COMPLIANCE REPORT

FOR

ENVIRONMENTAL CLEARANCE

(EC NO. J-11011/112/2013-IA II (I) DATED 29.03.2016)

CAPACITY 0.6 MTPA

IRON ORE PELLETIZING PLANT

OF

ASL ARDENT STEEL LIMITED

Vill: Phuljhar, Tehsil: Telkoi, Dist: Keonjhar, Odisha.

OMPLICANCE FOR ENVIRONMENTAL CLEARANCE OF THE IRON ORE PELLETISATION PLANT OF

M/S ARDENT STEEL LIMITED

Vill: Phuljhar, Tehsil: Telkoi, Dist: Keonjhar, Odisha - 758085

A. SPECIFIC CONDITION

SL NO	CONDITION	COMPLIANCE
1	Periodical medical examination of the workers engaged in the project shall be carried out and records maintained. For the purpose, a qualified doctor should be appointed and schedule of health examination of the workers should be drawn and followed accordingly.	We have appointed Dr. PK Swain on adhoc basis .Who comes and did the health examination once in 6 months. The details of record is attached in **Annexure-I**.
2	The project proponent shall ensure supply of safe drinking water to the nearby villages.	1-We have constructed one overhead tank of capacity 40KL in village Phuljhar. 2-Drinking water is provided inside Plant through storing 2 Nos. of 1KL each and 2 Nos. 2KL each of drinking water tanks. 3-A centralized RO of 200Ltr. /Day is installed in Plant to provide drinking water. 4. A separate RO of 500Ltr. /Day is provided at colony situated inside Colony. 5-We have engaged 5 Nos of Tankers to provide drinking water to villagers. 6-Water Pipeline is laid from overhead tank to houses in villages. **Annexure -II**
3	The project proponent shall install 24X7 air monitoring devices to monitor air emissions, as provided by the CPCB and submit report to Ministry and its Regional Office.	24X7 air monitoring device details configuration:DCEM2000/2100 Opacity /Dust Monitor CEMC –A NABED accredited agency is working and is providing the data which is submitting monthly to RO. **Annexure -III**
4	Continuous stack monitoring facilities for all the stacks shall be provided and sufficient air pollution control devices viz. Electrostatic precipitator (ESP), bag house, bag filters etc. shall be provided to keep the emission levels below 50 mg/Nm^3 and installing energy efficient technology.	Air pollution control devices such as ESP, Bag House, Bag Filter, Etc. has been provided to keep the emission level below the standard norms. i.e., 50mg/Nm^3. **Annexure -IV**

5	The National Ambient Air Quality Emission Standards issued by the Ministry vide G.S.R. No. 826 (E) dated 16th November, 2009 shall be followed.	Yes, followed.
6	Gaseous emission levels including secondary fugitive emissions from all the sources shall be controlled within the latest permissible limits issued by the Ministry vide G.S.R. 414 (E) dated 30th May, 2008 and regularly monitored. Guidelines / Code of Practice issued by the CPCB shall be followed.	Yes, Followed. **Annexure -V**
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.	1. All roads are concrete inside plant 2. 10KL water tanker is engaged to sprinkle water on road. 3. Water sprinklers installed inside plant 4. Both Incoming and Outgoing trucks are covered properly. 5. Truck mounted sweep machine is engaged to clean dust. **Annexure -VI**
8	Zero' effluent discharge shall be strictly followed and no wastewater shall be discharged outside the premises.	We strictly follow Zero effluent discharge all waste water are recycled and reused
9	Regular monitoring of influent and effluent surface, sub-surface and ground water shall be ensured and treated wastewater shall meet the norms prescribed by the State Pollution Control Board or described under the E(P) Act whichever are more stringent.	Complied. Document attached in **Annexure -VII**

SL NO	CONDITION	COMPLIANCE
10	Proper handling, storage, utilization and disposal of all the solid / hazardous 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, SPCB and CPCB. The proponent shall submit a copy of the agreement with the authorized vendor to the regional office as a part of compliance.	Our Plant does not produce any Toxic Material. We dispose the hazardous waste to the authorized Vendor. **Annexure -VIII**
11	Occupational health surveillance of the workers shall be done on a regular basis and records maintained as per the Factories Act and analysis shall be submitted to the regional office of the Ministry.	Periodical Health examinations to detect occupational diseases like Asthma, Strain and back injuries.
12	A time bound action plan shall be submitted to reduce solid waste generated due to the project related activities, its proper utilization and disposal.	In our process, a negligible amount of solid waste is being generated and it is being kept separately. At the time of repairing of roads, the same is being utilized. Ref: (Sample monitoring data during the reporting period enclosed at **Annexure – IX.**
13	Proper utilization of fly ash shall be ensured as per Fly Ash Notification, 1999 and subsequent amendment in 2003 and 2009. 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 Chennai.	The negligible quantity of coal ash generated from coal gassifire being used for leveling lower territorial land in the plant premises.
14	A Risk and Disaster Management Plan shall be prepared and a copy submitted to the Ministry's Regional Office, SPCB and CPCB within 3 months of issue of environment clearance letter.	An updated risk and disaster management plan has been prepared and submitted at Directorate of Factories and Boilers, Odisha. Attached **Annexure –X.**
15	The project proponent shall provide for solar light system for all common areas, street lights, villages, parking around project area and maintain the same regularly.	We are planning to install a captive solar power plant.
16	The project proponent shall provide for LED lights in the offices and residential areas.	Yes, Followed.

SL NO	CONDITION	COMPLIANCE
17	Green belt shall be developed at least in 33 % of the total project area with at least 10 meter wide green belt on all sides along the periphery of the project area and along road sides etc. By planting native and broad leaved species in consultation with local DFO, local community and as per the CPCB guidelines.	Out of total plant area of 36.781 ha, around 12.13 ha of land has green belt. Attached **Annexure -XI.**
18	At least 2.5 % of the total cost of the project shall be earmarked towards the Enterprise Social Commitment based on Public Hearing issues, locals need and item-wise details along with time bound action plan shall be prepared and submitted to the Ministry's Regional Office. Implementation of such program shall be ensured by constituting a Committee comprising of the proponent, representatives of village Panchayat and District Administration. Action taken report in this regard shall be submitted to the Ministry's Regional Office.	The local needs of the villagers have been taken care off. The list of such items are as per annexure. **Annexure –XII.**
19	The proponent shall prepare a detailed CSR Plan for every year for the next 5 years for the existing-cum-expansion project, which includes village-wise, sector-wise requirements such as strengthening of village roads, avenue plantation, etc) activities include the amount of 2 % retain annual profits as provided for in Clause 135 of the Companies Act, 2013 which provides for 2 % of the average net profits of previous 3 years towards CSR activities for life of the project. A separate budget head shall be created and the annual capital and revenue expenditure on various activities of the Plan shall be submitted as part of the Compliance Report to RO. The details of the CSR Plan shall also be uploaded on the company website and shall also be provided in the Annual Report of the company.	The project was accorded environmental clearance vide MOEF and CC Letter No-J11011/112/2013-IA II (I) Date 29th March ,2016.As such the five year period under Consideration for which CSR activities need to be planned include 2016-17,2017-18,2018-19,2019-20 and 2020-21.The plant was not in operation during 2015-16.It incurred a loss of Rs.4.78 Crores in 2016-17 inspite of the facts as stated the plan for CSR activities have been made which is enclosed at **Annexure -XIII**
20	The company shall submit within three months their policy towards Corporate Environment Responsibility which shall inter-alia address (i) Standard operating process/procedure to being into focus any infringement/deviation/ violation of environmental or forest norms / conditions, (ii) Hierarchical system or Administrative order of the Company to deal with environmental issues and ensuring compliance to the environmental clearance conditions and (iii) System of reporting of non-Compliance / violation environmental norms to the Board of Directors of the company and / or stakeholders.	Corporate environmental responsibility attached at **Annexure – XIV**. Standard operating procedure has been prepared as annexed at **Annexure – XV**, hierarchical system or administrative order of the company to deal with environmental clearance conditions annexed at **Annexure – XVI** system of reporting of non-compliance annexed at **Annexure – XVII**
SL NO	**CONDITION**	**COMPLIANCE**

21	Provision shall be made for the housing of construction labour within the site with all necessary infrastructure and facilities such as fuel for cooking, mobile toilets, mobile STP, safe drinking water, medical health care, crèche etc. The housing may be in the form of temporary structures to be removed after the completion of the projects.	The construction activities have been completed before obtaining the approval. As such no housing for construction labour needed.
B. GENERAL CONDITION		
i.	The project authorities must strictly adhere to the stipulations made by the Odisha Pollution Control Board and the State Government.	Yes followed strictly.
ii.	No further expansion or modifications in the plant shall be carried out without prior approval of the Ministry of Environment, Forests and Climate Change (MoEFCC).	Yes, Agreed
iii.	At least four ambient air quality monitoring stations should be established in the downward direction as well as where maximum ground level concentration of PM_{10}, $PM_{2.5}$, SO_2 and NO_x are anticipated in consultation with the SPCB. Data on ambient air quality and stack emission shall be regularly submitted to this Ministry including its Regional Office at Bhubaneswar and the SPCB/CPCB once in six months.	The monthly monitoring is being carried out by third party agency which is submitting report regularly. Ref: **Annexure V**
iv.	Industrial wastewater shall be properly collected. .treated so as to conform to the standards prescribed under GSR 422 (E) dated 19th May, 1993 and 31st December, 1993 or as amended form time to time. The treated wastewater shall be utilized for Plantation purpose.	Agreed
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 should conform to the standards prescribed under EPA Rules, 1989 vrz.75 dBA (day time) and 70 dBA (night time).	Agreed
vi.	Occupational health surveillance of the workers shall be done on a regular basis and records maintained as per the Factories Act.	Yes, It is being done.
vii.	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 do not utilize any surface water till date. However, rain water harvesting and ground water recharge plan for our plant has been prepared.
SL NO	**CONDITION**	**COMPLIANCE**

viii.	The project proponent shall also comply with all the environmental protection measures and safeguards recommended in the EIA/EMP report. Further, the company must undertake socio-economic development activities in the surrounding villages like community development programmes, educational programmes, drinking water supply and health care etc.	Yes, It is being carried out as per the needs of the local villagers.
ix.	Requisite funds shall be earmarked towards capital cost and recurring cost/annum for environment pollution control measures to implement the conditions stipulated by the Ministry of Environment, Forest and Climate Change (MoEFCC) as well as the State Government. An implementation schedule for implementing all the conditions stipulated herein shall be submitted to the Regional Office of the Ministry at Bhubaneswar. The funds so provided shall not be diverted for any other purpose	The project has become operational before getting the EC. As such pollution control systems for Air, Water and Noise control has been in place. Total expenditure on account of pollution control measure – capital cost – 6.7 crores an recurring expenditure about 0.67 crores per annum have been appropriated.
x.	A copy of clearance letter shall be sent by the proponent to concerned Panchayal,Zila Parishad / Municipal Corporation, Urban Local Body and the local NGO, if any, from whom suggestions by 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.	Yes, circulated to panchayat. A receipt from gram panchayat on the subject has also be obtained, which is available in the website.
xi.	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 MoEFCC at Bhubaneswar. The respective Zonal Office of CPCB and the SPCB. The criteria pollutant levels namely; PM_{10}, SO_2 and 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.	Yes, the compliance report, monitoring report, CSR activities report are being uploaded periodically.
xii.	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 MoEFCC, the respective Zonal Office of CPCB and the SPCB. The Regional Office of this Ministry at Bhubaneswar / CPCB / SPCB shall monitor the stipulated conditions.	The compliance report for the 6 months period from 1/10/2016 to 31/03/2017 has been submitted earlier. The report for 01/04/2017 to 31/09/2018, it is being submitted now.

SL NO	CONDITION	COMPLIANCE
xiii.	The environmental statement for each financial year ending 31st 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 Office of the MoEFCC at Bhubaneswar by e-mail.	Yes, complied.
xiv.	The Project Proponent shali inform the pubhc that the project has been accorded environmental clearance by the Ministry and copies of the clearance letter are available with the SPCB and may also be seen at Website of the Ministry of Environment, Forests and Climate Change (MoEFCC) 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.	Yes, it has already been intimated to public and also submitted a copy to the State Pollution Control Board. (Supporting document already submitted as in previous six monthly reports.)
xv.	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.	The project has been completed before obtaining the EC. Financial closure: 21.10.2008 Financial Approval : 21.10.2008 Purchase of 1't [and:31.05.2008] Proof for the above already submitted earlier.

ANNEXURE - I

1

Health Record

(Pre-employment / Periodical)
[Prescribed under rule 62 –I]

1 Name of the factory : ASL

2 Name of the Employee : Purnachandra mohanta

3 Employee Distinguishing Number : NO

4 Age of the employee : 31 year.

5 Identification mark : A blackmole is present near lowerlip.

6 Nature of the job : mech, Rigen, Welden BNS cont

7 Date of Employment : 2.11.2016

8 Length of service in years : 2 year.

9 General Survey :

Health : Good / ~~Fair / Poor~~
Height : Cms. 5ft 2"
Weight : Kg. 50kg

10 Blood group : Not known

11 Eye Vision

Normal / ~~Abnormal~~
Use of glass : ~~Yes~~/ No

12 Hearing : Normal / ~~Abnormal~~

13 Respiratory system and chest Measurement

Inspiration 33"
Expiration 32"
Respiration rate / min. 18 / minute
Remarks, if any Nil

14 Cardiovascular system

Pulse rate 72 / minute
B.P. 120 / 81 mmHg
Heart Sound S1 S2 Normal heared
Remarks, if any Nil

15 Abdomen Tenderness : ~~Yes~~/ No

16 Nervous System

History of Fits : ~~Yes~~/ No
Epilepsy : ~~Yes~~/ No
Remarks on Mental Health sound

17 Locomotor System : Normal / ~~Abnormal~~

18 Skin Condition : Normal / ~~Abnormal~~

Remarks on any skin disease noticed : Nil

19 Hearnias : ~~Present/~~ Absent

20 Hydrocele : ~~Present/~~ Absent

21 Present complain if any : Nil

22 Summary of Findings :

Heart Disease: Nil

Hypertension: Nil

Diabetes : Nil

T.B. : Nil

Epilepsy: Nil

Poisoning: Nil

Others : Nil

Occupational Disease, if any : Not found

23 Recommendation, if any for any further investigation Not required.

Pulinmachharpurna mohanta

Signature of the employee

23.4.2018

Signature of Medical officer

Dr. P. K. SAHOO
(B.Sc. B.H.M.S.
Regd. No - C/2236

Health Record

(Pre-employment / Periodical)
[Prescribed under rule 62 –I]

1 Name of the factory : ASL

2 Name of the Employee : Abhimanyu Barik.

3 Employee Distinguishing Number : No

4 Age of the employee : 45 years.

5 Identification mark : Cut mark present in left leg.

6 Nature of the job : Mech, housekeeping BMS. cont.

7 Date of Employment : 2.11.2016

8 Length of service in years : 2 years.

9 General Survey :

Health : Good / ~~Fair~~ / ~~Poor~~

Height : Cms. 5ft 11"

Weight : Kg. 72 kg

10 Blood group : Not known

11 Eye Vision

Normal / ~~Abnormal~~

Use of glass : ~~Yes~~/ No

12 Hearing : Normal / ~~Abnormal~~

13 Respiratory system and chest Measurement

Inspiration 30"

Expiration 29"

Respiration rate / min. 19 / min

Remarks, if any Nil

14 Cardiovascular system

Pulse rate 72 / min

B.P. 128 / 85 mm Hg

Heart Sound S1 S2 Normal heart.

Remarks, if any Nil

15 Abdomen Tenderness : ~~Yes~~/ No

16 Nervous System

History of Fits : ~~Yes~~/ No

Epilepsy : ~~Yes~~/ No

Remarks on Mental Health sound

17 Locomotor System : Normal / ~~Abnormal~~

18 Skin Condition : Normal / ~~Abnormal~~

Remarks on any skin disease noticed : Nil

19 Hearnias : ~~Present~~/ Absent

20 Hydrocele : ~~Present~~/ Absent

21 Present complain if any : Nil

22 Summary of Findings :

Heart Disease: Nil
Hypertension: Nil
Diabetes : Nil
T.B. : Nil
Epilepsy: Nil
Poisoning: Nil
Others : Nil

Occupational Disease, if any : Not found

23 Recommendation, if any for any further investigation Not required.

28.4.2018

Abhimanyu Barik
Signature of the employee

Signature of Medical officer

Dr. P. K. SAHOO
(B.Sc. B.H.M.S.)
Regn. No. C/2236

[FORM No. 31-A]

Health Record

(Pre-employment / Periodical)
[Prescribed under rule 62 –I]

1 Name of the factory : ASL

2 Name of the Employee : Jayanath mohanty

3 Employee Distinguishing Number : 7773

4 Age of the employee : 32 year.

5 Identification mark : A black moles is present over the neck on its right side

6 Nature of the job : Electrician Electrical.

7 Date of Employment : 1-10-2016

8 Length of service in years : 1 year 5 month.

9 General Survey :
- Health : Good / ~~Fair~~ / ~~Poor~~
- Height : Cms. 5ft 5 11
- Weight : Kg. 54 kg

10 Blood group : B+VE

11 Eye Vision
- Normal / ~~Abnormal~~
- Use of glass : ~~Yes~~ / No

12 Hearing : Normal / ~~Abnormal~~

13 Respiratory system and chest Measurement
- Inspiration 43 cm
- Expiration 40 cm
- Respiration rate / min. 19/ minute
- Remarks, if any Nil

14 Cardiovascular system
- Pulse rate 72/ minute
- B.P. 122/84 mm Hg
- Heart Sound S1 S2 Normal heared
- Remarks, if any Nil

15 Abdomen Tenderness : ~~Yes~~ / No

16 Nervous System
- History of Fits : ~~Yes~~ / No
- Epilepsy : ~~Yes~~ / No
- Remarks on Mental Health sound

17 Locomotor System : Normal / ~~Abnormal~~

18 Skin Condition : Normal / ~~Abnormal~~

Remarks on any skin disease noticed : Nil

19 Hearnias : Present/Absent Absent

20 Hydrocele : Present/Absent Absent

21 Present complain if any Nil

22 Summary of Findings

Heart Disease Nil

Hypertension Nil

Diabetes Nil

T.B. Nil

Epilepsy: Nil

Poisoning Nil

Others : Nil

Occupational Disease, if any Not found

23 Recommendation If any foonbonther Investigation Not required

Jaganathmohanty

Signature of the employee

Signature of Dr. Gov... Nayak
MBBS, MD, Ph.D, FIAMS

[FORM No. 31-A]

Health Record

(Pre-employment / Periodical)
[Prescribed under rule 62 –I]

1 Name of the factory : ASL

2 Name of the Employee : Santosh Kumar Sahoo

3 Employee Distinguishing Number : 855

4 Age of the employee : 31 years.

5 Identification mark : A black mole is present over the left hand shoulder.

6 Nature of the job : process operator.

7 Date of Employment : 1-10-2016

8 Length of service in years : 1 years 5 month.

9 General Survey :
- Health : Good / ~~Fair~~ / ~~Poor~~
- Height : Cms. 5ft 4"
- Weight : Kg. 56 kg

10 Blood group : AB +ve

11 Eye Vision
- Normal / ~~Abnormal~~
- Use of glass : ~~Yes~~ / No

12 Hearing : Normal / ~~Abnormal~~

13 Respiratory system and chest Measurement
- Inspiration 41cm
- Expiration 39cm
- Respiration rate / min. 20/min
- Remarks, if any NIL

14 Cardiovascular system
- Pulse rate 72/min
- B.P. 122/81 mm/Hg
- Heart Sound S1 S2 Normal heard
- Remarks, if any NIL

15 Abdomen Tenderness : ~~Yes~~ / No

16 Nervous System
- History of Fits : ~~Yes~~ / No
- Epilepsy : ~~Yes~~ / No
- Remarks on Mental Health sound

17 Locomotor System : Normal / ~~Abnormal~~

18 Skin Condition : Normal / ~~Abnormal~~

Remarks on any skin disease noticed : NIL

19 Hearnias : Present/ ~~Absent~~

20 Hydrocele : Present/ ~~Absent~~

21 Present complain if any ନାହିଁ

22 Summary of Findings :

Heart Disease ନାହିଁ

Hypertension ନାହିଁ

Diabetes : ନାହିଁ

T.B. : ନାହିଁ

Epilepsy: ନାହିଁ

Poisoning: ନାହିଁ

Others : ନାହିଁ

Occupational Disease, if any : Not ~~Seen~~ found

23 Recommendation, if any for any further investigation Not required

Santoshkumar Sahoo
Signature of the employee

17/11/18
Signature of Medical Officer

Dr. Govinda Ch. Nayak
MBBS, MD, Ph.D, FIAMS

CENTRE FOR ENVOTECH AND MANAGEMENT CONSULTANCY PVT. LTD.

An ISO 9001-2008 & OHSAS 18001:2007 Certified Company, Empanelled with OCCL, ORSAC and SPCB of Govt. of Odisha
Accredited by NABET, QCI for EIA Studies as "A" Category Consultant Organization, Empanelled with PCCF(Wildlife) &CWLW,Odisha
Enlisted in Construction Industry Development Council (CIDC) established by the Planning Commission (Govt. of India)
MoEF&CC, Govt. of India, Recognised Environment Laboratory under Environment (Protection) Act, 1986.

Reference No	:	**CEMC/ASL/Jan GW-01/19**
Name of Company	:	**Ardent Steel Ltd.**
Sample Description	:	**Ground Water**
Date of Sampling	:	**10.01.2019**
Date of Receiving	:	**11.01.2019**
Date of Analysis	:	**11.01.2019**
Sample Collected by	:	**Santosh Kumar Mohanty**
Sample Location	:	**Office Site Bore Well**

GROUND WATER TEST REPORT

SL No	Parameter	Unit	Desired Limit of drinking water (BIS:10500:2012)	Permissible Limit of drinking water (BIS:10500:2012)	Result
1	Colour	Hazen	5	15	<5
2	Odour	-	Agreeable	Agreeable	AL
3	Taste	-	Agreeable	-	AL
4	Turbidity	NTU	1	5	<1
5	pH Value @ 25°C	-	6.5-8.5	No Relaxation	6.95
6	Total Dissolved Solid	mg/l	500	2000	322
7	Alkalinity as $CaCO_3$	mg/l	200	600	80
8	Total Hardness as $CaCO_3$	mg/l	200	600	124
9	Iron as Fe	mg/l	0.3	No Relaxation	0.25
10	Nitrate as NO_3^--N	mg/l	45	No Relaxation	5.4
11	Sulphate as SO_4	mg/l	200	400	14.4
12	Fluoride as F	mg/l	1.0	1.5	0.2
13	Calcium as Ca	mg/l	75	200	30.8
14	Chloride as CT	mg/l	250	1000	39.99

N.B: AL – Agreeable

Authorized Signatory

Seal of Laboratory

Notes:

- The result relate only to the sample tested.
- This Test Report shall not be reproduced wholly or in part without prior written consent of the laboratory.
- The samples received shall be destroyed after two weeks from the date of issue of the Test Report unless specified otherwise.
- This Test Report shall not be used in any advertising media or as evidence in the court of Law without prior written consent of the laboratory.


Water Supply Facility to Nearby Villages


WATER TAN


Shot on realme 2 Pro
By R.K.SARANGI


Shot on realme 2 Pro
By R.K.SARANGI

Product Data Sheet

CODEL

Continuous Emission Monitoring

DCEM2000/2100 Opacity/Dust Monitor

In-situ, low maintenance devices for continuous monitoring of opacity/dust emissions

- % opacity or dust density in mg/Nm^3
- Dual-pass, open-path transmissometer
- Integral auto zero and span check
- Dynamic misalignment check
- Full contamination check on all active optical surfaces
- Integral high efficiency air curtains for maximum uninterrupted service

Environmental Monitoring Solutions SmartCem www.codel.co.uk

Doc i/d : 100023 Issue : A Rev : 1 Date : 12/9/2010

DCEM2000/2100 Opacity/Dust Monitor

The DCEM2000 and DCEM2100 provide a continuous measurement of opacity or dust concentration in flue gases by continuously measuring the transmissivity of visible light across a process duct or stack.

Its dual-pass optical arrangement is based on twin transmissometers measuring in opposing directions through the same section of the gas stream, providing not only an accurate average of the dust loading, but also providing a unique dynamic assessment of any misalignment errors due to stack movement.

The measurement of opacity or particulate (dust) emissions from a process stack by measuring changes in optical transmission is simple in concept, the monitor must be insensitive to any other factors that degrade the optical transmission such as contamination of optical surfaces or gross misalignment.

DCEM2000/2100 monitors

Conventional Transmissometer	vs	DCEM2000/2100
Purge air failure Power or purge air failure can allow hot, corrosive gases to flow back to the instrument and vent through the purge blower. This can result in catastrophic failure of the system.	**vs**	An integral ball valve mounted between each transceiver and its air purge acts as an automatic shut off valve which closes on loss of power or purge air.
Contamination Many devices only measure optical contamination at the transceiver. They cannot measure contamination on the reflecting mirror on the opposite side of the stack. Many factors ensure that these surfaces often have different levels of contamination.	**vs**	A retro mirror mounted on the ball of each auto shut off valve can be automatically rotated into and out of the optical path of each transceiver. This enables the individual window contamination to be measured and corrected for each transceiver and individual compensation applied.
Misalignment Although some systems provide the facility to manually detect misalignment, they cannot detect misalignment automatically. If there is duct movement, or the instrument is inadvertently misaligned, it may result in significant errors over an undefined period.	**vs**	Optical transmissivity is measured simultaneously in opposite directions over the same gas path using identical transceivers. When optical alignment is correct these measurements are identical. Any optical misalignment produces different transmissivities. The analyser automatically detects this and raises an alarm.
Dust density Many instruments only provide a simple measurement of opacity. Opacity is not proportional to dust density.	**vs**	The outputs can be expressed in % opacity and dust density in mg/m3 or mg/Nm^3 (corrected to Standard O2, temperature, pressure and H2O).

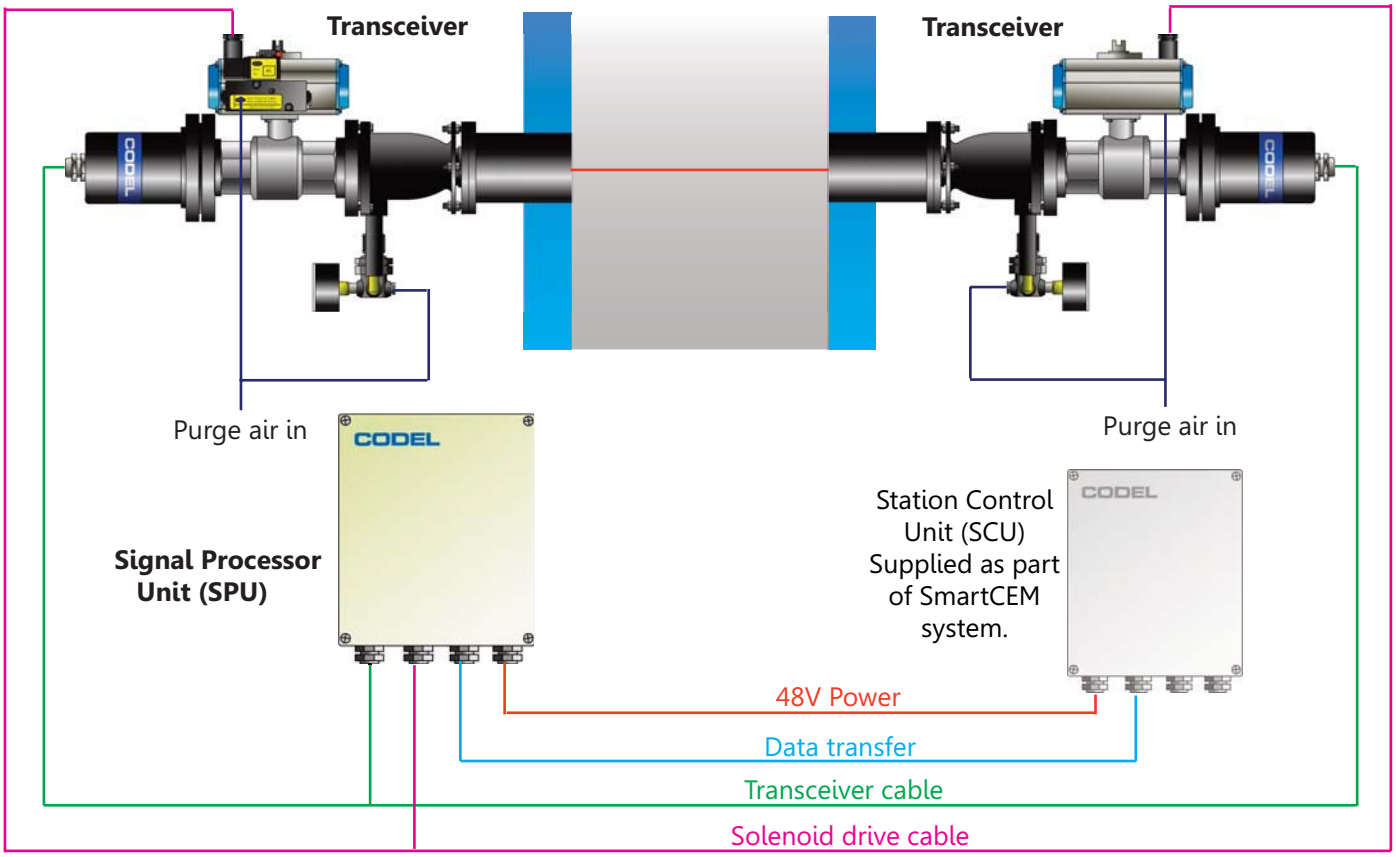
Signal Processor Unit (SPU)

Data Display Unit (DDU)

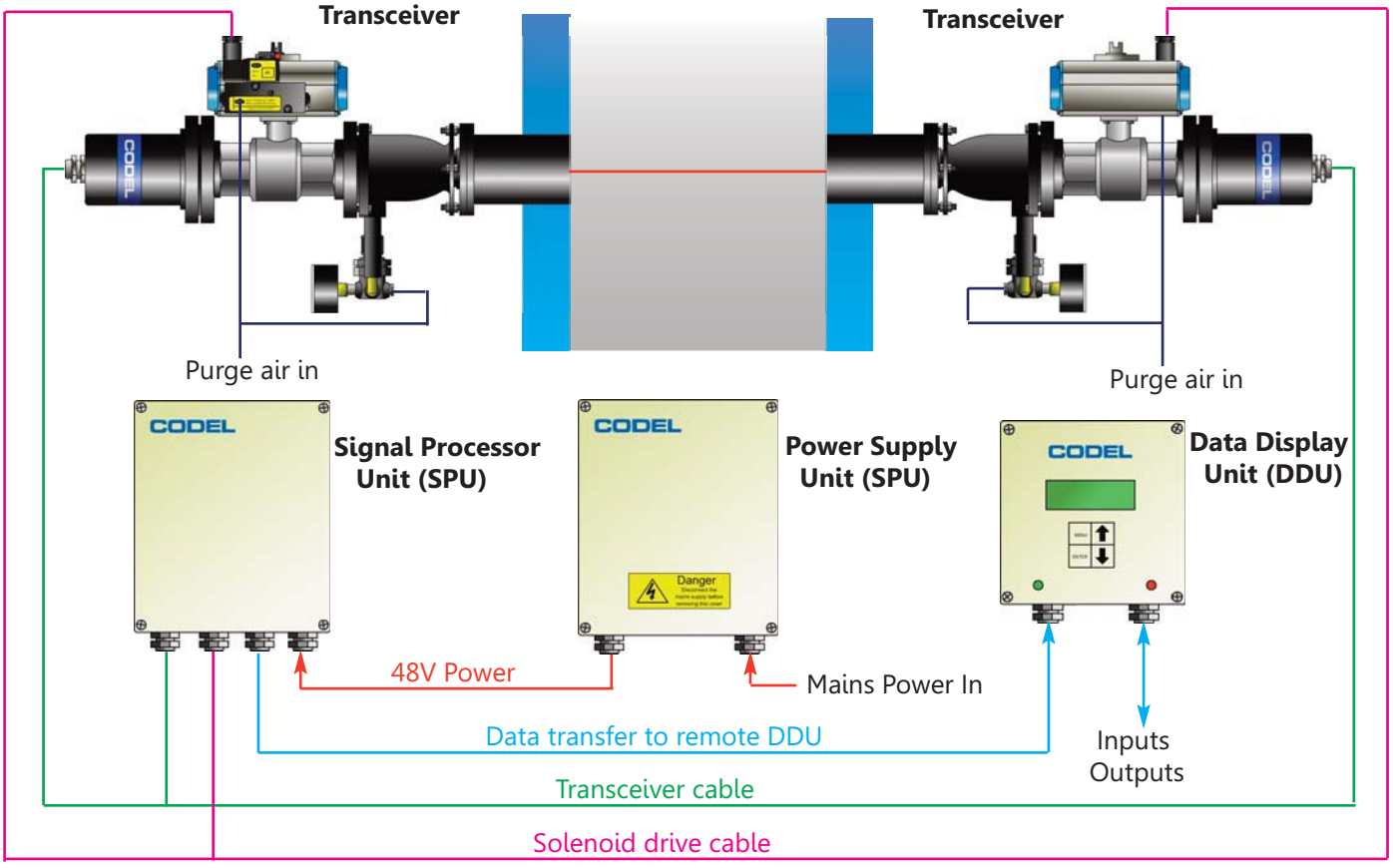
The DCEM2000/2100 incorporates unique features that resolve each of these problem issues, resulting in an instrument that surpasses the performance of all previous opacity monitors.

Doc i/d : 100023 Issue : A Rev : 1 Date : 12/9/2010

DCEM2000 Dust/Opacity Monitor - SmartCEM Integrated System Arrangement

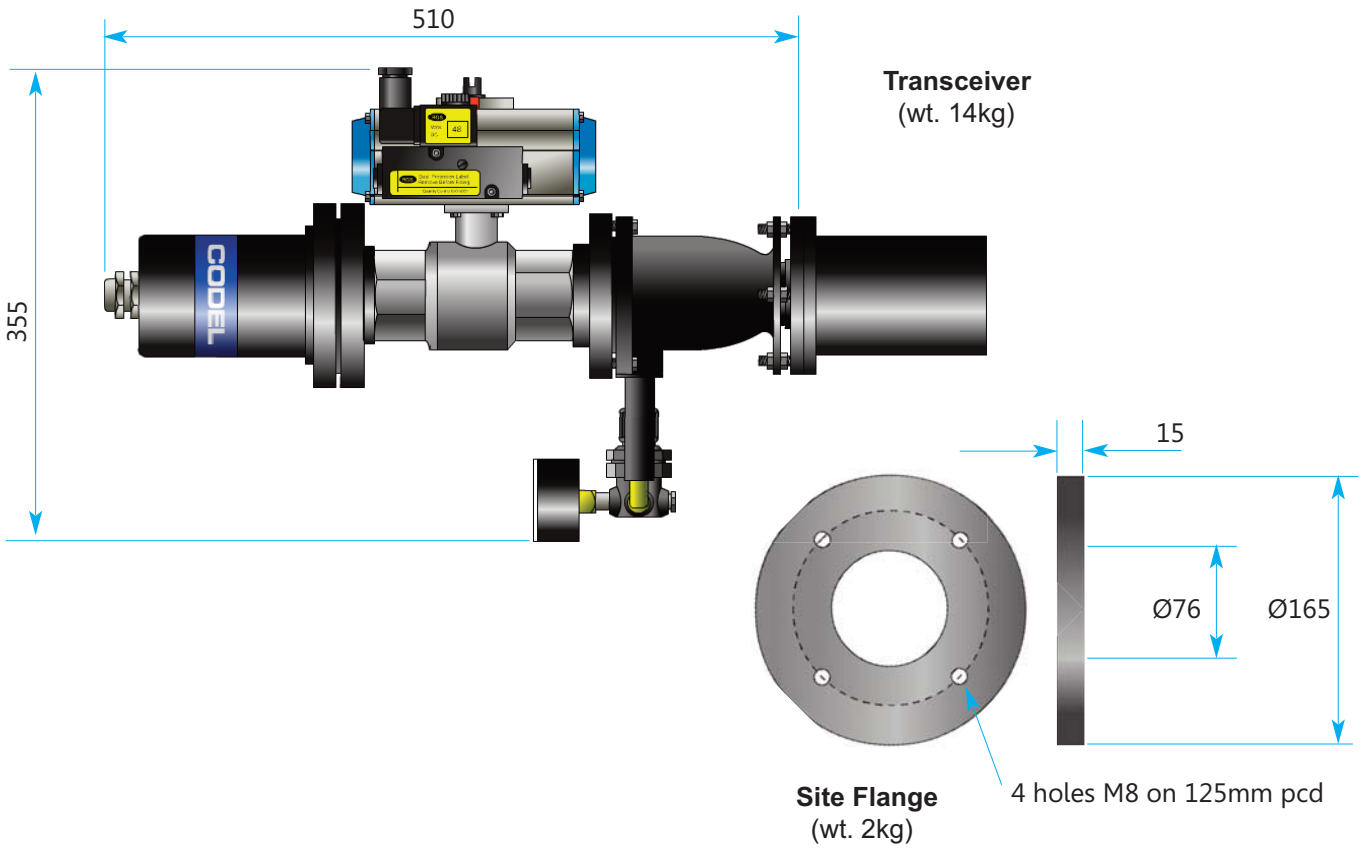


DCEM2100 Dust/Opacity Monitor - Stand Alone System Arrangement



Doc i/d : 100023 Issue : A Rev : 1 Date : 12/9/2010

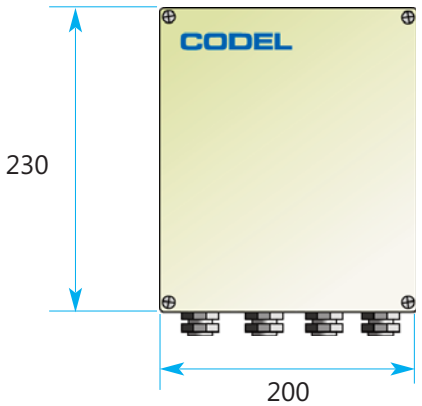
Overall Dimensions - Transceivers and Site Flanges



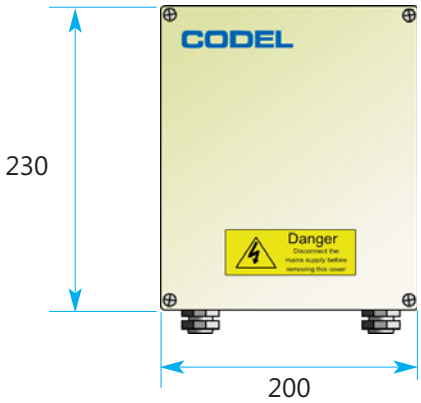
Transceiver
(wt. 14kg)

Site Flange
(wt. 2kg)

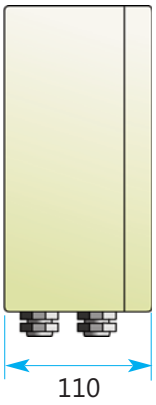
Overall Dimensions - Signal Processor (SPU) & Power Supply (PSU)



Signal Processor Unit (SPU)
(wt. 4kg)

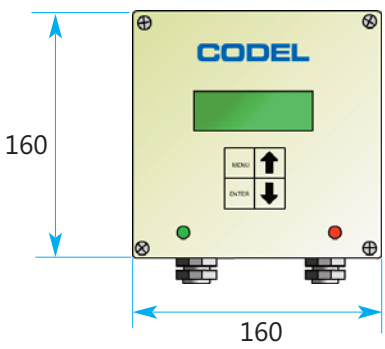


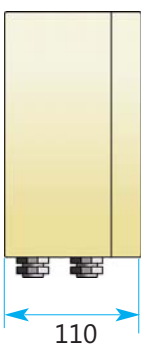
Power Supply Unit (PSU)
(wt. 4kg)



Note: All dimensions are in mm

Overall Dimensions - Data Display Unit (DDU)





Data Display Unit (DDU)
(wt. 3kg)

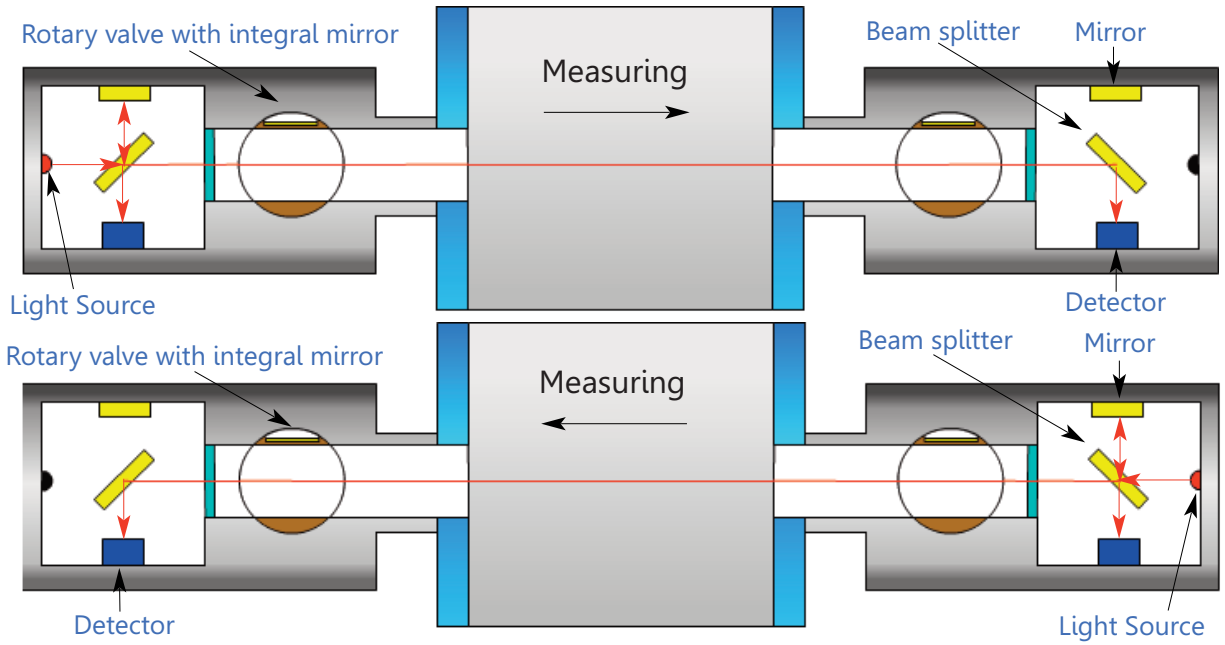
Note: All dimensions are in mm

Doc i/d : 100023 Issue : A Rev : 1 Date : 12/9/2010

DCEM2000/2100 Operating Principle

Particles emitted from industrial processes include smoke, soot, ash and carried-over process materials. All of these particles are visible and they can be measured by looking at how much they absorb and scatter visible light.

The CODEL DCEM2000/2100 utilises two separate transceivers – each measuring across the same path. The LED light sources are turned on sequentially such that each transceiver measures either the transmitted light from its own source (Io) or the received light from the opposing source (Ir).



This provides the basic measurement of Transmittance where: Transmittance (T) = Received light (Ir) / Transmitted light (Io)

(Any difference between the 2 measurements of Transmittance indicates misalignment)

% Opacity (Smoke Density) = (1-Transmittance (T)) x 100

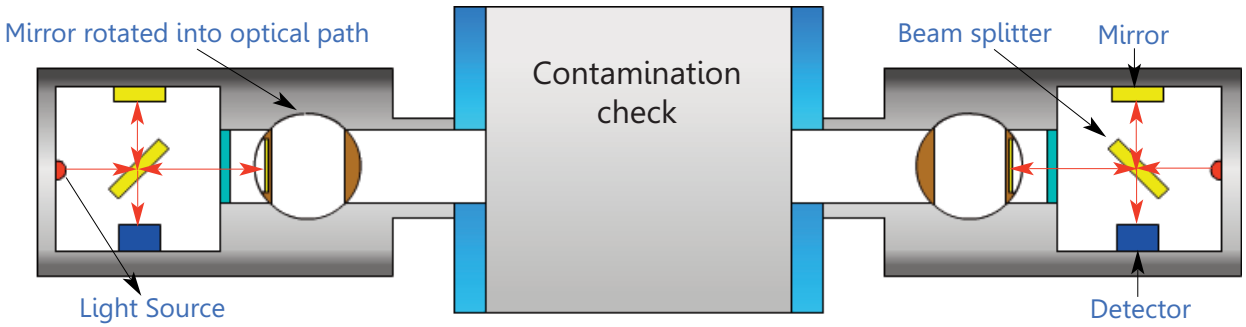
Dust density can also be measured if the physical and chemical nature of the particles are constant. It is directly proportional to another function of Transmittance called Extinction where: Extinction = $\log_e$ (1 / Transmittance (T))

It is vital that an empirical ratio between the measured Extinction and actual dust density is established for each application by collecting a sample of the dust under controlled conditions. The DCEM2000/2100 can then use a Dust Factor where: Dust Factor = Sampled mg/m^3 / Average Extinction during the collection. This Dust Factor is then used in normal operation to provide an output directly in mg/m^3 where: mg/m^3 = Dust Factor x Measured Extinction

(In the absence of actual data, assume (250/x)mg/m^3 of dust will typically generate 10% opacity across a one metre path. This is only a general rule. It is not reliable above 20% opacity and must be verified by sampling.)

Where other measurements are available, the DCEM2000/2100 can provide normalised measurements in mg/Nm^3

Contamination correction is necessary because transmissometers cannot differentiate between solids held in suspension in the gas stream (emissions) and solids deposited on the optical surfaces (contamination). An inegral retro mirror is automatically presented to each transceiver enabling full contamination correction.



Doc i/d : 100023 Issue : A Rev : 1 Date : 12/9/2010

DCEM2100 Dust / Opacity Monitor - Technical Specification

Transceiver Unit

Operating Principle	Dual-pass transmissometer
Measuring units	% opacity, mg/m^3, mg/Nm^3
Light Source	Modulated high-intensity LED at 637nm (or 580nm) wavelength *
Light Detection	Continuous measurement of transmitted and received light intensities
Optical Path Length	0.5 to 15m
Accuracy	+/- 0.2% opacity
Measuring Range	Fully selectable in % opacity and mg/m^3
Resolution	0.1% opacity
Drift	<1% opacity per month
Averaging	4 rolling averages selectable from 10 seconds to 30 days
Calibration	Auto zero and auto span US EPA compliant
Ambient Temperature	-20°C to +70°C
Flue Gas Temperature	850°C maximum
Power supply	48V DC from Signal Processor Unit (SPU)
Construction	Corrosion resistant epoxy coated aluminium housing sealed to IP66
Air Purge	Compressed air, 1 litre/sec @ 2bar
Fail-safe Shutter	Automatic shut-off valve incase of compressed air or power failure

*US EPA Compliance requires light at 580nm; dust measurement in mg/Nm^3 requires 637nm.

Signal Processor Unit (SPU)

Construction	epoxy-coated aluminium to IP67
Ambient Temperature	-20°C to +50°C
Power Supply	48V DC supplied from Power Supply Unit (PSU)

Data Display Unit (DDU)

Analogue outputs	2 x 4-20mA current outputs as standard, isolated, 500Ω load max, fully configurable from keypad
Logic Outputs	2 x volt-free SPCO contacts, 50V, 1A max, configurable as alarm contacts 1 x volt-free SPCO contact, 50V, 1A max, for data valid signal
Inputs	4 x 4-20mA for oxygen input (0_2 can also be input at sensor unit) 1 x volt free logic input for plant status or remote calibration initiation
Serial Data	RS232/RS485 MODBUS protocol (Optional)
Display	32 Character alpha-numeric back-lit LCD
Keypad	4-key soft-touch entry
Construction	epoxy-coated aluminium to IP67
Ambient Temperature	-20°C to +50°C
Power Supply	48V DC supplied from Signal Processor Unit (SPU)

Power Supply Unit (PSU)

Construction	epoxy-coated aluminium to IP67
Ambient Temperature	-20°C to +50°C
Power Supply	Mains 110 / 230 vac, single phase, 50/60hz - 48V DC output to Signal Processor Unit (SPU)

Compliances

EMC	89/336/EEC directive compliant
Low Voltage	73/23/EEC directive compliant
EN14181 QAL1	TUV Certification pending

Services

Power	Mains 110 / 230 VAC, single phase, 50/60hz 50VA
Air Requirement	Clean and dry compressed air, 1 litre/sec @ 2bar

Optional Items

Check Filter Holder	For insertion of optical Check Filter
Check Filters	20%, 40%, 60%, 80% Check Filters available

Doc i/d : 100023 Issue : A Rev : 1 Date : 12/9/2010

DCEM2000 Dust / Opacity Monitor - Technical Specification

Transceiver Unit

Operating Principle	Dual-pass transmissometer
Measuring units	% opacity, mg/m^3, mg/Nm^3
Light Source	Modulated high-intensity LED at 637nm (or 580nm) wavelength *
Light Detection	Continuous measurement of transmitted and received light intensities
Optical Path Length	0.5 to 15m
Accuracy	+/- 0.2% opacity
Measuring Range	Fully selectable in % opacity and mg/m^3
Resolution	0.1% opacity
Drift	<1% opacity per month
Averaging	4 rolling averages selectable from 10 seconds to 30 days
Calibration	Auto zero and auto span US EPA compliant
Ambient Temperature	-20°C to +70°C
Flue Gas Temperature	850°C maximum
Power supply	48V DC from Signal Processor Unit (SPU)
Construction	Corrosion resistant epoxy coated aluminium housing sealed to IP66
Air Purge	Compressed air, 1 litre/sec @ 2bar
Fail-safe Shutter	Automatic shut-off valve in case of compressed air or power failure

*US EPA Compliance requires light at 580nm; dust measurement in mg/Nm^3 requires 637nm.

Signal Processor Unit (SPU)

Construction	epoxy-coated aluminium to IP67
Ambient Temperature	-20°C to +50°C
Power Supply	48V DC supplied from SmartCEM Control Panel

Outputs - from SmartCEM SCU

Analogue outputs	1 x 4-20mA current outputs as standard, isolated, 500Ω load max, fully configurable from keypad
Logic Outputs	1 x volt-free SPCO contacts, 50V, 1A max, configurable as alarm contacts 1 x volt-free SPCO contact, 50V, 1A max, for data valid signal

Compliances

EMC	89/336/EEC directive compliant
Low Voltage	73/23/EEC directive compliant
TUV	TUV Certification pending

Services

Power	48V DC from Station Control Unit (SCU) 50VA
Air Requirement	Clean and dry compressed air, 1 litre/sec @ 2bar

Optional Items

Check Filter Holder	For insertion of optical Check Filter
Check Filters	20%, 40%, 60%, 80% Check Filters available

CODEL International Ltd
Station Building
Station Road
Bakewell
Derbyshire
DE451GE
United Kingdom

Tel : +44 (0)1629 814351
Fax : +44 (0)8700 566307
Web : www.codel.co.uk
Email : sales@codel.co.uk

Distributor

PENTOL - ENVIRO POLSKA Sp. z o.o.
Osiedle Piastów 21B, 31-624 Kraków
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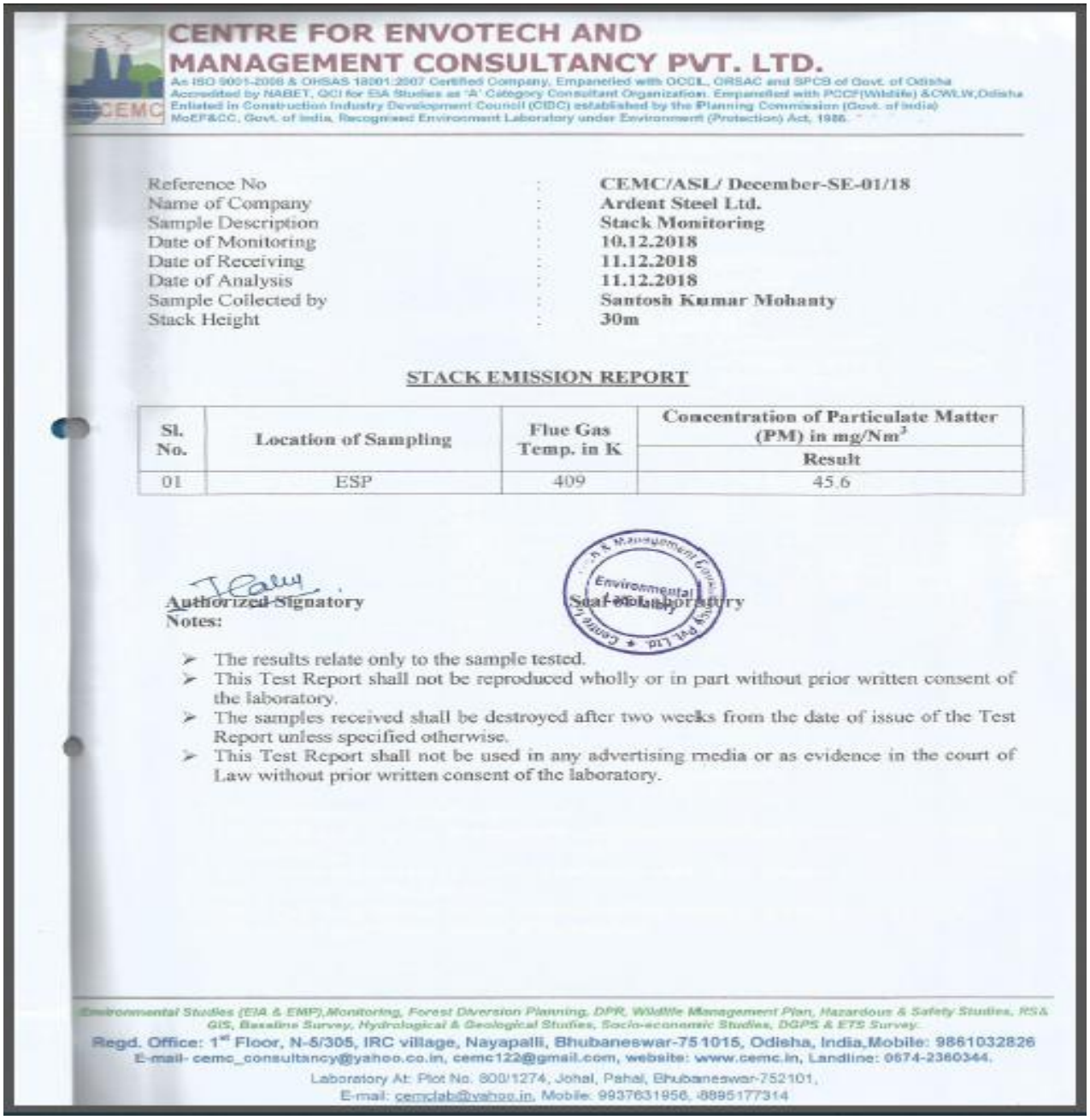
www.pentol.pl, e-mail: pentol@pentol.pl

Annexure-IV

STACK EMISSION REPORT



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MoEF&CC, Govt. of India, Recognised Environment Laboratory under Environment (Protection) Act, 1986.

Reference No	:	**CEMC/ASL/ December-SE-01/18**
Name of Company	:	**Ardent Steel Ltd.**
Sample Description	:	**Stack Monitoring**
Date of Monitoring	:	**10.12.2018**
Date of Receiving	:	**11.12.2018**
Date of Analysis	:	**11.12.2018**
Sample Collected by	:	**Santosh Kumar Mohanty**
Stack Height	:	**30m**

STACK EMISSION REPORT

Sl. No.	Location of Sampling	Flue Gas Temp. in K	Concentration of Particulate Matter (PM) in mg/Nm^3
			Result
01	ESP	409	45.6

Authorized Signatory

Environmental Laboratory

Notes:

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E-mail- cemc_consultancy@yahoo.co.in, cemc122@gmail.com, website: www.cemc.in, Landline: 0674-2360344.
Laboratory At: Plot No. 800/1274, Johal, Pahal, Bhubaneswar-752101,
E-mail: cemclab@yahoo.in, Mobile: 9937631956, 8895177314

Annexure - V

AMBIENT AIR QUALITY TEST REPORT

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MoEF&CC, Govt. of India, Recognised Environment Laboratory under Environment (Protection) Act, 1986.

Reference No	:	**CEMC/ASL/Jan-A-01/19**
Name of Company	:	**Ardent Steel Ltd**
Sample Description	:	**Ambient Air**
Date of Monitoring	:	**10.01.2019**
Date of Receiving	:	**11.01.2019**
Date of Analysis	:	**11.01.2019**
Sample Collected by	:	**Santosh Kumar Mohanty**

AMBIENT AIR QUALITY TEST REPORT (24 HOURLY AVERAGE)

SL No.	LOCATION	MONITORING REPORT					
		PM_{10} ($\mu g/m^3$)	$PM_{2.5}$ ($\mu g/m^3$)	SO_2 ($\mu g/m^3$)	NO_x ($\mu g/m^3$)	CO (mg/m^3)	NH_3 ($\mu g/m^3$)
1	At the boundary near the water harvesting pond (East Direction)	71.1	36.6	13.8	18.6	0.31	<20
2	At the Boundary near ESP (South Direction)	73.9	40.2	14.4	18.3	0.44	<20
3	At the Boundary near Coal Fines Stock yard (North Direction)	68.8	34.7	13.1	17.6	0.39	<20
NAAQ Standard		**100 ($\mu g/m^3$)**	**60 ($\mu g/m^3$)**	**80 ($\mu g/m^3$)**	**80 ($\mu g/m^3$)**	**4.0 (mg/m^3)**	**400 ($\mu g/m^3$)**

Authorized Signatory

Seal of Laboratory

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FUGITIVE EMISSION REPORT

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MoEF&CC, Govt. of India, Recognised Environment Laboratory under Environment (Protection) Act, 1986.

Reference No	:	**CEMC/ASL/Jan-A-02/19**
Name of Company	:	**Ardent Steel Ltd**
Sample Description	:	**Fugitive Air**
Date of Monitoring	:	**10.01.2019**
Date of Receiving	:	**11.01.2019**
Date of Analysis	:	**11.01.2019**
Sample Collected by	:	**Santosh Kumar Mohanty**

FUGITIVE EMISSION TEST REPORT

Sl. No.	LOCATION	RESULT	
		RSPM ($\mu g/m^3$)	SPM ($\mu g/m^3$)
1	Proportioning System (Ash & Coke Fines Bunker)	531	1018
2	Raw Material Transfer point of Mixture (Mixture Building)	484	1077
3	Ball Mill (Cool Grinding)	508	1099
4	Ball Mill (Flux & Coke Grinding)	498	1084
5	Finished Product Transfer points and plant de-dusting system	512	854
6	Travelling Grate & Rotary Kiln	507	898
MoEF Standard		–	**2000***

** The standard is applicable at 10 m distance from the source*

Authorized Signatory

Seal of Laboratory

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E-mail- cemc_consultancy@yahoo.co.in, cemc122@gmail.com, website: www.cemc.in, Landline: 0674-2360344.

Laboratory At: Plot No. 800/1274, Johal, Pahal, Bhubaneswar-752101,
E-mail: cemclab@yahoo.in, Mobile: 9937631956, 8895177314

NOISE LEVEL STUDY REPORT

CENTRE FOR ENVOTECH AND MANAGEMENT CONSULTANCY PVT. LTD.

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MoEF&CC, Govt. of India, Recognised Environment Laboratory under Environment (Protection) Act, 1986.

Reference No	:	**CEMC/ASL/ December-N-01/18**
Name of Company	:	**Ardent Steel Ltd**
Sample Description	:	**Noise Monitoring Report**
Date of Monitoring	:	**10.12.2018**
Date of Receiving	:	**11.12.2018**
Sample Collected by	:	**Santosh Kumar Mohanty**

NOISE LEVEL STUDY REPORT

Sl. No.	Location	Noise Level In Day Time dB(A)	Noise Level In Night Time dB(A)
01	Ball Mill (Cool Grinding)	73.8	68.40
02	Raw Material Transfer point of Mixture (Mixture Building)	72.1	63.7

NATIONAL STANDARD NOISE LEVEL

Area Code	Category of Area/Zone	Permissible Limit in dB (A)	
		Day Time	Night Time
A	**Industrial Area**	75	70
B	Commercial Area	65	55
C	Residential Area	55	45
D	Silence Zone	50	40

Authorized Signatory

Seal of Laboratory

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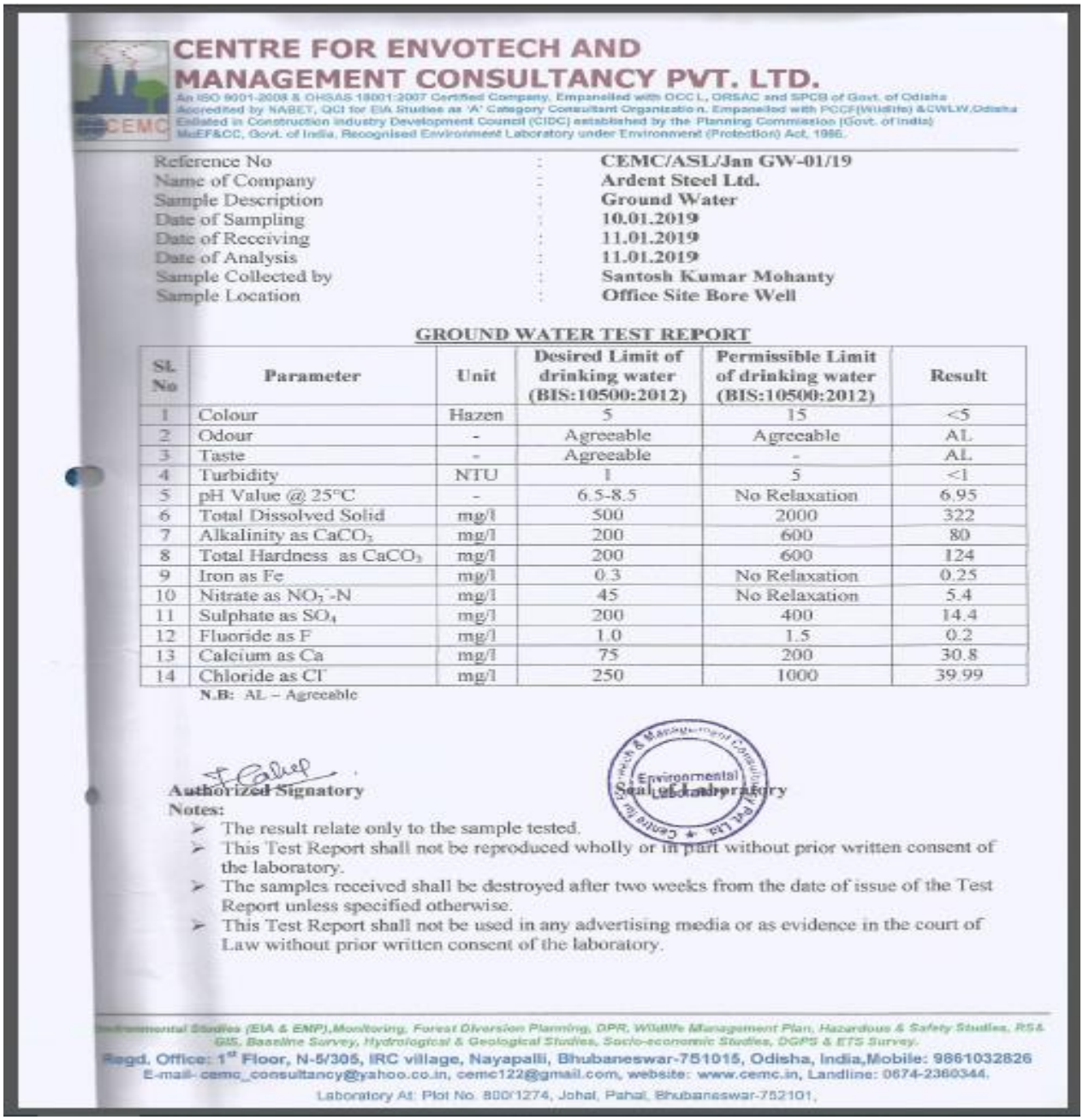
Annexure - VII

GROUND WATER TEST REPORT



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MoEF&CC, Govt. of India, Recognised Environment Laboratory under Environment (Protection) Act, 1986.

Reference No	:	**CEMC/ASL/Jan GW-01/19**
Name of Company	:	**Ardent Steel Ltd.**
Sample Description	:	**Ground Water**
Date of Sampling	:	**10.01.2019**
Date of Receiving	:	**11.01.2019**
Date of Analysis	:	**11.01.2019**
Sample Collected by	:	**Santosh Kumar Mohanty**
Sample Location	:	**Office Site Bore Well**

GROUND WATER TEST REPORT

Sl. No	Parameter	Unit	Desired Limit of drinking water (BIS:10500:2012)	Permissible Limit of drinking water (BIS:10500:2012)	Result
1	Colour	Hazen	5	15	<5
2	Odour	-	Agreeable	Agreeable	AL
3	Taste	-	Agreeable	-	AL
4	Turbidity	NTU	1	5	<1
5	pH Value @ 25°C	-	6.5-8.5	No Relaxation	6.95
6	Total Dissolved Solid	mg/l	500	2000	322
7	Alkalinity as $CaCO_3$	mg/l	200	600	80
8	Total Hardness as $CaCO_3$	mg/l	200	600	124
9	Iron as Fe	mg/l	0.3	No Relaxation	0.25
10	Nitrate as NO_3^--N	mg/l	45	No Relaxation	5.4
11	Sulphate as SO_4	mg/l	200	400	14.4
12	Fluoride as F	mg/l	1.0	1.5	0.2
13	Calcium as Ca	mg/l	75	200	30.8
14	Chloride as Cl	mg/l	250	1000	39.99

N.B: AL – Agreeable

Authorized Signatory

Environmental Quality Laboratory

Notes:

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Laboratory At: Plot No. 800/1274, Johal, Pahal, Bhubaneswar-752101,

SURFACE WATER TEST REPORT

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MoEF&CC, Govt. of India, Recognised Environment Laboratory under Environment (Protection) Act, 1986.

Reference No	:	CEMC/ASL/Jan SW-01/19
Name of Company	:	Ardent Steel Ltd.
Date of Sampling	:	10.01.2019
Sample Description	:	Surface Water
Date of Receiving	:	11.01.2019
Date of Analysis	:	11.01.2019
Sample Collected by	:	Santosh Kumar Mohanty
Sample Location	:	Reservoir

SURFACE WATER TEST REPORT

Sl. No	Parameter	Unit	GSR 422E Standards	Result
1	Colour	Hazen	--	12
2	Odour	-	--	U/O
3	pH Value @ 25°C	-	5.5-9.0	6.84
4	Total Dissolved Solid	mg/l	2100	152
5	Iron as Fe	mg/l	3.0	1.95
6	Sulphate as SO_4	mg/l	1000	58.7
7	Nitrate as NO_3^--N	mg/l	50	15.9
8	Boron as B	mg/l	2.0	0.5
9	BOD for 3 days @ 27°C	mg/l	30	2.8
10	COD	mg/l	250	30

N.B: U/O- Un-objectionable

Authorized Signatory **Head of Laboratory**

Notes:

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Annexure - VI


TATA
TATA

GROUND WATER TEST REPORT

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MoEF&CC, Govt. of India, Recognised Environment Laboratory under Environment (Protection) Act, 1986.

Reference No	:	**CEMC/ASL/Jan GW-01/19**
Name of Company	:	**Ardent Steel Ltd.**
Sample Description	:	**Ground Water**
Date of Sampling	:	**10.01.2019**
Date of Receiving	:	**11.01.2019**
Date of Analysis	:	**11.01.2019**
Sample Collected by	:	**Santosh Kumar Mohanty**
Sample Location	:	**Office Site Bore Well**

GROUND WATER TEST REPORT

Sl. No	Parameter	Unit	Desired Limit of drinking water (BIS:10500:2012)	Permissible Limit of drinking water (BIS:10500:2012)	Result
1	Colour	Hazen	5	15	<5
2	Odour	-	Agreeable	Agreeable	AL
3	Taste	-	Agreeable	-	AL
4	Turbidity	NTU	1	5	<1
5	pH Value @ 25°C	-	6.5-8.5	No Relaxation	6.95
6	Total Dissolved Solid	mg/l	500	2000	322
7	Alkalinity as $CaCO_3$	mg/l	200	600	80
8	Total Hardness as $CaCO_3$	mg/l	200	600	124
9	Iron as Fe	mg/l	0.3	No Relaxation	0.25
10	Nitrate as NO_3^--N	mg/l	45	No Relaxation	5.4
11	Sulphate as SO_4	mg/l	200	400	14.4
12	Fluoride as F	mg/l	1.0	1.5	0.2
13	Calcium as Ca	mg/l	75	200	30.8
14	Chloride as Cl	mg/l	250	1000	39.99

N.B: AL – Agreeable

Authorized Signatory

Environmental Quality Laboratory

Notes:

- The result relate only to the sample tested.
- This Test Report shall not be reproduced wholly or in part without prior written consent of the laboratory.
- The samples received shall be destroyed after two weeks from the date of issue of the Test Report unless specified otherwise.
- This Test Report shall not be used in any advertising media or as evidence in the court of Law without prior written consent of the laboratory.

Environmental Studies (EIA & EMP),Monitoring, Forest Diversion Planning, DPR, Wildlife Management Plan, Hazardous & Safety Studies, RS& GIS, Baseline Survey, Hydrological & Geological Studies, Socio-economic Studies, DGPS & ETS Survey.
Regd. Office: 1st Floor, N-5/305, IRC village, Nayapalli, Bhubaneswar-751015, Odisha, India,Mobile: 9861032826
E-mail- cemc_consultancy@yahoo.co.in, cemc122@gmail.com, website: www.cemc.in, Landline: 0674-2360344.
Laboratory At: Plot No. 800/1274, Johat, Pahal, Bhubaneswar-752101,

SURFACE WATER TEST REPORT

CENTRE FOR ENVOTECH AND
MANAGEMENT CONSULTANCY PVT. LTD.
An ISO 9001:2008 & OHSAS 18001:2007 Certified Company, Empanelled with DCCE, ORSAC and SPCB of Govt. of Odisha
Accredited by NABET, QCI for EIA Studies as 'A' Category Consultant Organization. Empanelled with PCCF(Wildlife) &CWLW,Odisha
Enlisted in Construction Industry Development Council (CIDC) established by the Planning Commission (Govt. of India)
MoEF&CC, Govt. of India, Recognised Environment Laboratory under Environment (Protection) Act, 1986.

Reference No	:	CEMC/ASL/Jan SW-01/19
Name of Company	:	Ardent Steel Ltd.
Date of Sampling	:	10.01.2019
Sample Description	:	Surface Water
Date of Receiving	:	11.01.2019
Date of Analysis	:	11.01.2019
Sample Collected by	:	Santosh Kumar Mohanty
Sample Location	:	Reservoir

SURFACE WATER TEST REPORT

Sl. No	Parameter	Unit	GSR 422E Standards	Result
1	Colour	Hazen	--	12
2	Odour	-	--	U/O
3	pH Value @ 25°C	-	5.5-9.0	6.84
4	Total Dissolved Solid	mg/l	2100	152
5	Iron as Fe	mg/l	3.0	1.95
6	Sulphate as SO_4	mg/l	1000	58.7
7	Nitrate as NO_3^--N	mg/l	50	15.9
8	Boron as B	mg/l	2.0	0.5
9	BOD for 3 days @ 27°C	mg/l	30	2.8
10	COD	mg/l	250	30

N.B: U/O- Un-objectionable

Authorized Signatory

Centre for Envotech & Management Consultancy Pvt. Ltd. Laboratory

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Annexure -VIII

HAZADOUS WASTE DEATILS

SL NO	Name of the Hazardous Waste	Present Stock	Disposed Quantity as on Date	REMARKS
1	USED OIL	2.49 KL	35.11 KL	1.16.8 KL sold to NC oil refinery, Jagatsinghpur on 19 th dec 2017.
				2.18.31 KL sold to Thirubala chemical Pvt ltd, Khordha on 11th Aug 2018
				3.13.03. KL sold to Thirubala chemical Pvt ltd,Khordha on dt 22 October 2018
2	COTTON WASTE	166 KG	Nil	Stored in cover pit.
3	RESIN	Nil	800 LTR	Used in prefilter.
4	BATTEREY	11 NOS	111 NOS	Sold to APS India ltd ,BBSR on 28th nov 2017
5	GREASE	0.00 MT	3.67 MT	Sold to NC Oil Refinery, Jagatsinghpur 19 th dec 2017

Tel [illegible]
EPABX [illegible]
E-mail [illegible]
[illegible]
Website [illegible]

STATE POLLUTION CONTROL BOARD, ODISHA

[DEPARTMENT OF FOREST & ENVIRONMENT, GOVERNMENT OF ODISHA]
Paribesh Bhawan, A/118, Nilakantha Nagar, Unit – VIII
Bhubaneswar – 751012, INDIA

BY SPEED POST

FORM 2
[See rule 6(2)]

FORM FOR GRANT OR RENEWAL OF AUTHORISATION BY STATE POLLUTION CONTROL BOARD, ODISHA TO THE OCCUPIERS, RECYCLERS, REPROCESSORS, REUSERS, USER AND OPERATORS OF DISPOSAL FACILITIES

1. Number of authorization: **IND-IV-HW-1034/** 5093 and date of issue: 24-04-2018.
2. Reference of application (No. and date): **2052467, dtd. 05-03-2018 / 12-04-2018.**
3. **M/s N. C. Oil Refinery Pvt. Ltd.** is hereby granted an authorization based on the enclosed signed inspection report for generation, storage, transport, reuse, recycling, recovery, preprocessing, co-processing, utilization, treatment, disposal or any other use of hazardous or other wastes or both on the premises **At - Sova, PO - Osakana, P.S. - Balikuda, Dist - Jagatsinhpur, Odisha - 754119.**

Details of Authorization

Sl. No.	Category of Hazardous Waste as per the Schedules I, II and III of these Rules	Waste Description	Quantity	Mode of Disposal
1.	Schedules - I (Stream - 5.2, 3.1, 3.3, 3.4 & 4.3)/ Schedules - IV (Sl. No - 20)	Waste Oil	5000 KL/A	Storage in containers over concrete floor under well ventilated covered shed followed by reprocessing
2.	Schedules - I (Stream - 4.1, 4.4, 4.5)	Oily sludge /emulsion / Sediments & Solid from waste oil	5.63 T/A	Storage in an impervious pit/ containers under well ventilated covered shed followed by disposal in authorized hazardous waste incinerator / Common Hazardous Waste Treatment Storage Disposal Facility (CHWTSDF), Jajpur (In no case these hazardous wastes shall be used for making grease)

(1) The authorization shall be valid up to **31-03-2023.**
(2) The authorization is subject to the following general and specific conditions.

A. General conditions of authorisation:

1. The authorized person shall comply with the provisions of the Environment (Protection) Act, 1986, and the rules made there under.
2. The authorization or its renewal shall be produced for inspection at the request of an officer authorized by the State Pollution Control Board.

TIME BOUND ACTION PLAN SHALL BE SUBMITTED TO REDUCE SOLID WASTE DUE TO PROJECT RELATED ACTIVITIES, ITS PROPER UTILIZATION AND DISPOSAL

M/s Ardent Steel Ltd. established a 0.6 MTPA Iron Ore Pelletisation Plant in Village / P.O. Phuljhar, Block Banspal, Tehsil Telkoi, in Keonjhar District, Odisha. The operations of the plant were started on 31/07/2010.Originally the project was established with consent to establish letter from State Pollution Control Board, Odisha which was issued to M/s Ardent Steel Ltd vide reference letter ref no: 25076/ Ind-II-NOC-5070, on 17.11.2008The consent to operate letter was issued to the company vide letter Ref No:Ind-I-CON-6363 and dated 24. 04.2012. The company availed Environmental Clearance from MoEF &CC vide letter Ref No. J-11011/112/2013 – IA II (I) Dated 29th March, 2016. As per the consent condition no. xii the company needs to submit time bound action plan to reduce solid waste generated due to the project related activities, its proper utilization and disposal. Accordingly, the following points are mentioned.

1. **Project Configuration:**

Sl. No	Plant/FRacility	Plant capacity	Product	Configuration	Total Plant Capacity
1	Iron Ore Pellet Plant	0.6 MTPA	Pellets	One Kiln of 0.6MTPA	0.6 MTPA
2	Coal Gasifier	25800 NM3/hr	Producer gas	(3 W+1 S)	25800 NM3/hr

2. The commercial production is continuing since 31/07/2010.The solid waste generated during the construction phase of the company like top soil has been utilized in filling up the low lying areas .As such construction wastes are not piled up anywhere in the plant.
3. The pellet plant operates with Grate Kiln Technology for the pellet manufacture. The solid waste generated including the following:
   i) Iron Ore fines
   ii) Broken Green Pellets
   iii) Coal ash from producer gas plant.
4. **Solid Waste Generation and Utilization:**

Sl. No.	Process Unit	Solid Waste	Quantity Ton/Annum	Mode of Utilization and disposal
1	Pellet Plant	Dust from APC devices	13,798	Fully recycled in the pellet plant
		Broken green pellets	Not quantified	Fully recycled in the pellet plant
2	Coal gasifier	Coal ash from producer gas plant	4147	Used for filling low lying areas. The ash which is not utilize is dumped in waste dump area

The plant having been in operation since 2010, the process plant operation is very stable and all efforts are being made to reduce/recycle the wastes being generated. Therefore, no time bound action plant is submitted.

REPORT

ON

RISK AND DISASTER MANAGEMENT PLAN

Of

ARDENT STEEL LIMITED

At/Po: Phuljhar, Via: Suakati,

Dist.: Keonjhar, Odisha.

CENTRE FOR ENVOTECH AND MANAGEMENT CONSULTANCY PVT. LTD.

An ISO 9001-2015, OHSAS 18001:2007 & ISO 14001-2015 Certified Company, Empanelled with OCCL, ORSAC and SPCB of Govt. of Odisha
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Enlisted in CIDC (established by the Planning Commission Govt. of India), NABL,MoEF&CC, Govt. of India,
Recognised Environment Laboratory under Environment (Protection) Act, 1986.

Environmental Studies (EIA & EMP),Monitoring, Forest Diversion Planning, DPR, Wildlife Management Plan, Hazardous & Safety Studies, RS& GIS, Baseline Survey, Hydrological & Geological Studies, Socio-economic Studies, DGPS & ETS Survey.

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E-mail- cemc_consultancy@yahoo.co.in, cemc122@gmail.com, website: www.cemc.in, Landline: 0674-2360344.
Laboratory At. Plot No. 800/1274, Johal, Pahal, Bhubaneswar-752101
E-mail: cemclab@yahoo.in, Mobile: 9937631956, 8895177314

RISK ASSESSMENT AND DISASTER MANAGEMENT PLAN

CONTENT

RISK AND DISASTER MANAGEMENT PLAN

1.0 GENERAL INFORMATION ABOUT THE FACTORY:

M/s Ardent Steel Limited (ASL), is a sister concern of Godawari Power & Ispat Ltd (GPIL), a public Ltd. Co, belonging to Hira Group of Industries, Raipur having diverse interest in commissioning & running Cement Plant, Sponge Iron Plant etc. backed by a directed team of professionally qualified personnel. M/s. Ardent Steel Limited is a part of the GPIL has set up a 0.6MTPA pellet production with matching accessory facilities, utilities, equipment and plant buildings in order to convert Iron Ore fines into finished pellet product as raw material which is to be charged into DRI Plant/ B.F.

The factory is situated at Vill-Phuljhar, Block-Banspal under Banspal Tehesil in the district of Keonjhar which of 45kms from Kendujhargarh Railway Station and 20Km away from N.H.6. There are other two companies viz : Shree Metaliks Ltd. And Rungta Mines Ltd are also setting up their pellet plant within a radius of 4km. The plant has been set up in approx. 20 acres of area.

Name & address of the Factory	:	**M/S ARDENT STEEL LTD** AT-PHULJHAR, P.O- PHULJHAR, PANCHAYAT- PHULJHAR, BLOCK- BANSPAL TEHESIL- BANSPAL, DIST- KEONJHAR (ODISHA)-758001 PHONE: 06766-250173, FAX NO-06766-250182 Email- nsahoo@ardentsteel.com
City Office address	:	AT- Plot No-208, New Colony, Jamuhata Dist- Keonjhar PHONE: 06766-250173, FAX NO-06766-250182
Head Office address	:	**F-9, Hira Arcade,** **Near New Bus Stand** **Pandri, Raipur** **Chhatisgarh** **Phone: 0771 - 4082745** **Fax : 0771 – 4057601**
Name & address of Occupier	:	**DR. SUBHASISH DAS** Flat No.404, Kalpataru Niwas, Apruri Road, Behind Idea Office Bhubaneswar 751029 Phone: 09937043572/08800499454
Name & address of Manager	:	**MR. DILLIP KUMAR PANY** GA -382, Sailashree Vihar, Bhubaneswar - 751021 Mobile-9437076534 / 8280826835

1.1 MAJOR PLANT AND MACHINERY:

Plant		Capacity /Size
Ball Mill (Iron Ore Grinding System)	:	2X50 TPH
Filter Press	:	2X 40 TPH 2x75 TPH
Flux Grinding System Flux Pulverizing Unit PGP unit	:	1 X 5 TPH 2 X 1 TPH 4 x 9000 kwth
Mixer Machine	:	1 X 120TPH
Balling Disc	:	3 X 60 TPH
Travel Grate	:	1 X 91 TPH
Kiln	:	1 X 80 TPH
Annular Cooler	:	1 X 80 TPH

1.2 BRIEF MANUFACTURING PROCESS:

Preliminary Iron Ore wet grinding is carried out in closed circuit ball mill size of 3600mm x 7500mm and Derrick Screen. Underflow of Derrick screen product sizes is such that not less than 80% passing through 325 mesh with concentration of Iron Ore solid particle being 60%, which would directly be fed into filter press machine where the Iron Ore is filtered and discharged into iron ore filter cake bunkers/buffer shed. Iron ore grinding workshop is provided with a set of ball grinding machine, a set of Derrick screen, thickener, agitator and 4 set of press filters and other auxiliary equipments.

Filter cake is transferred by belt conveyor from buffer shed to filter cake bunkers.

The bentonite is transferred by cars into the storehouse in bags. Then Bentonite is lifted into the proportioning bunkers by electric hoist after manually dismantling bags

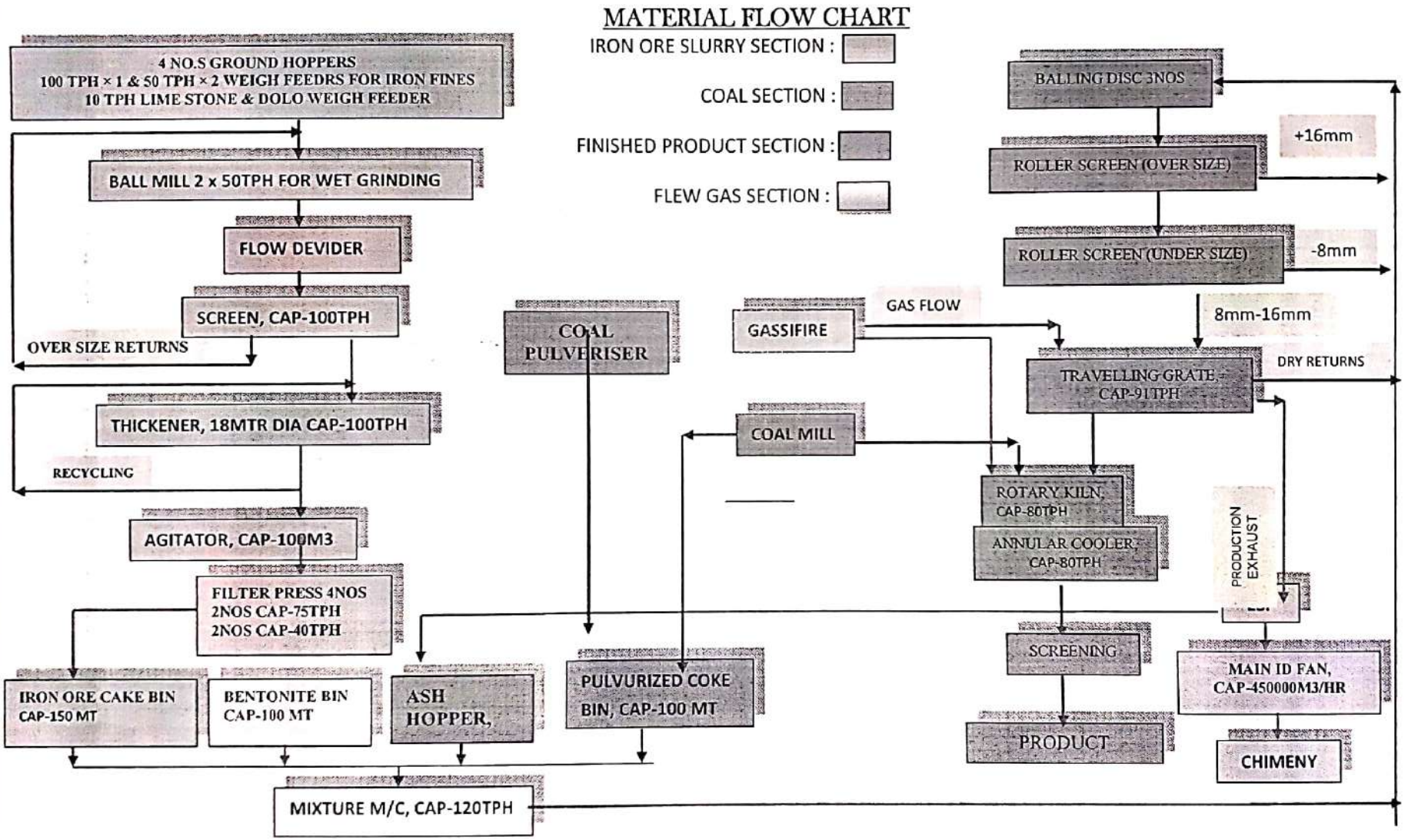
Iron ore filter cake is transferred from grinding unit through belt conveyor into the high level of proportioning room, where the filter cake fed into 2 filter cake bunkers.

Filter cake, Bentonite, Flux, Coke and dust are all mixed proportionately in a R-19 mixer. As per water content of material, some certain quantities of water is added so as to maintain water content before balling process ranged from 8 – 8.5%. Otherwise, it is not beneficial for subsequent procedures.

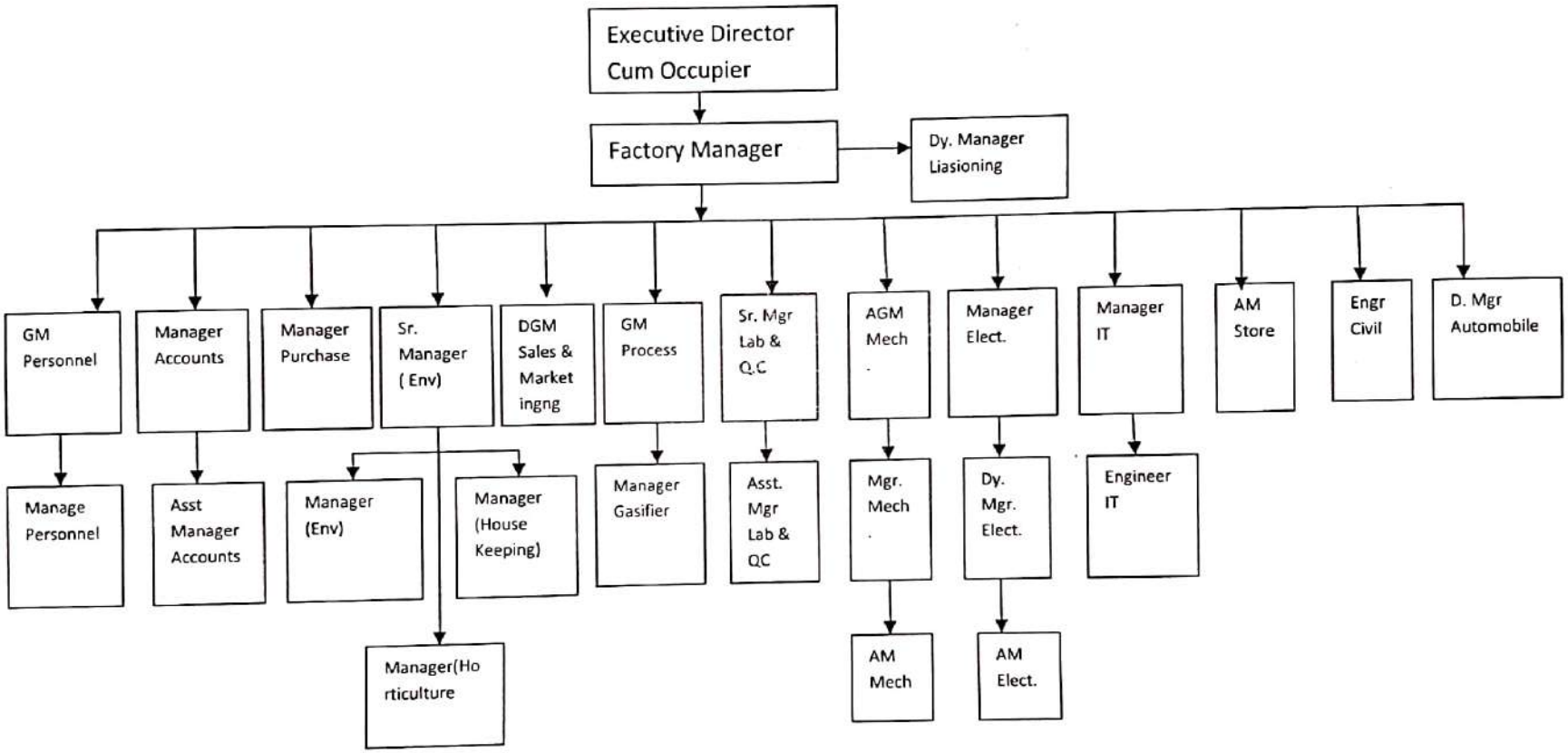
Mixed material is transferred through belt conveyor into the high level of balling room, where the material mix is discharged through plough-type dumper above belt conveyor separately into 3 mixed material bunkers.

Green ball produced from balling disc is transferred by collective belt conveyor into the green ball distribution system in the travel grate machine. Green ball are dried and preheated in the travel grate machine and baked, fired in the rotary kiln, cooled in the annular coole.

MATERIAL FLOW CHART



2.0 ORGANISATION CHART:



3.0 MANPOWER:

Manpower as per license is- 800. However the all shifts manpower engaged in the factory is 778

SHIFT	TIMING	No. of persons engaged		Total
		Regular	Contract	
"A"SHIFT	0600 – 1400 hrs.	131	100	231
"B"SHIFT	1400 – 2200 hrs	67	101	168
"C"SHIFT	2200 – 0600 hrs.	80	84	164
"G"SHIFT	0900 – 1800 hrs.	95	120	215
	TOTAL	373	405	778

4.0 PRODUCT:

SL.NO.	NAME OF PRODUCT	ONE TIME STORAGE QUANTITY	STORAGE TYPE	STORAGE CAPACITY & SIZE
1	Iron Ore Pellet	54840 MT	Open Yard	9600 M^2

4.1 INTERMEDIATE PRODUCT:

SL.NO.	NAME	ONE TIME STORAGE QUANTITY	STORAGE TYPE	STORAGE CAPACITY & SIZE
1	Ash	10000 MT	Open yard	Length-100 M Breadth-100 M

5.0 INVENTORY OF RAW MATERIALS:

SL. NO.	NAME	ONE TIME STORAGE QUANTITY	TYPES OF STORAGE	STORAGE CAPACITY & SIZE
01	Iron Ore Fines	54840 MT	Open Yard	11000 M^2
02	Coal	707 MT	Open Yard/shed	141.81 M^2
03	Bentonite	750 MT	Shed	150.43 M^2

6.0 INVENTORY OF HAZARDOUS SUBSTANCE:

SL. NO.	NAME	ONE TIME STORAGE QUANTITY	TYPES OF STORAGE	STORAGE CAPACITY & SIZE
1	HSD	20KL	Underground storage tank	Length-5.5 Mtrs Diameter-2.438 Mtrs
2	Transformer oil	4625 L	In the transformer	Inside the 7.5 MVA Transformer
		2 X 3482 L	In the transformer	Inside the 5.8 MVA x 2 nos Transformer
		1676 L	In the transformer	Inside the 2.8 MVA Transformer
3	Process Oil (LDO)	264560 L	Main tank-1 (ABOVE GROUND)	Diameter-6.2 mtr height -8.8 mtr
		264970 L	Main tank-2 (Above the Ground)	Diameter-6.2 mtr height -8.9 mtr
		35 KL	Kiln Day tank (Above the Ground)	Diameter-2.936 mtr height -5 mtr
		15 KL	TG Day Tank (Above the Ground)	Diameter-1.776 mtr height -6 mtr

7.0 INVENTORY OF HAZARDOUS GASES / SUBSTANCES PRODUCED / GENERATED:

SL.NO.	NAME	QUANTITY OF ONE TIME STORAGE	TYPE OF STORAGE
No hazardous substances/gases are produced/generated during the process			

8.0 IDENTIFICATION OF HAZARDS:

Due to handling/storing of coal, diesel and transformer oil, the fire hazards may occur in the following area within the factory premises:

Sl.	Area / Hazard Zone	Hazard	Impact
1	Coal yard	Fire may occur due to mild oxidation by weathering during storage of coal in the coal yard &spontaneous ignition of coal.	Significant heat level of 4.5 KW/M^2 will experience at distance of 15.2 meters. from the coal yard.
2	Diesel oil storage tank	Fire may occur due to expose to heat and naked lights	Significant heat level of 4.5 KW/M^2 experience at distance 6 metrs. from the storage tank.
3	7.5 MVA Transformer	Fire may occur due to rupture of the container if container is not properly cooled.	Significant heat level of 4.5 KW/M^2 will experience at distance of 17.9 metrs. from the Transformer.
5	5.8 MVA Transformer	Fire may occur due to rupture of the container if container is not properly cooled.	significant heat level of 4.5 KW/M^2 will experience at distance of 17.2 metrs. from the Transformer.
6	2.8 MVA Transformer	Fire may occur due to rupture of the container if container is not properly cooled.	significant heat level of 4.5 KW/M^2 will experience at distance of 15.5 metrs. from the Transformer..

9.0 IDENTIFICATION OF MOST CREDIBLE HAZARD SCENARIO:

9.1 Fire on Coal Yard:

During storage of coal in the coal yard, weathering of coal takes place due to mild oxidation, which is an exothermic process. If the heat liberated is not completely dissipated, the temperature of coal rises as coal is a bad conductor of heat. The rate of oxidation is doubled with 10 ^{0}C rising temperature. The bulk of coal may reach critical temperature i.e. its ignition point 50-80°C and may burst into flame.

Significant heat radiation experienced at distance in case of fire on coal yard (using ALOHA Software)

Mass of coal	Significant heat level Kw/m^2	Experience at distance in Mtrs.			Indication
		Summer	Rainy	Winter	
Coal yard 707MT	4.5	15	15.2	15.2	Causes pain if unable to cover the body within 20 seconds. However blistering of the skin (2nd degree burn) is likely caused with no lethality.
	12.5	6.9	8.3	8.3	Minimum energy required for melting of plastic
	37.5	2.9	3.0	3.0	Sufficient to cause damage to the equipment.

9.1.1 FIRE MODELING FOR COAL IN COAL YARD:

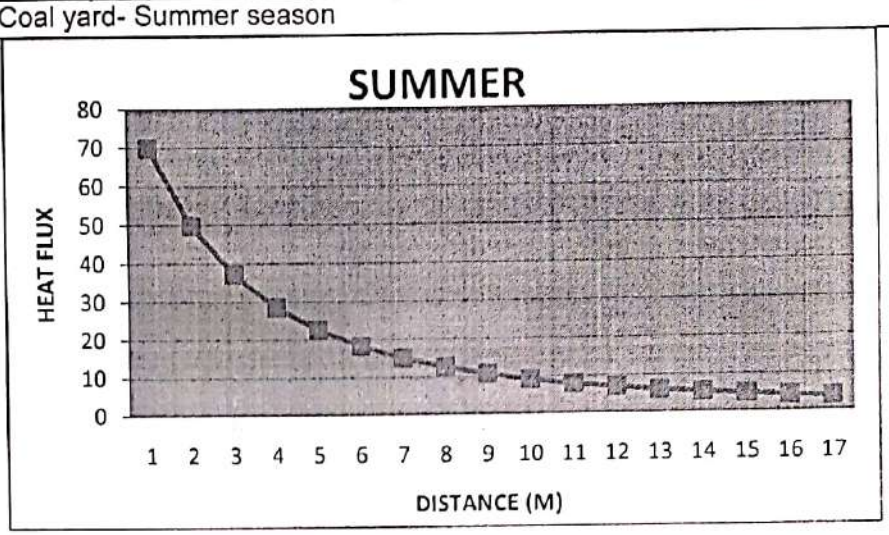
Storage detail		Input data for Summer Season		
Storage type	Coal yard			
Capacity	707MT			
Size	141.81 M^2			
Meteorological data		(Google Net)	Season	
Parameter	Summer	Rainy	Winter	
Average wind speed m/sec	8	6	4	
Average wind direction	SW	NW	N	
Humidity (%)	70	81	50	
Average ambient air temperature (^{0}C)	43	28	12	

HEAT FLUX DATA FOR SUMMER SEASON:

Distance (M)	Heat Flux (KW/m^2)
1	68.64
2	48.8
3	36.27
4	27.89
5	22.03
6	17.78
7	14.61
8	12.19
9	10.31
10	8.81
11	7.6
12	6.62
13	4.8
14	5.12
15	4.55
16	4.07
17	3.65

Heat propagation Curve

Coal yard- Summer season



SIGNIFICANT "HEAT LEVEL" EXPERIENCED AT DISTANCE DUE TO FIRE ON COAL YARD IN SUMMER SEASON

Significant Heat Level Value (KW/M^2)	Distance (M)	Indication
37.5	2.9	Causes pain if unable to cover the body within 20 seconds. However blistering of the skin (2nd degree burn) is likely caused with no lethality.
12.5	6.9	Minimum energy required for melting of plastic
4.5	15	Sufficient to cause damage to the equipment.

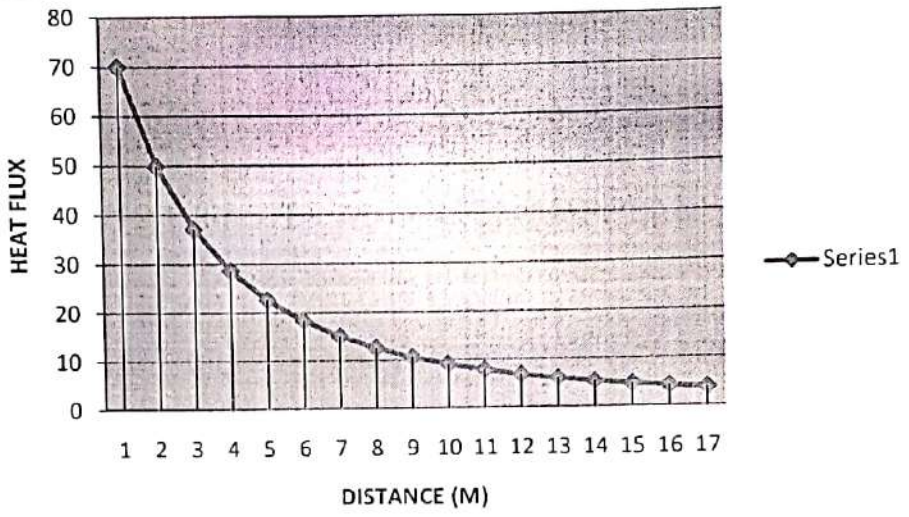
Storage detail		Input data for Rainy Season	
Storage type	Coal yard		
Capacity	707MT		
Size	141.81 M^2		
Meteorological data	Source Google Net	Season	
Parameter	Summer	Rainy	Winter
Average wind speed m/sec	8	6	4
Average wind direction	SW	NW	N
Humidity (%)	70	81	50
Average ambient air temperature (^0C)	43	28	12

HEAT FLUX DATA FOR RAINY SEASON:

Distance (M)	Heat Flux (KW/m^2)
1	69.93
2	49.85
3	37.15
4	28.63
5	22.66
6	18.33
7	15.1
8	12.62
9	10.69
10	9.15
11	7.91
12	6.9
13	6.06
14	5.36
15	4.77
16	4.27
17	3.84

Heat propagation Curve

Coal yard- Rainy season



SIGNIFICANT "HEAT LEVEL" EXPERIENCED AT DISTANCE DUE TO FIRE ON COAL YARD IN RAINY SEASON

Significant Heat Level Value (KW/M^2)	Distance (M)	Indication
4.5	15.2	Causes pain if unable to cover the body within 20 seconds. However blistering of the skin (2nd degree burn) is likely caused with no lethality.
12.5	8.3	Minimum energy required for melting of plastic
37.5	3.0	Sufficient to cause damage to the equipment.

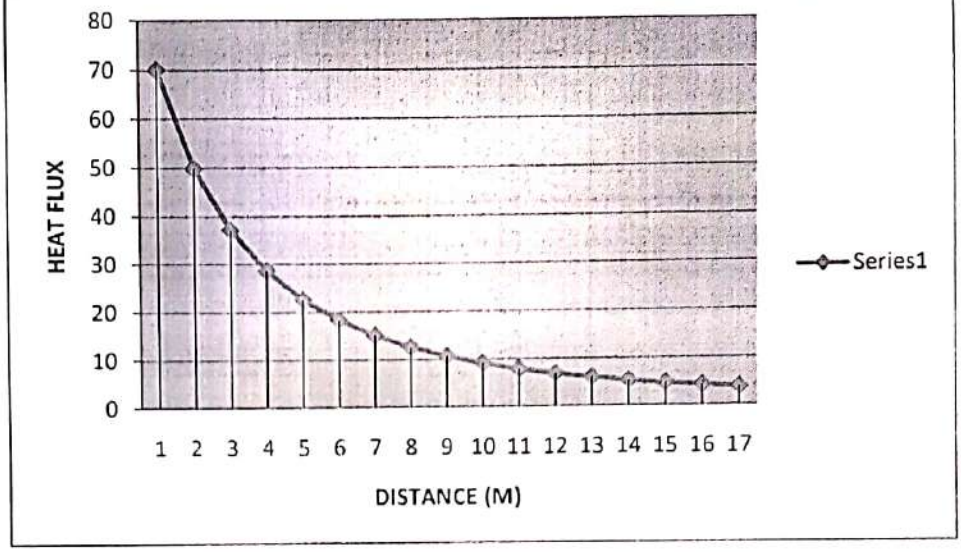
Storage detail		Input data for Winter Season	
Storage type	Coal yard		
Capacity	707MT		
Size	141.81 M^2		
Meteorological data	Source : Google Net	Season	
Parameter	Summer	Rainy	Winter
Average wind speed m/sec	8	6	4
Average wind direction	SW	NW	N
Humidity (%)	70	81	50
Average ambient air temperature (^0C)	43	28	12

HEAT FLUX DATA FOR WINTER SEASON:

Distance (M)	Heat Flux (KW/m^2)
1	69.93
2	49.85
3	37.15
4	28.63
5	22.66
6	18.33
7	15.1
8	12.62
9	10.69
10	9.15
11	7.91
12	6.9
13	6.06
14	5.36
15	4.77
16	4.27
17	3.84

Heat propagation Curve

Coal yard- Winter season



SIGNIFICANT "HEAT LEVEL" EXPERIENCED AT DISTANCE DUE TO FIRE ON COAL YARD IN WINTER SEASON

Significant Heat Level Value (KW/M^2)	Distance (M)	Indication
4.5	15.2	Causes pain if unable to cover the body within 20 seconds. However blistering of the skin (2nd degree burn) is likely caused with no lethality.
12.5	8.3	Minimum energy required for melting of plastic
37.5	3.0	Sufficient to cause damage to the equipment.

9.1.2 PRECAUTIONS FOR PREVENTION OF SPONTANEOUS IGNITION OF COAL:

The following precautions are taken for prevention of spontaneous ignition of coal.

- The exposed surface area of the raw coal heap is restricted to 20000 m^2 & maximum height of 3 mtrs. so as to avoid the contact of oxygen with coal.
- The exposed surface area of the raw coal heap is restricted to 15000 m^2 & maximum height of 3 mtrs. so as to avoid the contact of oxygen with coal.
- The exposed surface area is reduced by avoiding segregation and by packing the coal tightly and uniformly.
- The ventilation at the coal heap is suppressed so that weathering is avoided due to cut-off of oxygen.
- Coals of different sizes stored in a pile so that air voids are reduced to a great extent.
- The coal is consumed before the critical temperature (50-80°C) is reached.
- Water Sprinkling is done to reduce the temperature.
- Coal is stored under shed so as to avoid direct contact with the sunlight. Besides it is kept away from the heat source.

9.1.3 Fire Hazard in HSD Storage Tank:

HSD is a flammable liquid as per schedule-1, Part-II (b) (v) having flash point of 66^{0}C and auto ignition temperature of 256^{0}C and explosive limit of 5-7% volume in air. So, it is susceptible to fire hazard. Whenever HSD catches fire it shall manifest in the form of pool fire. The significant heat flux that spread from the source in case of pool fire in HSD tank is mentioned below.

Significant heat flux experienced at distance due to pool fire on HSD in different season. (By using ALOHA Software)

Storage details	Significant heat level Kw/m^2	Experience at distance in Mtrs.			Indication
		Summer	Rainy	Winter	
HSD 20 KL	4.5	6	4.5	5	Causes pain if unable cove the body within 20 seconds. However blistering of the skin (2nd degree burn) is likely caused with no lethality.
	12.5	2.5	1.9	3.3	Minimum energy required for melting of plastic
	37.5	1.4	0.8	0.6	Sufficient to cause damage to the equipment.

FIRE MODELLING FOR HSD IN STORAGE TANK

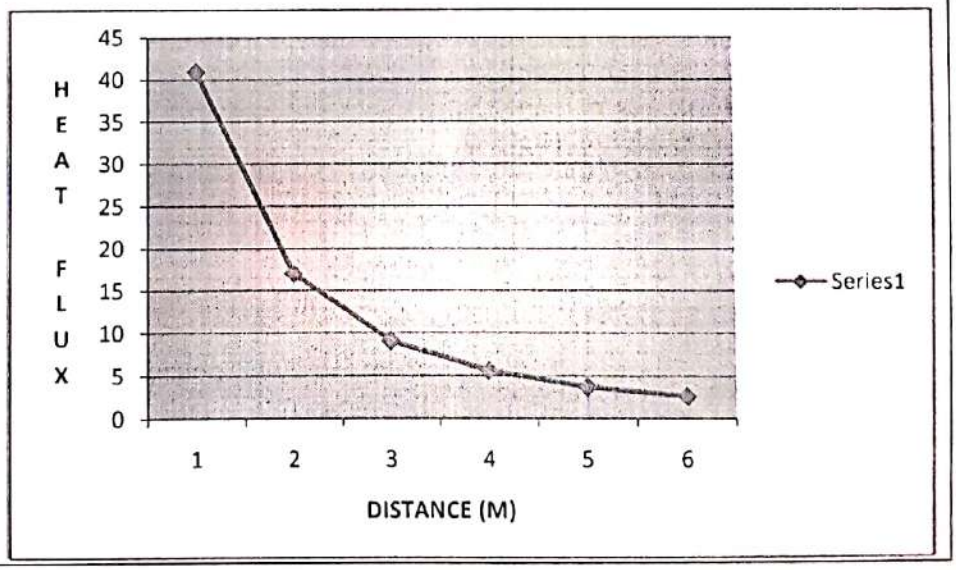
Storage detail			Input data for Summer Season
Storage type	Under Ground Storage Tank		
Capacity	20KL		
Size	Dia-2.438 M, L-5.5 M		
Meteorological data	Source : Google Net	Season	
Parameter	Summer	Rainy	Winter
Average wind speed m/sec	8	6	4
Average wind direction	SW	NW	N
Humidity (%)	70	81	50
Average ambient air temperature (^{0}C)	43	28	12

HEAT FLUX DATA FOR SUMMER SEASON:

Distance (M)	Heat Flux (KW/m^2)
1	40.91
2	17.01
3	9.09
4	5.57
5	3.73
6	2.65

Heat propagation Curve

HSD Storage Tank- Summer season:



SIGNIFICANT "HEAT LEVEL" EXPERIENCED AT DISTANCE

Significant Heat Level Value (KW/M^2)	Distance (M)	Indication
4.5	6	Causes pain if unable to cover the body within 20 seconds. However blistering of the skin (2nd degree burn) is likely caused with no lethality.
12.5	2.5	Minimum energy required for melting of plastic
37.5	1.4	Sufficient to cause damage to the equipment.

FIRE MODELLING FOR HSD IN STORAGE TANK

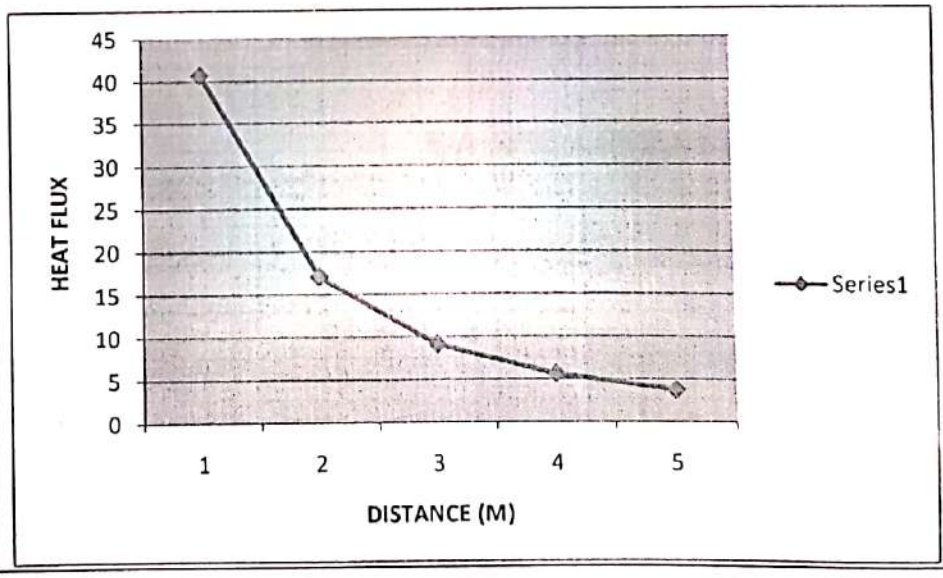
Storage detail			Input data for Rainy Season
Storage type	Under Ground Storage Tank		
Capacity	20 KL		
Size	Dia-2.438 M, L-5.5 M		
Meteorological data	Source : Google Net	Season	
Parameter	Summer	Rainy	Winter
Average wind speed m/sec	8	6	4
Average wind direction	SW	NW	N
Humidity (%)	70	81	50
Average ambient air temperature (^{0}C)	43	28	12

HEAT FLUX DATA FOR RAINY SEASON:

Distance (M)	Heat Flux (KW/m^2)
1	40.75
2	17.03
3	9.13
4	5.62
5	3.77

Heat propagation Curve

HSD Storage Tank- Rainy season:



SIGNIFICANT "HEAT LEVEL" EXPERIENCED AT DISTANCE

Significant Heat Level Value (KW/M^2)	Distance (M)	Indication
4.5	4.5	Causes pain if unable to cover the body within 20 seconds. However blistering of the skin (2nd degree burn) is likely caused with no lethality.
12.5	1.9	Minimum energy required for melting of plastic
37.5	0.8	Sufficient to cause damage to the equipment.

FIRE MODELLING FOR HSD IN STORAGE TANK

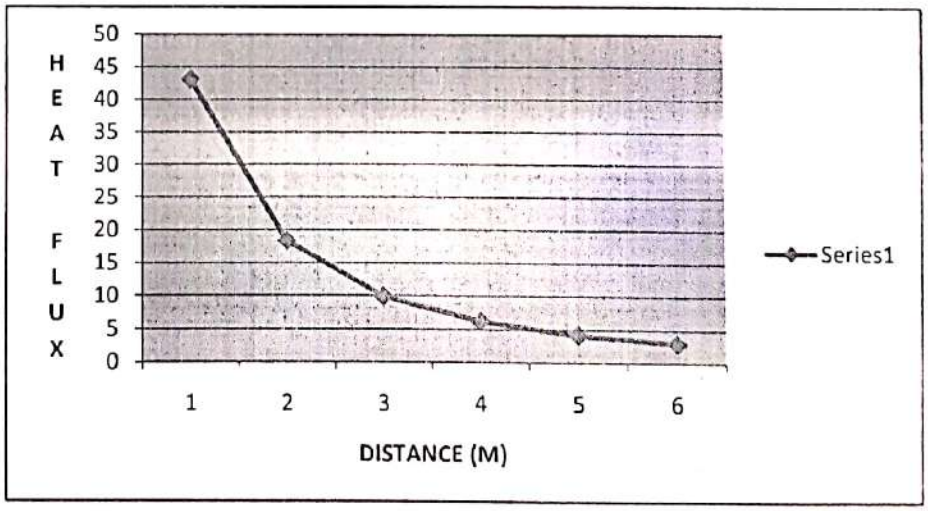
Storage detail			Input data for Winter Season
Storage type	Under Ground Storage Tank		
Capacity	20 KL		
Size	Dia-2.438 M, L-5.5 M		
Meteorological data	Source : Google Net		Season
Parameter	Summer	Rainy	Winter
Average wind speed m/sec	8	6	4
Average wind direction	SW	NW	N
Humidity (%)	70	81	50
Average ambient air temperature (^{0}C)	43	28	12

HEAT FLUX DATA FOR WINTER SEASON:

Distance (M)	Heat Flux (KW/m^2)
1	43.1
2	18.3
3	9.94
4	6.18
5	4.18
6	3.01

Heat propagation Curve

HSD Storage Tank- Winter season:



SIGNIFICANT "HEAT LEVEL" EXPERIENCED AT DISTANCE

Significant Heat Level Value (KW/M^2)	Distance (M)	Indication
4.5	5	Causes pain if unable to cover the body within 20 seconds. However blistering of the skin (2nd degree burn) is likely caused with no lethality.
12.5	3.3	Minimum energy required for melting of plastic
37.5	0.6	Sufficient to cause damage to the equipment.

9.1.4 Fire Hazard in Transformer Oil in Transformer:

Transformer oil is a flammable liquid as per schedule-1, Part-II (b) (v) having flash point of 144^{0}C, auto ignition temperature of >270^{0}C and explosive limit of 0.7% volume in air. So, it is susceptible to fire hazard. Whenever Transformer oil catches fire it shall manifest in the form of pool fire. The significant heat flux that spread from the source in case of pool fire in transformer is mentioned below.

Significant heat flux experienced at distance due to fire on transformer containing transformer oil in different season. (By Using ALOHA Software)

Storage details	Significant heat level Kw/m^2	Experience at distance in Mtrs.	Indication
Transformer oil 4625 Lin 7.5 MVA Transformer	4.5	17.9	Causes pain if unable cover the body within 20 seconds. However blistering of the skin (2nd degree burn) is likely caused with no lethality.
	12.5	9.8	Minimum energy required for melting of plastic
	37.5	3	Sufficient to cause damage to the equipment.
Transformer oil 3482 L in 5.8 MVA Transformer	4.5	17.2	Causes pain if unable cover the body within 20 seconds. However blistering of the skin (2nd degree burn) is likely caused with no lethality.
	12.5	9.5	Minimum energy required for melting of plastic
	37.5	3.8	Sufficient to cause damage to the equipment.
Transformer oil 1676 L in 2.8 MVA Transformer	4.5	15.5	Causes pain if unable cover the body within 20 seconds. However blistering of the skin (2nd degree burn) is likely caused with no lethality.
	12.5	8.3	Minimum energy required for melting of plastic
	37.5	2.9	Sufficient to cause damage to the equipment.

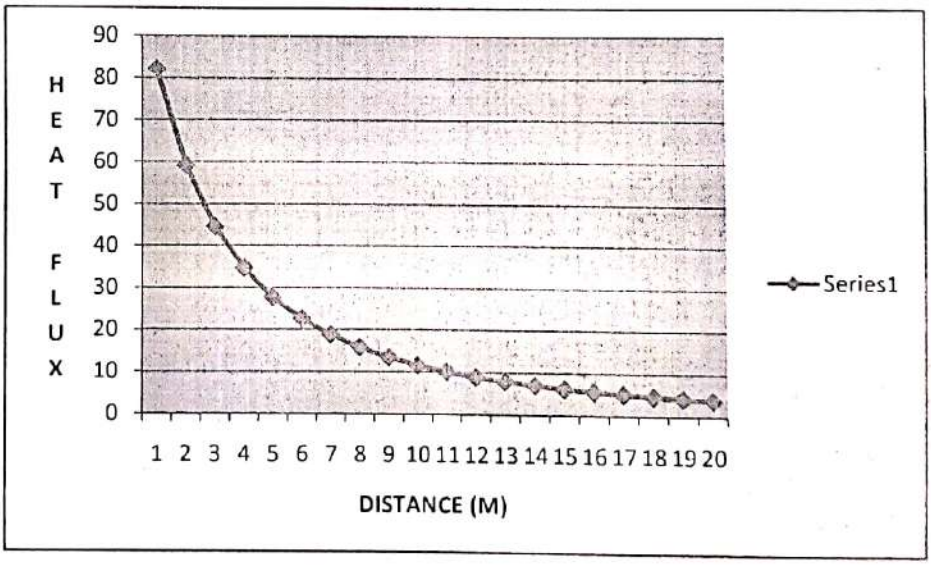
FIRE MODELING FOR TRANSFORMER OIL

Storage detail			Input data for 7.5MVA Transformer
Storage type	Transformer		
Capacity	4625 L		
Meteorological data	Source : Google Net	Season	
Parameter	Summer	Rainy	Winter
Average wind speed m/sec	8	6	4
Average wind direction	SW	NW	N
Humidity (%)	70	81	50
Average ambient air temperature (^{0}C)	43	28	12

Distance (M)	Heat Flux (KW/m^2)
1	82.11
2	59.2
3	44.57
4	34.68
5	27.7
6	22.6
7	18.76
8	15.81
9	13.48
10	11.63
11	10.12
12	8.88
13	7.85
14	6.99
15	6.26
16	5.63
17	5.09
18	4.62
19	4.22
20	3.86

Heat propagation Curve

7.5 MVA Transformer:



SIGNIFICANT "HEAT LEVEL" EXPERIENCED AT DISTANCE

Significant Heat Level Value (KW/M^2)	Distance (M)	Indication
4.5	17.9	Causes pain if unable to cover the body within 20 seconds. However blistering of the skin (2nd degree burn) is likely caused with no lethality.
12.5	9.8	Minimum energy required for melting of plastic
37.5	3	Sufficient to cause damage to the equipment.

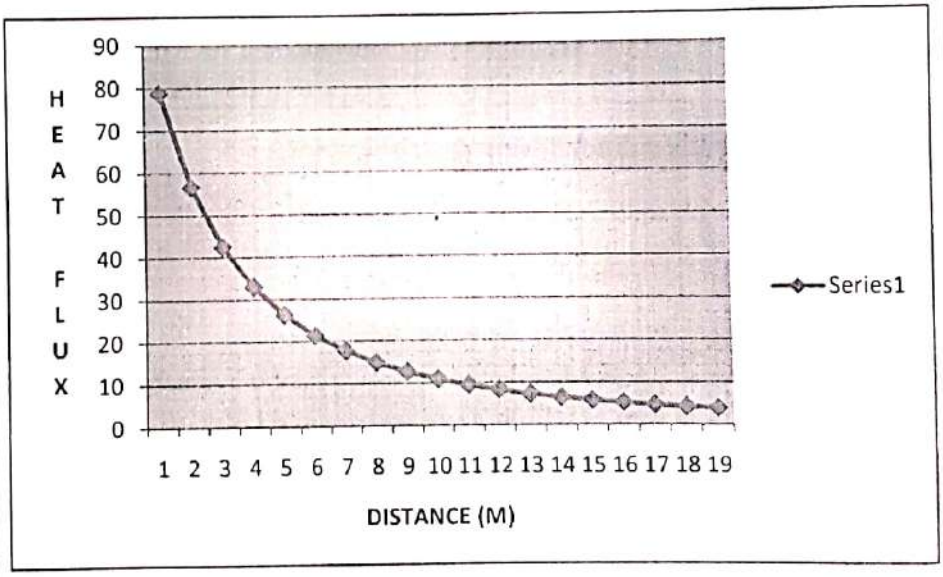
FIRE MODELING FOR TRANSFORMER OIL

Storage detail			Input data for 5.8 MVA Transformer
Storage type	Transformer		
Capacity	3482 L		
Meteorological data	Source : Google Net		Season
Parameter	Summer	Rainy	Winter
Average wind speed m/sec	8	6	4
Average wind direction	SW	NW	N
Humidity (%)	70	81	50
Average ambient air temperature (^{0}C)	43	28	12

Distance (M)	Heat Flux (KW/m^2)
1	78.76
2	56.63
3	42.53
4	33.01
5	26.31
6	21.42
7	17.75
8	14.93
9	12.71
10	10.94
11	9.51
12	8.33
13	7.36
14	6.54
15	5.84
16	5.25
17	4.74
18	4.3
19	3.92

Heat propagation Curve

5.8 MVA Transformer:



SIGNIFICANT "HEAT LEVEL" EXPERIENCED AT DISTANCE

Significant Heat Level Value (KW/M^2)	Distance (M)	Indication
4.5	17.2	Causes pain if unable to cover the body within 20 seconds. However blistering of the skin (2nd degree burn) is likely caused with no lethality.
12.5	9.5	Minimum energy required for melting of plastic
37.5	3.8	Sufficient to cause damage to the equipment.

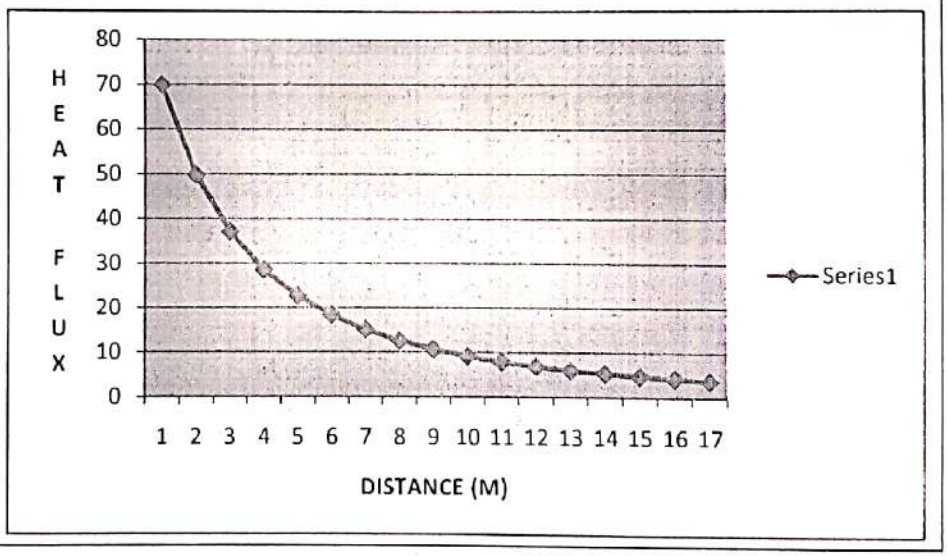
FIRE MODELING FOR TRANSFORMER OIL

Storage detail			Input data for 2.8 MVA Transformer
Storage type	Transformer		
Capacity	1676 L		
Meteorological data	Source : Google Net		Season
Parameter	Summer	Rainy	Winter
Average wind speed m/sec	8	6	4
Average wind direction	SW	NW	N
Humidity (%)	70	81	50
Average ambient air temperature (^{0}C)	43	28	12

Distance (M)	Heat Flux (KW/m^2)
1	69.93
2	49.85
3	37.15
4	28.63
5	22.66
6	18.33
7	15.1
8	12.62
9	10.69
10	9.15
11	7.91
12	6.9
13	6.06
14	5.36
15	4.77
16	4.27
17	3.84

Heat propagation Curve

2.8 MVA Transformer:



SIGNIFICANT "HEAT LEVEL" EXPERIENCED AT DISTANCE

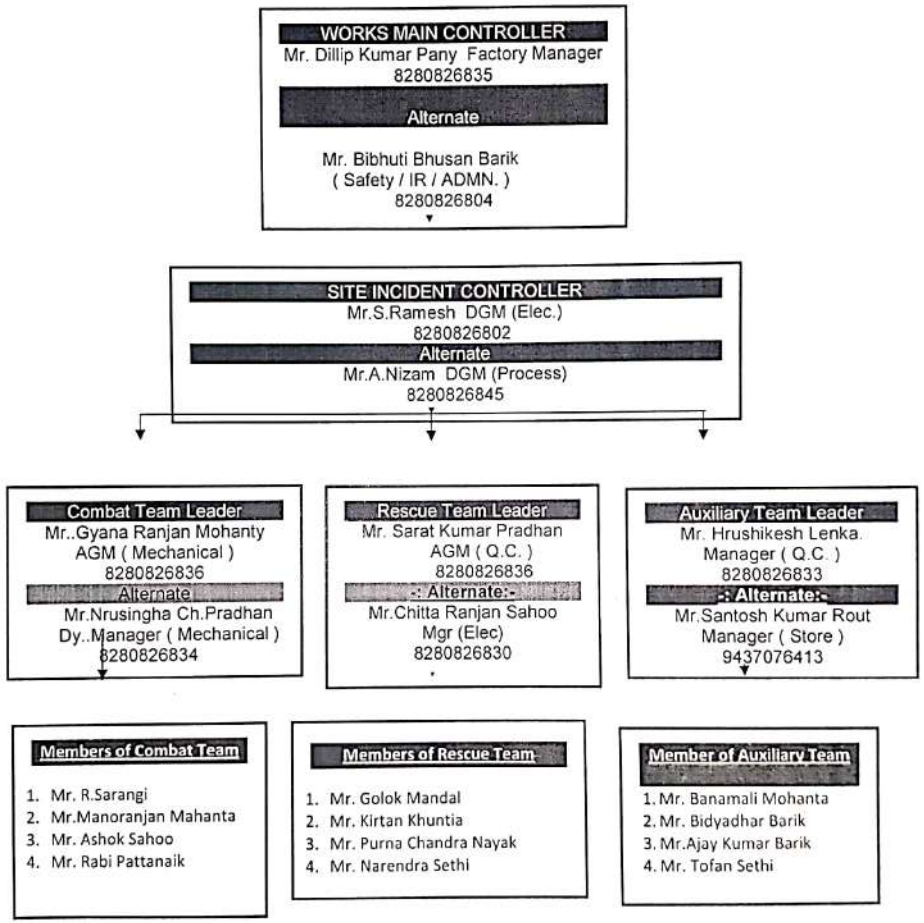
Significant Heat Level Value (KW/M^2)	Distance (M)	Indication
4.5	15.5	Causes pain if unable to cover the body within 20 seconds. However blistering of the skin (2nd degree burn) is likely caused with no lethality.
12.5	8.3	Minimum energy required for melting of plastic
37.5	2.9	Sufficient to cause damage to the equipment.

10.0 PLOT PLAN:

The plot plan showing the followings is given in **Annexure**.

(i) Hazard Zone (HZ)
(ii) Iso-risk Contour around Hazard Zone
(iii) Emergency Control Room (ECR)
(iv) Assembly Point (AP)
(v) Emergency Exit (EE)
(vi) Fire Hydrant line

11.0 EMERGENCY COMMAND STRUCTURE:



12.0 ROLE OF KEY PERSONS OF EMERGENCY COMMAND STRUCTURE:

12.1 WORKS MAIN CONTROLLER (WMC):

- On being informed, rush to the scene and take overall charges of the situation.
- Make quick assessment of the situation and decide declaration of emergency by blowing the siren in appropriate code [**intermittent three times with five seconds interval**].
- Make continuous review and assess the possible developments to determine the extent of damage to plant and human beings.
- Shut-down the plant, if necessary.
- Ensure that casualties are receiving adequate attention.
- Liaise with the fire services, police services and other statutory authorities.
- Declare closure of the emergency by blowing the siren [only once long siren for 30 seconds].
- Issue the authorized statements to the media services.
- Report all statutory authorities in the prescribed manner.
- Communicate to employees about the mishap, measures taken and giving confidence to employees for avoiding recurrence of the incident by investigation and ordering preventive measures to be implemented.

12.2 SITE INCIDENT CONTROLLER:

- On hearing Emergency siren, rush to the scene and report to the Works Main Controller.
- Make quick assess about the gravity of the situation and appraises Works Main Controller.
- Extend all sorts of help through different agencies to minimize the damage to human beings, plant, property and environment.
- Shutdown of Plant & Machinery.
- Undertake continuous review of the situation time to time and appraise to Works Main Controller.
- Provide the required information to the fire brigade team for fire fighting.
- Preserve the evidences for the subsequent inquiries.
- He will liaison between the various working teams.
- He will extend all possible help needed during the Emergency.
- Organize various teams by calling the team leader

12.3 COMBAT TEAM LEADER:

- On hearing the emergency siren, rush to the scene with fire fighting team with sufficient equipment in the minimum possible time.
- Ensure the team members resume their position with appropriate equipment
- Monitor the fire fighting operation to control the situation
- Ensure that the situation is controlled by arresting, spillage, fighting fire, shutting of the valve and equipment by the team in consultation with Site Incident Controller
- Alert the entire employees through PA System
- Command fire fighting activities. Also review and decide fire-fighting strategies

12.4 COMBAT TEAM MEMBERS:

The team members will assist the team Leader to ensure.

- Shutdown the Plant and Machinery & Isolate the affected area.
- Arrange of Isolation of Electrical Power Supplier all around the affected area.
- Alert the entire employees through PA System
- Operating the fire fighting equipments and materials and also to shift to effected site

12.5 RESCUE TEAM LEADER:

- On hearing the emergency siren, rush to the scene
- Ensure the arrival of his team members
- Keep necessary equipments of first-aid for preliminary treatment
- Keep the ambulance ready to carry the injure persons to the hospital
- Ensure the proper personal protective equipments lead the team for rescue operation
- Guide the mutual aid partners for their course of action at the site
- Guide the non-essential persons to reach assembly point
- Search the missing person on the roll call basis
- Rescue all the effected persons.
- Search for casualties and evacuate non-essential person from spot.

12.6 RESCUE TEAM MEMBERS:

- On hearing the emergency siren, rush to the scene with appropriate personal protective equipments
- Rescue all the effected persons.
- Search for casualties and evacuate non-essential person from spot.
- Arrange to send emergency case to hospitals.

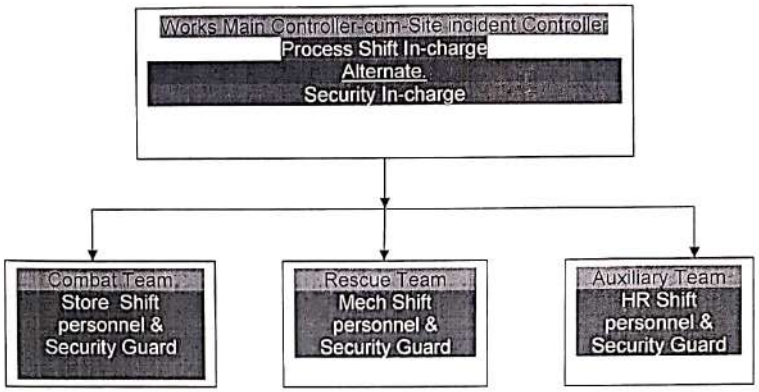
12.7 AUXILIARY TEAM LEADER:

- On hearing the emergency siren rush to the scene
- Ensure the arrival of his team members
- Intimate mutual-aider over phone
- Keeps the first-aid and primary health center staff, equipment ready to take care of immediate medical needs
- Takes care of victims' family
- Make all arrangement like transport, other needs, arrange finance
- Ensure all casualties are shifted to hospital for medical treatment
- Keep records of casualties and provide information of the matter to Works Main Controller

12.8 AUXILIARY TEAM MEMBERS:

- On hearing emergency siren, rush to the scene
- Carry out the orders of the team leader
- Provide immediate first-aid treatment to the victims
- Ensure ambulance vehicle ready
- Coordinate with combat team, rescue team, statutory authorities and mutual-aid partners
- Takes care of victims' family.

13.0 SILENT HOUR COMMAND STRUCTURE:



13.1 ROLE OF KEY PERSONS IN SILENT HOUR COMMAND STRUCTURE:

- Silent Hour is the time when General Shift people are not available
- The command structure for the silent hour shall be same as during normal hour, however, **during the silent hour the Shift In-charge / Security In-charge shall act as Works Main Controller-cum Site Incidence Controller , till the arrival of the Works Main Controller**
- **Works Main Controller-cum Site Incidence Controller (Silent Hour) shall inform** Works Main Controller, Site Incident Controller, Combat Team Leader, Rescue Team Leader and the Auxiliary Team Leader by telephone or by sending special messenger to their residences
- On receiving the information the Works Main Controller, Site Incident Controller, Combat Team Leader, Rescue Team Leader and Auxiliary Team Leader shall reach the site at the earliest and simultaneously Combat Team Leader, Rescue Team Leader and Auxiliary Team Leader shall ensure the presence of their respective team members
- Thereafter the action plan as well as the role of key persons shall be same as the normal hour execution of Command Structure

14.0 ACTION PLAN FOR ON-SITE EMERGENCY:

STEP NO.	INITIATOR	ACTION TO TAKE
1.	The person noticing the emergency	➢ Inform the Security Gate and the concerned Shift-in-charge who in turn will inform Works Main Controller immediately regarding the fire hazard.
2	Works Main Controller (WMC)	➢ On being informed, rush to the Emergency Control Room. ➢ Declare of emergency by blowing the siren in appropriate code **[intermittent three times with five seconds interval]** ➢ Make continuous review and assess the possible developments to determine the extent of damage to plant and human beings ➢ Shut-down the plant, if necessary ➢ Ensure that casualties are receiving adequate attention ➢ Liaise with the fire services, police services and other statutory authorities ➢ Declare closure of the emergency by blowing the siren [only once long siren for 30 seconds] ➢ Issue the authorized statements to the media services ➢ Report all statutory authorities in the prescribed manner ➢ Communicate to employees about the mishap, measures taken and giving confidence to employees for avoiding recurrence of the incident by investigation and ordering preventive measures to be implemented
3.	Site Incident Controller (sic)	➢ On hearing Emergency siren, rush to the scene and report to the Works Main Controller ➢ Make quick assess about the gravity of the situation and appraises Works Main Controller ➢ Extend all sorts of help through different agencies to minimize the damage to human beings, plant, property and environment ➢ Shutdown of Plant & Machinery ➢ Undertake continuous review of the situation time to time and appraise to Works Main Controller ➢ Provide the required information to the fire brigade team for fire fighting ➢ Preserve the evidences for the subsequent inquiries ➢ Make liaison between the various working teams. ➢ Extend all possible help needed during the Emergency.
4	Combat Team	➢ On hearing Emergency siren, rush to the scene ➢ Shutdown the Plant and Machinery & Isolate the affected area. ➢ Arrange of Isolation of Electrical Power Supplier all around the affected area. ➢ Alert the entire employees through PA System ➢ Operating the fire fighting equipments and materials and also to shift to effected site

5.	Rescue Team	➢ On hearing Emergency siren, rush to the scene ➢ Guide the non-essential persons to reach assembly point ➢ Search the missing person on the roll call basis ➢ Rescue all the effected persons. ➢ Search for casualties and evacuate non-essential person from spot.
6.	Auxiliary Team	➢ On hearing Emergency siren, rush to the scene ➢ Inform about the emergency to Statutory Authorities depending upon the situation. ➢ Shift the injured persons to hospital by ambulance after providing necessary first aid. ➢ Seek help of Mutual Aid Partners and Coordinate with Mutual Aid Partners to render their service if required. ➢ Arrange to inform the relatives of Casualties. ➢ Take care of visit of the authorities to the Emergency Site.

15.0 ACTIVATION AND CLOSING PROCEDURE

⇒ **Anybody** notices FIRE, shout "FIRE, FIRE", "FIRE" and informs to Shift-in-charge [or Smoke detector indicates fire alarm installed in the emergency control room]

⇒ Being informed about fire, the **Shift-in-charge** informs **Works Main Controller** and **Site Incident Controller**

⇒ On hearing about the fire, Works Main Controller and Site Incident Controller rush to the scene and make quick assessment of the situation

⇒ On quick assessment of the situation, the Works Main Controller rush to the emergency control room and declare emergency by blowing appropriate siren code **[intermittent three times with five seconds interval]**

⇒ On hearing of Emergency siren the key personnel of Emergency Combat structure perform their duties and responsibilities as per the worksheet

⇒ During the emergency operation, the Works Main Controller keeps records of activities carried on, supervises overall, maintain liaison with mutual aiders, statutory authorities

⇒ After being controlled the situation, the Works Main Controller declares normalcy by blowing appropriate siren [30 seconds continuously]

ANNEXURE-I

DETAILS OF FACILITIES AVAILABLE:

A. EMERGENCY CONTROL ROOM:

- P&T phone - 01
- Wind direction and speed indicator- Top of the administrative building
- Windsock - Top of the administrative building
- Wallboard for fixing up drawings and drawing pins. Flip charts, drawing sheets and sketch pens
- Switch for actuating the siren, drinking water arrangement, tables, chairs, etc.
- Details of address and telephone numbers of key personnel of emergency command structure, statutory authorities and mutual aiders
- Worksheet of key personnel of emergency command structure
- Applicable siren code
- Safety manual
- List of emergency telephone numbers (external and internal)
- Local P & T telephone directories
- List of people working in the installation, location wise
- List of residential addresses of employees / contract workers and casual workers
- Red / Green flag – 6 nos. each

B. ASSEMBLY POINTS:

In an emergency, it will be necessary to evacuate people from the affected zones or the zones likely to be affected, to safe areas. The safe areas are identified and designated as Assembly Points (AP). The location of the assembly point is the vacant space shown in the Plot Plan. Arrangements for taking head count of persons, reconciling the head count with the attendance rolls, temporary shelter and further evacuation if necessary to safer place outside factory campus can be made.

C. WIND SOCKS:

During emergencies, the knowledge of exact wind direction helps the factory personnel to decide on the escape route to be taken for safe evacuation of personnel and also the safe assembly point and Emergency Control Centre. Therefore, the windsock is provided at the top of the administrative building for easy identification of the wind direction.

D. COMMUNICATING THE EMERGENCY AND MEDICAL AID:

For communicating the declaration of emergency and evacuation decision to the plant personnel, it is envisaged that the siren would be utilized.

Declaration of emergency	: -	Intermittent three times with 5 seconds interval
Normal factory siren	: -	Continuous for 20 secs.
All-clear signal	: -	Continuous for 30 seconds.

E. EMERGENCY MEDICAL ARRANGEMENT:-

⇒ The first-aid box is available in each department ; viz. main store, mechanical office , electrical office, control room, admin. office, PGP control room, grinding control room, automobile office, time office ,

⇒ First-aid boxes are maintained in each department

⇒ Adequate stock of essential medicines, bandages and other appliances are being maintained

F. FIRE HYDRANT SYSTEM:

Fire Hydrant points are provided inside the plant as shown in plot plan. Fire hydrant hoses are 63mm. dia in size. Two motors of 55 kw having capacity of discharging water 180 m^3/hr are provided to main header to maintain a pressure of 7kg/cm^2. In case of temporary power failure, the fire pumps are run by DG. One water reservoir of capacity 3000 KL is supplying water to the fire main line .

G. First Aid Centre:

One first aid room with facilities of oxygen fittings, stretchers, thermometer, first aid kits, blankets, kidney tray and a team of first aiders are available

H. FIRE EXTINGUISHERS:

Required types of fire extinguishers have been provided at different locations of the plant as given below

Location of Equipment	CO_2 Type	DCP Type	Foam Type	Fire bucket	Remarks
Ball Mill	1	2	1	7	At the time of Emergency any nos. of equipments can be used collecting from any place point as per requirement
Travelling Grate	1	2	1	7	
Filter Press	1	2	1	7	
DG room	2	3	1	7	
Diesel Tank area	2	3	1	7	
Control room	2	2	1	8	
Flux grinding	2	2	1	7	
Pump House	1	2	1	7	
Gasifier Control Room	1	2	1	7	
TOTAL	13	20	09	64	

J. SIREN:

Company has Siren/ hooter arrangement, which can be activated manually during fire related emergency.

K. COMMUNICATION:

Public address system and EPABX telephone is available for effective communication inside the plant. Telephone directory is available in the entire department.

Hording

1. Wear only cotton/approved work clothes while on duty in the plant.
2. Don't resort to short cuts.
3. Don't attempt to operate any equipment to which you are not specifically assigned.
4. Don't use the defective equipments of any kind.
5. Use the PPE to work safely.
6. Insist your fellow workers to observe the safety rules.
7. Take instruction from your superior before starting any new works.
8. Report all injuries/dangerous occurrence to your superior.
9. Curing emergency be strictly guided by the emergency action plan.

ANNEXURE-II

MUTUAL AID :

LIST OF MUTUAL AIDER DURING EMERGENCY				
Sl. No.	**Name & Address of the mutual address**	**Distance from the factory**	**Contact Person with Tel. No.**	**Facilities available**
1	M/s. Shree Metaliks Ltd At-Anra, P.O- Suakati Dist-Keonjhar	6 Km.	Mr. P.K.Palai, DGM 9437000640/07894 037640	• Vehicle • Fire extinguisher • Trained first aider

MUTUAL AGREEMENT

Between M/ Ardent Steel Limited and M/s Sree Metaliks Limited

1	Name of the Factory which will receive mutual Aid M/s Ardent SteeL Limited At/Po : Phuljhar, Via : Suakati Dist : Keonjhar	1	Name of the Factory which will provide mutual Aid : M/s Sree Metaliks Ltd., At /Po : Anra, Via : Suakati Dist : Keonjhar
2	Hazards associated with the factory Fire due to storage/handling of HSD, LDO (Process oil) & Transformer Oil	2	Hazards associated with the factory Fire due to storage/handling of HSD, LDO (Process oil) & Transformer Oil
3	Facilities Available Different type of Fire Extinguishers, Ambulance vehicle.	3	Facilities Available Different type of Fire Extinguishers, Ambulance vehicle.
4	Facilities to be provided during emergency. Fire Extinguisher, Ambulance, vehicle, trained First Aider.	4	Facilities to be provided during emergency. Fire Extinguisher, Ambulance, vehicle, trained First Aider.
5	Contact person with designation and Mobile No. Sri Balabhadra Prasad Yadav Factory Manager Mob : 9437076930	5	Contact person with designation and Mobile No. Sri Pradeep Kumar Palai Factory Manager Mob : 9437000640

For Ardent Steel Limited

Factory Manager

Signature of Occupier / Manager
With Seal

For SREE METALIKS LTD.

Factory Manager

Signature of Occupier / Manager
With Seal

ANNEXURE-III

(A) DETAILS OF TELEPHONE NUMBERS OF KEY PERSONNEL

TELEPHONE NUMBERS OF KEY PERSONS OF EMERGENCY COMMAND STRUCTURE

Sl. No.	Name & Designation	Designation	Designation as per emergency command structure	Telephone Numbers
1.	Mr. Dillip Kumar Pany	Factory Manager	Works Main Controller	8280826835
2.	Mr. Bibhuti Bhusan Bariki	Safety/IR/ADMN.)	Alternate Works Main Controller	8282826804
3.	Mr.S,Ramesh	DGM (Elec)	Site Incident Controller	8280826802
4.	Mr. Abdul Nizam	DGM (Process)	Alternate Site Incident Controller	8280826845
5.	Mr. Gyana Ranjan Mohanty	A.G.M Mechanical	Combat Team Leader	8280826836
6.	Mr.Nrusingha Ch. Pradhan	Dy. Manager Mech.	Alternate Combat Team Leader	8280826834
7.	Mr.Sarat Ku. Pradhan	AGM (Q.C.)	Rescue Team Leader	8280826834
8.	Mr .Chitta Ranjan Sahoo	Manager Electrical	Alternate Rescue Team Leader	8280826830
9.	Mr.Hrushikesh Lenka	Manager (Q.C.)	Auxiliary Team Leader	8280826833
10.	Mr. Santosh Kumar Rout	Manager Store	Alternate Auxiliary Team Leader	9437076413

(B) DETAILS OF TELEPHONE NUMBERS OF STATUTORY AUTHORITY

Sl.No.	AUTHORITY	ADDRESS	TELEPHONE NUMBER
1	District Collector,	Keonjhar	06766 - 255482
2	Addl. District Magistrate,	Keonjhar	06766 –255401
3	District Fire Officer,	Keonjhar	9437350983
4	Chief District Medical Officer,	Keonjhar	06766-255525
6	Police Station,	Keonjhar	9437369955 / 100
7	Nearest Hospital	Keonjhar	06766-255525
8	Nearest Fire Station	Keonjhar	9437350983
9	Director of Factories & Boilers, Odisha	Bhubaneswar	0674-2396070
10	Asst. Director of Factories & Boilers,	Keonjhar	9437290384

ANNEXURE-IV

MATERIAL SAFETY DATA SHEET FOR HIGH SPEED DIESEL

1.	Physical State	Liquid
2.	Colour	Straw red
3.	Specific Gravity	0.86
4.	Flash Point ℃	66
5.	Boiling Point ℃	149
6.	Auto ignition Temperature ℃	256
7.	Vapour Pressure	< 1 mm
8.	Solubility	NO
9.	Explosive Limit (% Volume in air)	5 – 7

A. POTENTIAL HEALTH EFFECTS

- **Inhalation:** - Irritation of the upper respiratory tract and eyes, with possible euphoria, dizziness, headache, dis co-ordination, ringing in the ears, convulsions, coma, and respiratory arrest.
- **Ingestion:** - Irritation of the mucous membranes of throat, esophagus and stomach which may result in nausea and vomiting; central nervous system depression may occur, if absorbed (see inhalation symptoms above). If aspirated, chemical pneumonitis may occur with potentially fatal results. Possible kidney and liver damage may be delayed.
- **Skin Contact:** - Defeating of the skin may occur with continued and prolonged contact. Irritation and burning sensation may occur on exposure to the liquid or mists.
- **Eye Contact:** - Severe burning sensation with temporary irritation and swelling of lids.

B. FIRSTAID MEASURES

- **Inhalation:** Get person out of contaminated area to fresh air. If breathing has stopped resuscitate and administer oxygen if readily available. **SEEK MEDICAL ATTENTION IMMEDIATELY.**
- **Ingestion:** Never give anything by mouth to an unconscious person. If swallowed, do not induce vomiting. If vomiting occurs spontaneously, keep airway clear. SEEK MEDICAL ATTENTION IMMEDIATELY.
- **Skin Contact:** - Wash contaminated areas with plenty of soap and water. A soothing ointment may be applied to irritated skin after thoroughly cleansing. Remove contaminated clothing and footwear.
- **Eye Contact:** - Immediately flush eyes with large amount of water for at least 15 minutes holding lids apart to ensure flushing of the entire eye surface. **SEEK IMMEDIATE MEDICAL ATTENTION.**
- **Note to Physician:** Do not induce vomiting, use gastric lavage only. Aspiration of liquid into the lungs could result in Chemical pneumonitis. Use of adrenaline is not advised. Treat symptomatically.

C. FIRE FIGHTING MEASURES

- Fire Fighting Instructions:- Use water fog, C02, foam, dry chemical or Halon to extinguish. Keep personnel removed from and up-wind of fire. Cool adjacent structures and storage drums with water spray. Evacuate area. Prevent runoff from fire control dilution from entering streams or drinking supply.

D. HANDLING AND STORAGE

- Store only in approved containers. Protect containers against physical damage. Outside or detached storage is preferred. Separate from oxidizing materials. Store in cool, well ventilated area of non-combustible construction away from possible sources of ignition. Keep away, from incompatible materials.
- **Product Use:** This product is intended for use as a fuel in engines and heaters designed for kerosene or diesel fuels, and for use in engineered processes. Use in other applications may result in higher exposure; and require additional controls, such as local exhaust ventilation and personal protective equipment.

E. PERSONAL PROTECTION

- **Airborne Exposure Limits:** None established.
- **Ventilation System:** Not expected to require any special ventilation.
- **Personal Respirators:** Respiratory protection is not required unless product is sprayed or heated. Use approved respiratory protection following manufacture's recommendations where spray, mists, or vapors may be generated. Supplied air respiratory protection is required for IDLH (immediately dangerous to life and health) areas.
- **Skin protection:** Wear protective glove and clean body-covering clothing.
- **Eye protection:** Face shield and goggles or chemical goggles should be worn where mist or spray may be generated, and where splashing occurs. Shower and eyewash facilities should be accessible.

F. ACCIDENTAL RELEASE MEASURES

- If material is spilled, steps should be taken to contain liquid and prevent discharges to streams or sewer systems and control or stop the loss of volatile materials to the atmosphere. Spills or releases should be reported, if required to the appropriate local, state and federal regulatory agencies.
- **Small Spills:** Remove ignition sources. Absorb spilled material with non-combustible materials such as cat litter, dirt, sand, or petroleum as sorbent pads/pillows. Do not use combustible materials like rags, wood chips, or saw dust. Remove contaminated materials to an appropriate disposal container.
- **Large Spills:** Remove ignition sources. Dike spill area with sand or dirt to contain material and cover sewers/drains. Remain upwind and keep unnecessary people away. Contact trained emergency response team for cleanup. Remove liquid using grounded suction pumps, isolate hazard area and deny entry.

G. TRANSPORTATION

- It is transported as combustible liquid following the transport rules of hazardous chemicals.

MATERIAL SAFETY DATA SHEET

DURALIFE® TRANSFORMER OIL- ALL GRADES

MSDS Number : 12038

1. PRODUCT AND COMPANY IDENTIFICATION Revision Date : 8/09/2010

Product Name : DURALIFE® TRANSFORMER OIL- ALL GRADES

2. HAZARDS IDENTIFICATION:

IMMEDIATE HEALTH EFFECTS:

EYE: Not expected to cause prolonged or significant eye irritation.

SKIN: Contact with the skin is not expected to cause prolonged or significant irritation. Not expected to be harmful to internal organs if absorbed through the skin.

INGESTION: Not expected to be harmful if swallowed.

INHALATION: This product is not expected to pose an inhalation hazard under conditions of normal use. This product has a low vapor pressure and is not expected to present an inhalation hazard at ambient conditions. Caution should be taken to prevent aerosolization or misting of this product. Acute and chronic overexposures generated under unusual conditions may be irritating to the respiratory tract.

3. FIRST AID INFORMATION:

EYE CONTACT: Immediately flush eyes with large amounts of water and continue flushing until irritation subsides. If material is hot, treat for thermal burns and seek immediate medical attention.

SKIN CONTACT: No treatment is necessary under ordinary circumstances. Remove contaminated clothing. Wash contaminated area thoroughly with soap and water. If material is hot, submerge injured area in cold water. If victim is severely burned, move to a hospital immediately.

INHALATION: This material has a low vapor pressure and is not expected to present an inhalation exposure at ambient conditions. If vapor or mist is generated when the material is heated, and the victim experiences signs of respiratory tract irritation, remove to fresh air.

INGESTION: No treatment is necessary under ordinary circumstances. Do not induce vomiting. This material does not present any known ingestion hazard.

4. FIRE AND EXPLOSION INFORMATION:

Flammable Properties:

Flash Point : > 293 °F (145 °C) Test Method : ASTM D 92 (C.O.C.)

Flammable Limits in Air

Upper Percent: NA

Lower Percent: NA

Auto-ignition Temperature: > 270 °C

Test Method: NA

NFPA Classification: Health: 0 Flammability: 1 Reactivity: 0

Extinguishing Media: Use dry chemical, foam, or carbon dioxide.

Fire Fighting Measures

Special Fire Fighting Procedures and Equipment: Water may be ineffective but can be used to cool containers exposed to heat or flame to prevent vapor pressure buildup and possible container rupture. Caution should be exercised when using water or foam as frothing may occur, especially if sprayed into containers of hot, burning liquid.

Unusual Fire and Explosion Conditions: Dense smoke may be generated while burning. Carbon monoxide, carbon dioxide, and other oxides may be generated as products of combustion.

Hazardous Combustion By-Products: None

5. ACCIDENTAL RELEASE MEASURES:

Protective Measures: Eliminate all sources of ignition in vicinity of spilled material.

Accidental Release Measures: Stop the source of the leak or release. Clean up releases as soon as possible, observing precautions in Exposure Controls/Personal Protection. Contain liquid to prevent further contamination of soil, surface water or ground-water. Clean up small spills using appropriate techniques such as sorbent materials or pumping. Where feasible and appropriate, remove contaminated soil.

6. HANDLING AND STORAGE INFORMATION:

Handling : Fire extinguishers should be kept readily available.

STORAGE : Do not transfer to unmarked containers. Store in closed containers away from heat, sparks, open flame, or oxidizing materials. See also additional information section below.

Empty Container Warnings

DRUMS: Empty drums should be completely drained, properly bunged and promptly returned to a reconditioned drum, or properly disposed. Empty containers retain product residue and can be dangerous.

PLASTIC: Do not reuse this container. Empty container may retain product residues.

7. EXPOSURE CONTROLS/PERSONAL PROTECTION:

Exposure Limits and Guidelines: This product does not contain any components with OSHA or ACGIH exposure limits.

Personal Protective Equipment

EYE/FACE PROTECTION: No special eye protection is normally required. Where splashing is possible, wear safety glasses with side shields as good safety practice.

SKIN PROTECTION: No skin protection is required for single, short duration exposures. For prolonged or repeated exposures, use impervious clothing (boots, gloves, aprons, etc.) over parts of the body subject to exposure. If handling hot material, use insulated protective clothing (boots, gloves, aprons, etc.). Launder soiled clothes. Properly dispose of contaminated leather articles including shoes, which cannot be decontaminated.

RESPIRATORY PROTECTION: Respiratory protection is not required under conditions of normal use. If vapor or mist is generated when the material is heated or handle, use an organic vapor respirator with a dust and mist filter. All respirators must be NIOSH certified. Do not use compressed oxygen in hydrocarbon atmospheres.

PERSONAL HYGIENE: Always wash hands and face with soap and water before eating, drinking, or smoking. Consumption of food and beverage should be avoided in work areas where this product is present.

ENGINEERING CONTROL/WORK PRACTICES: Use in a well-ventilated area. If user operations generate an oil mist, use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below the recommended mineral oil mist exposure limits.

8. PHYSICAL AND CHEMICAL PROPERTIES:

Appearance: Bright Yellow Pour Point : < -40 oF (- 40 oC)

Odor: Petroleum – mild Solubility in Water: Negligible in water

Physical State: Liquid Vapor Pressure : < 0.1 mm Hg

Boiling Point: > 482 oF (250 oC) Vapor Density (air=1): NA

Melting Point: -59.8 oF(-51 oC) pH : NA

Specific Gravity: < 1 Viscosity @ 40 oC: 12 c St m

9. STABILITY AND REACTIVITY INFORMATION:

Chemical Stability: : Stable

Condition to Avoid: High heat and open flames

Incompatible Materials to Avoid: May react with strong oxidizing agents

10. TOXICOLOGICAL INFORMATION:

Primary Eye Irritation	:	NA
Primary Skin Irritation	:	NA
Acute Dermal Toxicity	:	NA
Subacute Dermal Toxicity	:	NA
Dermal Sensitization	:	NA
Inhalation Toxicity	:	NA
Oral Toxicity	:	NA
Mulagenicity:	:	NA

11. DISPOSAL INFORMATION:

Regulatory Information: All disposals must comply with federal, state, and local regulations. The material, if spilled or discarded, may be a regulated waste. Refer to state and local regulations. Department of Transportation (DOT) regulations may apply for transporting this material when spilled

Waste Disposal Methods: Waste material may be land filled or incinerated at an approved facility. Materials should be recycled if possible.

12. TRANSPORTATION INFORMATION:

Highway / Rail (Bulk): Not Regulated

Highway / Rail (Non-Bulk): Not Regulated

The DOT description is provided to assist in the proper shipping classification of this product and may not be suitable for all shipping descriptions .Health and Environmental Label Language

CAUTION: Contains Petroleum Lubricant. Repeated skin contact can cause skin disorders.

ATTENTION: Used motor oil is a possible skin cancer hazard based on animal data. Repeated

Exposure to oil mist in excess of the OSHA limit (5mg/m3) can result in accumulation of oil

Droplets in pulmonary tissue.

PRECAUTIONARY MEASURES: Avoid excessive & prolonged skin contact. Wash thoroughly after handling. Avoid generation and inhalation of oil mists.

INSTRUCTIONS IN CASE OF FIRE OR SPILL : In case of fire, use water spray, foam, dry chemical or carbon dioxide. Water spray may be ineffective, but can be used to cool containers. In case of spill, do not use water, soak up with absorbent material.

ASL

ARDENT STEEL LIMITED
CIN - U27310CT2007PLC007671

Ref : ASL/Plantation /2018-19 **Dt.27.02.2019**

To
The Chief Env. Scientist,
State Pollution Control Board,
Bhubaneswar, Odisha

Sub : Submission of Status of Green Belt & Seedling Distribution achievement in the Year 2018-19

Ref : Your letter no.1749 dtd.13.02.2019

Dear sir,

With reference to your letter no. 1749 dtd. 13.02.2019, enclosed please find herewith the status of Green Belt and seedling distribution achievement during the year 2018-19 as per the format given by your good office.

Kindly acknowledge the receipt of the same.

Thanking you,

Yours faithfully,
For ARDENT STEEL LIMITED

AUTHORISED SIGNATORY

Cc to : The Regional Officer, SPCB, Keonjhar, Odisha.

Encl : As above

R.O./Corp. Off. : M/s. Ardent Steel Ltd.,F-9 Hira Arcade, Near New Bus Stand, Pandri, Raipur, Chhattisgarh - 492004
B.O. : Plot No. 208, Mining New Colony, Jamuhota, Keonjhar-758001, Odisha, Tel:06766-258382
Fact. : Vill.& P.O. - Phuljhar, Via-Suakati, Distt.-Keonjhar, Odisha, Pin - 758085

FORMAT ON STATUS OF GREEN BELT & SEEDLING DISTRIBUTION ACHIEVEMENT IN THE YEAR 2018 - 2019

Sl. NO.	Name of the Industry / Mines of Keonjhar District	Plantation Target given for the year 2018 - 2019			Planting achieved in the year 2018 - 2019			Seedling distribution target given for the year 2018 - 2019	Seedling Distribution achieved in the year 2018 - 2019
		Name of the Site	Area in Ha / RKM	Number of Seedlings to be Planted	Name of the Site	Area in Ha/RKM*	Number of seedlings Planted		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
01	ARDENT STEEL LIMITED	VILL: PHULJHAR, VIA: SUAKATI, BLOCK - BANSPAL, KENDJHAR, ODISHA	1	4500	VILL: PHULJHAR, VIA: SUAKATI, BLOCK - BANSPAL, KENDJHAR, ODISHA	1	3235	30000	25000

*RKM = Running Kilometer of Avenue Plantation

FOR ARDENT STEEL LIMITED

Authorised Signatory

27/02/2019
(A. K. Jaiswal)

ASL

ARDENT STEEL LIMITED

CIN - U27310CT2007PLC007671

Ref : ASL/Plantation /2018-19

Dt.27.02.2019

To
The Chief Env. Scientist,
State Pollution Control Board,
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Kindly acknowledge the receipt of the same.

Thanking you,

Yours faithfully,
For ARDENT STEEL LIMITED

AUTHORISED SIGNATORY

Cc to : The Regional Officer, SPCB, Keonjhar, Odisha.

Encl : As above

Received 8/4/19

RAPID
08 APR 2019
S.P.C. BOARD

R.O./Corp. Off. : M/s. Ardent Steel Ltd.,F-9 Hira Arcade, Near New Bus Stand, Pandri, Raipur, Chhattisgarh - 492004
B.O. : Plot No. 208, Mining New Colony, Jamuhota, Keonjhar-758001, Odisha, Tel:06766-258382
Fact. : Vill.& P.O. - Phuljhar, Via-Suakati, Distt.-Keonjhar, Odisha, Pin - 758085

PLANTATION STATUS OF M/S ARDENT STEEL LIMITED UNDER JURISDICTION OF REGIONAL OFFICE, SPCB, KEONJHAR UPTO 2014-15

Sl.No	Name & Addressd of the Industry/Mines	Total Area acquired by the Industry (Hecters)	Plantation till the year 2011-12 (nos)	Plantation till the year 2012-13 (nos)	Plantation till the year 2013-14 (nos)	Plantation till the year 2014-15 (nos)	Total Plantation (Nos)	Area covered under plantation during the year 2011-12 (Ha)	Area covered under plantation during the year 2012-13 (Ha)	Area covered under plantation during the year 2013-14 (Ha)	Area covered under plantation during the year 2014-15 (Ha)
		(a)	(b)	(c)	(d)	(e)	(f)	(f)	(g)	(h)	(i)
1	ARDENT STEEL LIMITED PLOT NO.208, NEW COLONY, JAMUHATA, KEONJHAR	18.63	950	1150	1800	2500	6400	1.5 Ac	2.0 Ac	3.0Ac	4.0 Ac

	Total Area covered under plantation Ha)	Name & Address of the Agency /Source of tree saplings	Plantation in other area, if any (excluding plant premises /mine lease hold area)
	(j)	(k)	(l)
	10.5 Ac or 4.2 Ha	Sankar Nursery, Keonjhar	NIL

Signature

ANNEXURE - XII

EXPENDITURE UNDER CSR IN LAST 5 YEARS

Sl. No.	Description	Expense Approx. Rs.
1.	Village Road Work	4,30,31,641
2.	Electrification Works	32,62,340
3.	Water Supply	73,72,000
4.	Ambulance Facility	19,40,681
5.	Health Services	13,90,000
6.	Training & Education	11,25,000
7.	Puja / Religious Festivals / Sports / Cultural Programme etc.	17,40,382
	Total	**5,98,62,044**

ANNEXURE - XIII

PROJECTED PLAN OF CSR ACTIVITIES FRO 5 YEARS

DURING THE YEAR 2016-17				
S/N	**Details of Projects/activities under taken**	**Present Status**	**Fund utilised during the year for periphery development & CSR activities**	**Field**
1	Free medicines for (Anti cholera, viral fever, acidity, & etc) are regularly being provided to the people of village Phuljhar & nearby villages, through our experienced pharmacist.	Completed	312280.00	Health
2	Water tankers are dedicated to villagers for providing drinking waters.	Completed	1378000.00	Sanitation
3	Puja/Religious Festivals / Cultural Programme etc: Ardent Steel co-ordinates with different peoples of area and tries to promote their various cultural programmes & futher cop up with them in similar activities to an extent.	Completed	346821.00	Religious
4	Ambulance Facility : Expenses of Ambulance vehicle for the villagers of this area as a means of conveyance from village Phuljhar to Keonjhar Hospital	Completed	295800.00	Health
5	Training & Education: Numbers of teachers have been sponsored to various schools of nearby villages by Ardent Steel Management.	Completed	365400.00	Education
6	Promotion of sports activities to the students of the nearby area	Completed	37595.00	Skill Development

DURING THE YEAR 2017-18				
S/N	**Details of Projects/activities under taken**	**Present Status**	**Fund utilised during the year for periphery development & CSR activities**	**Field**
1	Free medicines for (Anti cholera, viral fever, acidity, & etc) are regularly being provided to the people of village Phuljhar & nearby villages, through our experienced pharmacist.	Continuing	3,20,000.00	Health
2	Water tankers are dedicated to villagers for providing drinking waters.	Continuing	1,38,0000.00	Sanitation
3	Puja/Religious Festivals / Cultural Programme etc: Ardent Steel co-ordinates with different peoples of area and tries to promote their various cultural programmes & futher cop up with them in similar activities to an extent.	Continuing	346821.00	Religious
4	Ambulance Facility : Expenses of Ambulance vehicle for the villagers of this area as a means of conveyance from village Phuljhar to Keonjhar Hospital	Continuing	285800.00	Health
5	Training & Education: Numbers of teachers have been sponsored to various schools of nearby villages by Ardent Steel Management. Youth of the area are given training in various trades like welding, fitting and air conditioning	Continuing	3,50,000.00	Education

DURING THE YEAR 2018-19				
S/N	**Details of Projects/activities under taken**	**Present Status**	**Fund utilised during the year for periphery development & CSR activities**	**Field**
1	Free medicines for (Anti cholera, viral fever, acidity, & etc) are regularly being provided to the people of village Phuljhar & nearby villages, through our experienced pharmacist.	To be carried out	3,20,000.00	Health
2	Water tankers are dedicated to villagers for providing drinking waters. De-silting of ponds in nearby villages	To be carried out.	15,80,000.00	Sanitation
3	Puja/Religious Festivals / Cultural Programme etc: Ardent Steel co-ordinates with different peoples of area and tries to promote their various cultural programmes & futher cop up with them in similar activities to an extent.	To be carried out	50,000.00	Religious
4	Ambulance Facility : Expenses of Ambulance vehicle for the villagers of this area as a means of conveyance from village Phuljhar to Keonjhar Hospital	To be carried out.	3,00,000.00	Health
5	Training & Education: Numbers of teachers have been sponsored to various schools of nearby villages by Ardent Steel Management. Youth of the area are given training in various trades like welding, fitting and air conditioning	To be carried out.	3,50,000.00	Education and skill development
6	Repair of Village Roads of adjacent villages-Phuljhar, Rangamatia,Andhari Khamam	To be carried out	4,50, 000	Infrastructure development
7	Plantation by the side of roads and provision of lighting facility in the villages	To be carried out	2,50,000	Infrastructure development
8	Promotion of sports activities to the students of the nearby area	To be carried out.	40,595.00	Skill Development

DURING THE YEAR 2019-20				
S/N	**Details of Projects/activities under taken**	**Present Status**	**Fund utilised during the year for periphery development & CSR activities**	**Field**
1	Free medicines for (Anti cholera, viral fever, acidity, & etc) are regularly being provided to the people of village Phuljhar & nearby villages, through our experienced pharmacist.	To be carried out	3,30,000.00	Health
2	Water tankers are dedicated to villagers for providing drinking waters. De-silting of ponds in nearby villages	To be carried out.	15,90,000.00	Sanitation
3	Puja/Religious Festivals / Cultural Programme etc: Ardent Steel co-ordinates with different peoples of area and tries to promote their various cultural programmes & futher cop up with them in similar activities to an extent.	To be carried out	50,000.00	Religious
4	Ambulance Facility : Expenses of Ambulance vehicle for the villagers of this area as a means of conveyance from village Phuljhar to Keonjhar Hospital	To be carried out.	3,00,000.00	Health
5	Training & Education: Numbers of teachers have been sponsored to various schools of nearby villages by Ardent Steel Management. Youth of the area are given training in various trades like welding, fitting and air conditioning	To be carried out.	3,50,000.00	Education and skill development
6	Repair of Village Roads of adjacent villages-Phuljhar, Rangamatia,Andhari Khamam	To be carried out	4,50, 000	Infrastructure development
7	Plantation by the side of roads and provision of lighting facility in the villages	To be carried out	2,50,000	Infrastructure development
8	Promotion of sports activities to the students of the nearby area	To be carried out.	45,000.00	Skill Development

DURING THE YEAR 2019-20				
S/N	**Details of Projects/activities under taken**	**Present Status**	**Fund utilised during the year for periphery development & CSR activities**	**Field**
1	Free medicines for (Anti cholera, viral fever, acidity, & etc) are regularly being provided to the people of village Phuljhar & nearby villages, through our experienced pharmacist. Health camps to be conducted by experienced doctors	To be carried out	4,10,000.00	Health
2	Water tankers are dedicated to villagers for providing drinking waters. De-silting of ponds in nearby villages	To be carried out.	15,90,000.00	Sanitation
3	Puja/Religious Festivals / Cultural Programme etc: Ardent Steel co-ordinates with different peoples of area and tries to promote their various cultural programmes & futher cop up with them in similar activities to an extent.	To be carried out	60,000.00	Religious
4	Ambulance Facility : Expenses of Ambulance vehicle for the villagers of this area as a means of conveyance from village Phuljhar to Keonjhar Hospital	To be carried out.	3,00,000.00	Health
5	Training & Education: Numbers of teachers have been sponsored to various schools of nearby villages by Ardent Steel Management. Youth of the area are given training in various trades like welding, fitting and air conditioning	To be carried out.	3,50,000.00	Education and skill development
6	Repair of Village Roads of adjacent villages-Phuljhar, Rangamatia,Andhari Khamam	To be carried out	4,50, 000	Infrastructure development
7	Plantation by the side of roads and provision of lighting facility in the villages	To be carried out	2,50,000	Infrastructure development
6	Promotion of sports activities to the students of the nearby area	To be carried out.	45,000.00	Skill Development

Environment Policy of the Company:

ENVIRONMENTAL POLICY

At Ardent Steels Ltd, preservation and promotion of environment is of elemental concern in all its business activities. Ardent Steels Ltd, having a foremost roll in delivering unswerving and quality products and services to all consumers at competitive cost is cognizant of its accountability towards creating, conserving and ascertaining safe and clean environment for sustainable progress.

- The company is devoted to accomplish excellence in environmental performance and towards achieving these objectives, the company shall:
- Espouse appropriate operational practices and suitable technologies to monitor, control and diminish the impact of its activities on environment.
- Commitment to continual improvement in EMS & prevention of Pollution.
- Incessantly improve its environmental performance by setting objectives and targets to thwart or reduce pollution; waste and minimize of resources.
- Act in accordance with all relevant legislative, Regulatory and other environmental requirements.
- Expand and uphold a vastly goaded work force qualified for efficient administration of environment and emergency state of affairs.
- Afford pertinent information of environmental policy to the concern authorities and interested parties ensuring that the policy is implicitly executed and upheld by employees at all levels within the group.
- Assess and transform environmental management practices keeping in view regulatory and other requirements, community concerns and technological advancements.
- Safeguard natural resources by their responsible and competent use in all the operations.
- Plant trees, develop green belt and endorse lush green surroundings at our generating locations and establishments to work in synchronization with nature; and
- Formulate this policy accessible to the community.

- Director -

This policy shall be regularly reviewed and made available to all interested parties.

M/s Ardent Steels Ltd.
At: Village Phuljhar,Block-Bansapal, Dist: Keonjhar
Odisha.

SAFE OPERATING PROCEDURE

SUBMITTED BY

M/s. Ardent Steel Limited.
At/PO: Phuljhar, Via: Suakati,
Dist.: Keonjhar, Odisha.

SAFE OPERATING PROCEDURE

1. General:

i.) After appointment the plant operators are importance with orientation and intensive training for specific plants. Experienced technical personnel help the operating staff in giving on the job training in the beginning.

ii.) All operators are instructed to ensure before the start-up of the plant that safety guards of running equipments are in position.

iii.) The operating personnel are advised not to wear loosely fitting clothes.

iv.) The shift-in-charge before starting a machine needs to ensure that the machine is not under maintenance and that the safety work permit issued for the machine has been cancelled and safety tag removed.

v.) All operating personnel shall put on safety shoes / helmets and other safety appliances. Welders shall wear face shields /goggles while carrying welding jobs.

vi.) In order to ensure equipment safety all trips and alarm systems of the machine as well as indicators should be in working order.

vii.) All the operating personnel should follow the starting and stopping sequence as detailed in the plant operation manual.

viii.) On-site Emergency Plan (OSEP) of the Company has been prepared and mock-drills are conducted once in six months. Operating personnel shall go through the OSEP and be aware of the assembly points, escape routes, Emergency Control Room, All exit gates etc.

ix.) The operating personnel should study the material safety data sheet of the materials handled in their section and safe handling procedure of the materials.

x.) All operating personnel shall go through the operation manual of their respective sections and work accordingly.

2. Safe operating Procedure for Conveyors

i.) Ensure that all personnel are equipped with the correct Personal Protection Equipment (PPE) relevant to the task and work area. Using PPE shall be strictly monitored by the appropriate safety officer.

ii.) Ensure that all STOP/START and emergency controls are clearly marked and that maintenance staff are familiar with the location of these safety systems.

iii.) Keep the area around the belt clean and tidy and apply good housekeeping practices to minimize potential hazards.

iv.) Lock out, isolate and tag all areas before working on any part of the conveyor. Do not climb on, over or crawl under any conveyor

v.) The only action that can be undertaken with the belt in motion is tracking of the belt.

vi.) In case of any emergency the operators are trained to stop the unit by using pull cord switch and intimate the position to shift Supervisor/ Engineer by Public Address System.

vii.) Ensure that pre-start alarm is working correctly and if not, isolate the conveyor and request that it be repaired.

viii.) Activate pre-start warning before starting a conveyor system

ix.) Start the conveyors sequentially

x.) For emergency stopping use the pull cord or stop switch or stop from control station

xi.) A stop/start station is a control device and should not be considered a lock out of the conveyor power source.

xii.) Conveyors in a conveyor system are often interlocked. Verify that the inter lock is working before start up.

- *Basic Check List Prior to Re-starting a Conveyor*

  Ensure that:
  - ✓ nobody is working on the belt;
  - ✓ guards have been re-fitted and that all the safety interlocks are operational;
  - ✓ the area is clean and clear of equipment and /or debris or spillages;
  - ✓ all the fire fighting and fire suppression devices and equipment are in place and operational;
  - ✓ all clamps are removed or released;
  - ✓ the take-up system is operational.
  - ✓ Belt alignment systems are working properly

The safe operation of pellet plant and gasifiers will be carried out as per the operation manual provided to operating personnel.

3. Starting the Plant Operation:

i.) Shift supervisor and Engineer to check up and ensure that the operators are properly dressed with safety appliances like helmet, safety boot etc.

ii.) Shift Engineer and Supervisor to ensure that no maintenance work is going by checking the shut down register. He will also interact with the maintenance Engineer about the plant position.

iii.) On being assured that the plant is ready for operation, the Main Control Desk (MCD) operator will be instructed by the Shift Engineer / Supervisor to blow the starting siren.

iv.) The plant Control Desk (CD) operator will ensure by public address system about the positioning of the different floor operators. The Control Desk (CD) operator then will blow the plant siren indicating that the plant will be started soon. The Control Desk (CD) operator starts the plant sequence wise one by one till plant feed belt is started. He will then inform the Main Control Desk (MCD) operator that the plant operation is ON, hence CHP operation may be started.

v.) Main Control Desk (MCD) operator will below the CHP operation siren indicating that CHP is going to be put in operation. Afterwards Main Control Desk (MCD) operator will start CHP units sequence wise one by one till the last raw coal receiving belt conveyor / feeder is put to operation.

Supervisor at feeding point is instructed by Main Control Desk (MCD) operator by Public Address (PA) system to start feeding coal to receiving hoppers.

4. Stopping the Plant Operation:

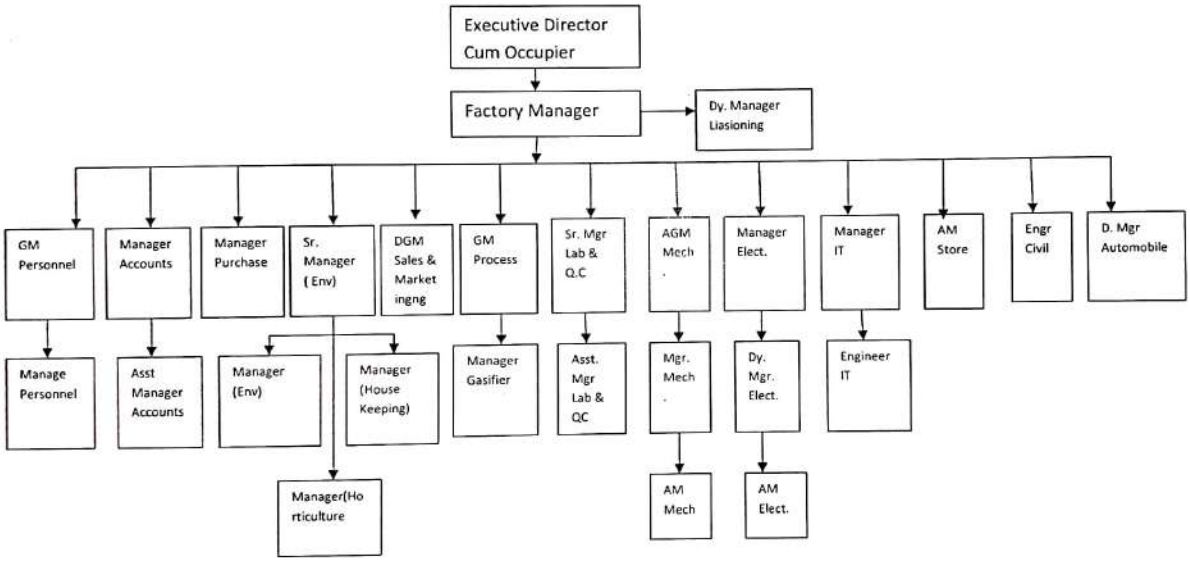
i.) At the end of the operation shift the plant/machineries are to be stopped sequence wise one by one the Main Control Desk (MCD) operator.

ii.) Before commencement of stopping procedure the Main Control Desk (MCD) operator will ensure that all the loaded tippers at the receiving pit is unloaded and the hoppers are emptied as well all belt conveyors are also emptied. Before the beginning of the stopping procedure it will announced in Public Address (PA) system. Afterwards plant units will be stopped one by one in reverse sequence by Main Control Desk (MCD) operator.

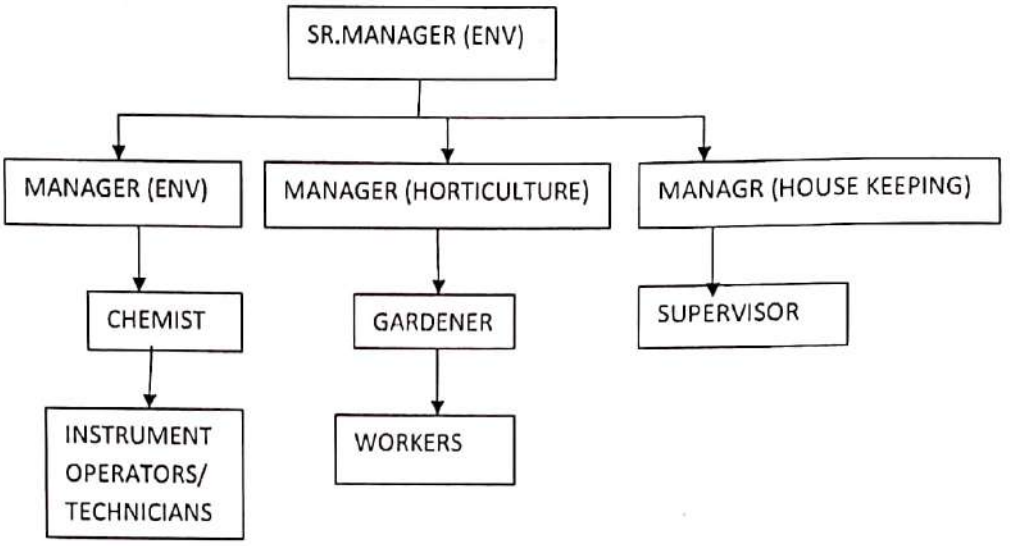
iii.) After total stoppage of plant operation the shift supervisor will announce in Public Address (PA) system came out of their duty places.

ANNEXURE - XVI

ORGANISATIONAL SET UP:



ORGANISATIONAL SET UP OF ENVIRON MANAGEMENT CELL (EMC):



The environmental cell of the company is headed by a Sr. Manager. The responsibility of the cell would include the following:

1. Stack Emission monitoring and reporting of non-compliance to Factory Manager.
2. Ambient Air Quality monitoring and reporting of non-compliance to Factory Manager.
3. Monitoring of Waste water quality, Waste Water Management Practice, performance efficiency of ETP and reporting of non-compliance to the Factory manager.
4. Monitoring of noise level in the work place as well as the adjoining area and reporting of non-compliance to the Factory manager.
5. Monitoring of progress of various environmental programmes that may taken at times to ensure and preserve the environmental status of the area.
6. Arrange for Checking up the occupational health of the employees and health of people in the adjoining areas and maintaining records thereof. Pursue redressal action to ensure upkeep of health of affected people.
7. Monitor plantation activities for Green belt development and report to Factorymanager regarding the progress.

SYSTEM OF REPORTING OF NON-COMPLIANCE/VIOLATION ENVIRONMENTAL NORMS, TO THE BOARD OF DIRECTORS OF THE COMPANY AND/OR STAKEHOLDERS OR SHAREHOLDERS

- For checks and balances, Factory Manager & Sr. Manager (Environment) of M/s ASL or their representatives will visit the sites for compliances of environmental norms on regular basis.
- In normal course, Laboratory in charge will report the Environment Manager about non-compliances/ violations of environmental norms who will in turn report to the Manger (EnV), Sr. Manager (ENV).Factory Manager will be finally informed if the bottle neck is not removed at lower level.
- Factory Manager will report such non-compliances/violations to the Executive Director of the project.
- Non-compliance will be discussed in the meeting of the HoD's and action to be taken for redressal will be communicated.
- Sr. Manager (Env) along with Environment Manager will make routine field visit to verify the efficacy of pollution control measures.
- Factory Manager will put up matters relating to non-compliance if such issues are not solved at his level to the Executive Director of the project. .The Executive Director may raise the issues in the Board of Directors' meeting depending on the merit ,if required,
- Half yearly compliance report of Environmental Clearance conditions of the project will be submitted to the Regional officer MoEFCC at Bhubaneswar.
- Due effort will be made to implement any point pertaining to environment raised by MoEF/ State Pollution control Board.