMPLING DETAILS

Date of Sampling	: 16.08.2019
Sample Location	: Raw Water Storage Tank
Sample Collected by	: STRL Staff
Sampling Protocol	: IS-3025(P-1)1987 Reaff:
Weather Condition	: Clear Sky
Sampling Quantity	: 4L+ 500ml
Sample Packing	: Plastic/Glass Bottle

S. No.	Parameters	Units	Limits (as per IS:10500-2012)		Results	Test Method
			Desirable Limit	Permissible Limit		
1	Color	Hazen	5	15	2.0	IS : 3025(Pt-4) 1983, Reaff. 2017
2	Odour	-	Agreeable	Agreeable	Agreeable	IS : 3025(Pt-5) 1983, Reaff. 2017
3	Taste	-	Agreeable	Agreeable	Unobjectionable	IS : 3025(Pt-8)-1984, Reaff. 2017
4	Turbidity	NTU	1	5	0.98	IS: 3025(Pt-10)-1984,Reaff. 2017
5	pH	-	6.5-8.5	No Relaxation	6.24	IS : 3025(Pt-11)1983, Reaff. 2017
6	Total Hardness (as $CaCO_3$)	mg/l	200	600	95.0	IS : 3025(Pt-21)1983, Reaff. 2014
7	Iron (as Fe)	mg/l	0.3	No Relaxation	0.12	APHA 22nd Ed., 3120B (3111B (AAS),
8	Chlorides (as Cl)	mg/l	250	1000	19.12	IS : 3025(Pt-32)1988, Reaff. 2014
9	Fluoride (as F)	mg/l	1	1.5	1.5	APHA 22nd Ed., 4500F(D)
10	TDS	mg/l	500	2000	215.0	IS: 3025(Pt-16)1984, Reaff. 2017
11	Calcium (as Ca^{2+})	mg/l	75	200	23.7	IS : 3025(Pt-40)1991, Reaff. 2014
12	Magnesium (as Mg^{2+})	mg/l	30	100	7.80	APHA 22nd Ed., 3500-Mg (B)
13	Copper (as Cu)	mg/l	0.05	1.5	ND	APHA 22nd Ed., 3120 B / 3111B (AAS)
14	Sulphate (as SO_4)	mg/l	200	400	35.04	IS : 3025(Pt-24)1986, Reaff. 2014
15	Free Residual Chlorine (RFC)	mg/l	0.2	1	Nil	IS : 3025(Pt-26)1986, Reaff. 2014

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16	Cadmium (as Cd)	mg/l	0.002	No Relaxation	ND	APHA 22nd Ed.. 3120 B /3111B (AAS)
17	Arsenic (as As)	mg/l	0.01	0.05	ND	APHA 22nd Ed., 3120 B/ 3114, AAS-VGA
18	Cyanide (as CN)	mg/l	0.04	No Relaxation	ND	APHA 22nd Ed., 4500 CN
19	Lead (as Pb)	mg/l	0.01	No Relaxation	ND	APHA 22nd Ed., 3120 B /3111B AAS
20	Zinc (as Zn)	mg/l	5	15	ND	APHA 22nd Ed., 3120 B / 3111 B (AAS)
21	Nickel (as Ni)	mg/l	0.02	No Relaxation	ND	APHA 3111 (B)
22	Chromium (as Cr^{6+})	mg/l	0.04	No Relaxation	ND	IS : 3025(Pt-52)-2003 RA 2014
23	Alkalinity (as $CaCO_3$)	mg/l	198	600	97.0	IS: 3025(Pt-23)1986, Reaff. 2014
24	Aluminum (as Al)	mg/l	0.02	0.2	ND	APHA 22nd Ed3120 B / 3111 B (AAS)/IS 3025 (pt-55)2003 RA 2014
25	Conductivity at 25^0C	mS	Not Specified	Not Specified	314.0	APHA 2510
	Bacteriological Parameters					
1	Total Coli form	MPN/100ml	Shall Not Be Detectable		Not Detected (<2)	IS : 1622-1981 (Reaff.2003)
2	E.coli	E.coli/100ml	Shall Not Be Detectable		Absent	IS : 1622-1981 (Reaff.2003)

End of Report

Shri Om Testing & Research Laboratory
Ritu Sharma
Technical Manager

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Report Code no.:SW/SSWB-15 **Issue Date : 20.08.2019**

Issue to: Shyam Steel, Industries Ltd. **Analysis Date: 15.08.2019 to 19.08.2019**

Raturia Industrial Area Angadpur Durgapur 7132315 Burdwan West Bengal INDIA

Sample Description: Solid Waste (Induction Furnace Slag)

RESULTS
(Solid Waste)

SAMPLING DETAILS

Sampling Location	:	Slag Dumping Yard
Sampling Protocol	:	STRLL/LAB/SOP/01
Sample Quantity	:	1 Kg
Monitoring done by	:	STRL Staff
Sample collecting in presence of	:	Company Representative

Test Toxicity	Protocol By TCLP	Result	Requirement/Limit As Per EPA Chapter-7	
			Min.	Max.
1.2 Dichloroethane	EPA 5030 C	BDL (DL:0.1 µg/l)	-	0.5 mg/l
2,4-D	EPA 8151 A	BDL (DL:0.1 µg/l)	-	10.0 mg/l
2,4,6 Trichlorophenol	EPA 8041 A	BDL (DL:0.1 µg/l)	-	2.0 mg/l
Benzene	EPA 5030 C	BDL (DL:0.1 µg/l)	-	0.5 mg/l
Chloro Benzene	EPA 5030 C	518.0 µg/l	-	100.0 mg/l
Carbon Tetra Chloride	EPA 5030 C	BDL (DL:0.1 µg/l)	-	0.5 mg/l
Chlorodane	EPA 8081 A	BDL (DL:0.1 µg/l)	-	0.03 mg/l
Chloroform	EPA 5030 C	BDL (DL:0.1 µg/l)	-	6.0 mg/l
1,1 Dichloroethylene	EPA 5030 C	BDL (DL:0.1 µg/l)	-	0.07 mg/l
1,4 Dichlorobenzene	EPA 5030 C	BDL (DL:0.1 µg/l)	-	7.5 mg/l
2,4,5 TP (Silvex)	By GC-MS(DCM-Etraction)	Absent	-	1.0 mg/l
2,4 Dinitrotoluene	By GC-MS(DCM-Etraction)	Absent	-	0.13 mg/l
Cresol (Total)	EPA 8041 A	BDL (DL:0.1 µg/l)	-	200.0 mg/l
Hexachlorobutadiene	EPA 5030 C	BDL (DL:0.1 µg/l)	-	0.5 mg/l
Hexachloroethane	By GC-MS(DCM-Etraction)	Absent	-	3.0 mg/l
Hexachlorobenzene	EPA 8081 A	BDL (DL:0.1 µg/l)	-	0.13 mg/l
Report Code no.: SSWBAP-17		Page 2 of 2		
m-Cresol	EPA 8041 A	BDL (DL:0.1 µg/l)	-	200.0 mg/l
Methoxychlor	EPA 8081 A	BDL (DL:0.1 µg/l)		10.0 mg/l
Methyl Ethyle Ketone	By GC-MS(DCM-Etraction)	Absent	-	200.0 mg/l
o-Cresol	EPA 8041 A	BDL (DL:0.1 µg/l)	-	200.0 mg/l
p-Cresol	EPA 8041 A	BDL (DL:0.1 µg/l)	-	200.0 mg/l
Pyridine	By GC-MS(DCM-Etraction)	Absent	-	5.0 mg/l
Tetrachloroethylene	EPA 5030 C	BDL (DL:0.1 µg/l)	-	0.7 mg/l
Toxaphene	By GC-MS(DCM-Etraction)	Absent	-	0.5 mg/l
Trichloroethylene	EPA 5030 C	BDL (DL:0.1 µg/l)	-	0.5 mg/l
Endrin	EPA 8081 A	BDL (DL:0.1 µg/l)	-	0.02 mg/l
Heptachlor	EPA 8081 A	BDL (DL:0.1 µg/l)	-	0.008 mg/l
Lindane	EPA 8081 A	BDL (DL:0.1 µg/l)	-	0.4 mg/l
Nitrobenzene	By GC-MS(Purge & Trap)	Absent	-	2.0 mg/l

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Report Code no.: SEA/SSWB-07 **Issue Date : 22.08.2019**

Issue to: Shyam Steel, Industries Ltd. **Analysis Date: 17.08.2019 to 21.08.2019**

Raturia Industrial Area Angadpur Durgapur 7132315 Burdwan West Bengal INDIA

RESULT

(Stack Emission Analysis)

Sample Received On	: 16.08.2019
Sample Collected By	: STRL Staff
Sampling Protocol	: STRLL/LAB/SOP
Normal Operation Schedule	: As Per Requirement
Sampling Duration	: 60.0 Min
Stack Attached to	: Product House
Type of Fuel Used	: --
Stack Height above the Ground	: 41.0 Mtr
Flue Gas Temperature	: 205.0 ^{0}C
Velocity of Flue Gases	: 6.25 Mtr/Sec
Quantity of Emission Discharged	: 124034 m^3/hr

S.No.	Parameter	Unit	Result	Specification/Limit (As per CPCB)	Test Method
1	Particulate Matter(PM)	mg/m^3	16.3	-	IS:11255 (Part-1)
2	Sulphur dioxide (SO2)	mg/m^3	68.5	-	IS:11255 (Part-2)
3	Nitrogen dioxide (NO2)	mg/m^3	12.5	Not Specified	IS:11255 (Part-7)
4	Carbon Monoxide (CO)	% by Vol	0.25	1% By Volume	IS:13270
5	Carbon Dioxide (CO2)	% by Vol	6.7	Not Specified	IS:13270

End of Report

Authorized Signatory

Shri Om Testing & Research Laboratory

Ravindra Sharma

(Name, Designation & Signature Seal)

Technical Manager

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Penta Chloro Phenol	EPA 8081 A	BDL (DL:0.1 µg/l)	-	100.0 mg/l
2,4,5 Trichlorophenol	EPA 8081 A	BDL (DL:0.1 µg/l)	-	400.0 mg/l
Barium as Ba	EPA 200.8	12.28 mg/l	-	100.0 mg/l
Cadmium as Cd	EPA 200.8	BDL (DL:0.1 µg/l)	-	1.0 mg/l
Total Chromium as Cr	EPA 200.8	0.52 mg/l	-	5.0 mg/l
Lead as Pb	EPA 200.8	BDL (DL:0.1 µg/l)	-	5.0 mg/l
Arsenic as As	EPA 200.8	BDL (DL:0.1 µg/l)	-	5.0 mg/l
Vinyl Chloride	EPA 5030 C	BDL (DL:0.1 µg/l)	-	0.2 mg/l
Mercury as Hg	EPA 200.8	BDL (DL:0.1 µg/l)	-	0.2 mg/l
Selenium as Se	EPA 200.8	BDL (DL:0.1 µg/l)	-	1.0 mg/l
Silver as Ag	EPA 200.8	BDL (DL:0.1 µg/l)	-	5.0 mg/l
Copper as Cu	EPA 200.8	0.14 mg/l	-	-
Hexavalent Chromium as Cr^{+6}	By GC-MS/EPA	BDL (DL:0.5mg/kg)	-	-

End of Report

Shri Om Testing & Research Laboratory
R Sharma
Technical Manager

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Plot No. 296, 1st FNG Road, Sector-121, Ghari Chaukhandi, Noida - 201301
Mob. : 7838764001, 9868546270, 9821154906
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Report Code no.: SW/SSWB-16 **Issue Date : 21.08.2019**

Issue to: Shyam Steel, Industries Ltd. **Analysis Date: 16.08.2019 to 20.08.2019**

Raturia Industrial Area Angadpur Durgapur 7132315 Burdwan West Bengal INDIA

Sample Discription: Solid Waste (Fly Ash)

RESULTS
(Solid Waste)

SAMPLING DETAILS

Sampling Location	:	Ash Dumping Yard (CPP)
Sampling Protocol	:	STRLL/LAB/SOP/01
Sample Quantity	:	2 Kg
Monitoring done by	:	STRL Staff
Sample collecting in presence of	:	Company Representative

Test Toxicity	Protocol By TCLP	Result	Requirement/Limit As Per EPA Chapter-7	
			Min.	Max.
1.2 Dichloroethane	EPA 5030 C	BDL (DL:0.1 µg/l)	-	0.5 mg/l
2,4-D	EPA 8151 A	BDL (DL:0.1 µg/l)	-	10.0 mg/l
2,4,6 Trichlorophenol	EPA 8041 A	BDL (DL:0.1 µg/l)	-	2.0 mg/l
Benzene	EPA 5030 C	BDL (DL:0.1 µg/l)	-	0.5 mg/l
Chloro Benzene	EPA 5030 C	7.2 µg/l	-	100.0 mg/l
Carbon Tetra Chloride	EPA 5030 C	BDL (DL:0.1 µg/l)	-	0.5 mg/l
Chlorodane	EPA 8081 A	BDL (DL:0.1 µg/l)	-	0.03 mg/l
Chloroform	EPA 5030 C	BDL (DL:0.1 µg/l)	-	6.0 mg/l
1,1 Dichloroethylene	EPA 5030 C	BDL (DL:0.1 µg/l)	-	0.07 mg/l
1,4 Dichlorobenzene	EPA 5030 C	BDL (DL:0.1 µg/l)	-	7.5 mg/l
2,4,5 TP (Silvex)	By GC-MS(DCM-Etraction)	Absent	-	1.0 mg/l
2,4 Dinitrotoluene	By GC-MS(DCM-Etraction)	Absent	-	0.13 mg/l
Cresol (Total)	EPA 8041 A	BDL (DL:0.1 µg/l)	-	200.0 mg/l
Hexachlorobutadiene	EPA 5030 C	BDL (DL:0.1 µg/l)	-	0.5 mg/l

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Hexachloroethane	By GC-MS(DCM-Etraction)	Absent	-	3.0 mg/l
Hexachlorobenzene	EPA 8081 A	BDL (DL:0.1 µg/l)	-	0.13 mg/l

Report Code no.: SW/SSWB-16

m-Cresol	EPA 8041 A	BDL (DL:0.1 µg/l)	-	200.0 mg/l
Methoxychlor	EPA 8081 A	BDL (DL:0.1 µg/l)		10.0 mg/l
Methyl Ethyle Ketone	By GC-MS(DCM-Etraction)	Absent	-	200.0 mg/l
o-Cresol	EPA 8041 A	BDL (DL:0.1 µg/l)	-	200.0 mg/l
p-Cresol	EPA 8041 A	BDL (DL:0.1 µg/l)	-	200.0 mg/l
Pyridine	By GC-MS(DCM-Etraction)	Absent	-	5.0 mg/l
Tetrachloroethylene	EPA 5030 C	BDL (DL:0.1 µg/l)	-	0.7 mg/l
Toxaphene	By GC-MS(DCM-Etraction)	Absent	-	0.5 mg/l
Trichloroethylene	EPA 5030 C	BDL (DL:0.1 µg/l)	-	0.5 mg/l
Endrin	EPA 8081 A	BDL (DL:0.1 µg/l)	-	0.02 mg/l
Heptachlor	EPA 8081 A	BDL (DL:0.1 µg/l)	-	0.008 mg/l
Lindane	EPA 8081 A	BDL (DL:0.1 µg/l)	-	0.4 mg/l
Nitrobenzene	By GC-MS(Purge & Trap)	Absent	-	2.0 mg/l
Penta Chloro Phenol	EPA 8081 A	BDL (DL:0.1 µg/l)	-	100.0 mg/l
2,4,5 Trichlorophenol	EPA 8081 A	BDL (DL:0.1 µg/l)	-	400.0 mg/l
Barium as Ba	EPA 200.8	1.0 mg/l	-	100.0 mg/l
Cadmium as Cd	EPA 200.8	BDL (DL:0.1 µg/l)	-	1.0 mg/l
Total Chromium as Cr	EPA 200.8	0.53 mg/l	-	5.0 mg/l
Lead as Pb	EPA 200.8	BDL (DL:0.1 µg/l)	-	5.0 mg/l
Arsenic as As	EPA 200.8	BDL (DL:0.1 µg/l)	-	5.0 mg/l
Vinyl Chloride	EPA 5030 C	BDL (DL:0.1 µg/l)	-	0.2 mg/l
Mercury as Hg	EPA 200.8	BDL (DL:0.1 µg/l)	-	0.2 mg/l
Selenium as Se	EPA 200.8	BDL (DL:0.1 µg/l)	-	1.0 mg/l

Shri Om Testing & Research Laboratory
Sharma
Manager

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Silver as Ag	EPA 200.8	BDL (DL:0.1 µg/l)	-	5.0 mg/l
Copper as Cu	EPA 200.8	BDL (DL:0.1 µg/l)	-	-
Hexavalent Chromium as Cr^{+6}	By GC-MS/EPA	BDL (DL:0.5mg/kg)	-	-

End of Report

Shri Om Testing & Research Laboratory
Technical Manager

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