

# GREEN WORKSHOP

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## SOLAR ENERGY

- Railway Board has instructed 20 % of power requirement to be solar energy.
- 100 MW Target for 2016-17 by Workshops & Pus.  
(1000 MW for IR)
- Workshop Avg monthly consumption in current year is 1.75 lakh units. i.e. 20% is 35000 units.
- Rly Boards Instructions:
  - Solar power to be mounted on roof tops or shed tops (if structure permits).
  - No land space to be utilised for solar panels.

# Solar power generation



- 4 KWp installed above wheel shop in Nov'2014. This generates approx. 500 units/month. (2014-15 = 2795 units & 2015-16 = 6000 units.)

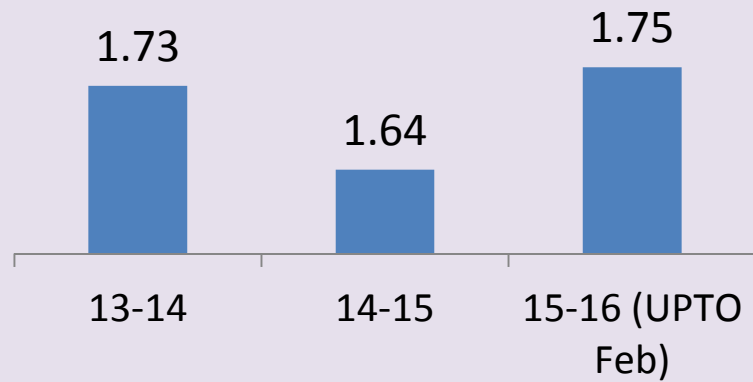
# SOLAR POWER

## Measures taken

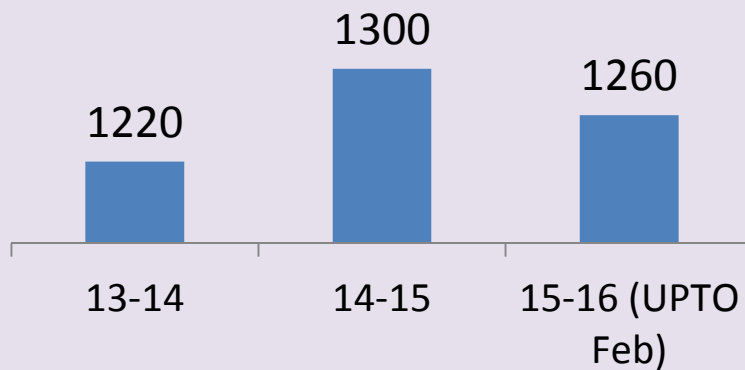
SL	Item	Dealt by	Status
<b><u>PLANNED</u></b>			
1	22.66 kwp	DYCEE	POs released for 18.06 kwp. PO to be released for 4.6 kwp
2	650 kWP	CEE	Board allotment under RESCO. Work yet to be awarded by CEE.
3	750 kwp	Budget Mech.	Under PPP model ,Proposal sent to CME for sanction on 17-3-16. (Rs 6 crores)
<b>Total</b>	<b>1422 kwp</b>		Total roof top area south facing – 22000 sq.m. 10 sqm = 1 kwp.
4	12000 lpd	DYCEE	Tender to be floated . A/B cleaning & RB cleaning.

# Energy Conservation Measures

# Trend Of Energy Consumption



In lakh unit/month



No. of units consumed,  
per equated unit of  
outturn

## BEE Format – details submitted in Feb'16

General Information				
Sector :- Railway				
1	<b>Name of the Workshop</b>	CARRIAGE WORKSHOP , LALLAGUDA, S.C.RAILWAY		
2	<b>(i) Year of Establishment</b>	1893		
A	<b>Workshop Head's Name</b>	P.UDAY KUMAR REDDY		
	Designation	CHIEF WORKSHOP MANAGER		
	Telephone with STD Code	040-27003402	Fax	040-27003402
	Mobile	9701370450	E-mail	
	<b>3 Workshop Address</b>			
A	Address	CARRIAGE WORKSHOP , LALLAGUDA, S.C.RAILWAY		
	City/Town/Village	SECUNDERABAD		
	Post Office	SOUTH LALLAGUDA		
	District	HYDERABAD		
	State	TELANGANA	Pin	500017
	Telephone with STD Code	040-27003402	Fax	040-27003402
	<b>Energy Manager Details</b>			
	<b>Name</b>	--		
4	Designation	--	Whether EA or EM	--
A	Energy Auditor (EA)/Energy Manager (EM) Registration No.			
	Telephone	--	--	
	Mobile	--		

# BEE Format – details submitted in Feb'16

Bureau of Energy Efficiency

## Data Collection Format

### Sector - Railways (Workshops)

S. No	Particulars	Unit	Year	
1	Annual Energy Consumption		2013-14	2014-15
1.11	Grid Electricity Consumption	Million kWh	2.06	1.97
1.12	Own Generation (DG Set)	Million kWh	0.0102	0.0142
1.13	Coal Used	Tonnes	--	--
1.14	Gross calorific value of Coal	kCal/ kg	--	--
1.15	Diesel used	(KL)	--	--
1.16	Gross calorific value of Diesel	kCal/ kg	--	--
1.17	Liquid Fuel Consumption (state type Furnace oil, Kerosene etc)	KL	--	--
1.18	Gross Calorific Value of Liquid Fuel	kCal/kg	--	--
1.19	Gaseous Fuel Consumption (state type CNG, LPG, Gas generated used as fuel etc)	Million SCM	--	--
1.2	Gross Calorific Value of Gaseous Fuel	kCal/SCM	--	--
1.21	Wood Used	Tonnes	--	--
1.22	Gross Calorific Value of Wood Fuel	kCal/kg	--	--
2	No of Locomotives/Coaches Worked Upon or maintained	Passenger coaches	1403	1498
3	Total Annual Energy Consumption	MTOE	178.52	170.79
4	Specific Energy Consumption	KgOE/ No of units worked upon	127.24	114.01
5	Specific Energy Consumption	kWh/coaches	1479.54	1315.23

I/we undertake that the information supplied in the Data Collection Format is accurate to the best of my knowledge.

### Authorised Signatory and Seal

Name of Authorised Signatory

N. DATTATREYULU, Deputy Chief Electrical Engineer,  
Deputy Chief Electrical Engineer,  
Carriage Workshop, Lallaguda

Name of the Designated Consumer:

Full Address:-

Office of the Deputy Chief Electrical Engineer,  
Sri. N. DATTATREYULU, Deputy Chief Electrical Engineer,  
Carriage Workshop, Lallaguda , Secunderabad 500 017, TELANGANA  
Mobile: 09701370494, Fax No. 040 - 27002639,  
E.Mail : dyceelgds@gmail.com

శ్రీ ఎన్. డాక్టర్ రేయిలు (సీనియర్)  
Deputy Chief Electrical Engineer (Workshops)  
ఎ. ఎ. రోడ్, లాల్ గూడా, సీకండరాబాద్-18  
రైల్వే, లాల్ గూడా, సీకండరాబాద్

Seal

Date 24.02.2016





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Bureau of Energy Efficiency

Data Collection Format

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## Energy Conservation Measures

### Power savers



Solar Water Heater For Canteen



Provision Of Transparent Roof Sheet In Shop Floor



8 nos Natural Light Pipes in Stores Ward No.09 & 02

- PHASING OUT OF LARGE CAPACITY COMPRESSORS
- 6 compressors under procurement to replace 6 compressor of more than 100 CFM capacity

## IGBT INVERTER – Alternator testing

LGD shop has developed innovative system of energy saving system, in which the energy generated by alternators during load testing is converted as 3 ph supply and feeding back to mains. **Shop has saved about 14866 units till date** from its commissioning. This is a good achievement and be developed in other workshops for conserving electrical energy.



## Energy Conservation Measures

# Energy savers for arc welding sets

All the 68 welding sets are equipped

- Saving of 3 units per hour per welding set. Total energy saving per month 34000 units.



## Usage of Bio diesel

1. 20 ltrs was used on 2 forklift cars , as 5 % mix with diesel oil. All forklift cars and road vehicles to run on biodiesel.
2. Bio diesel to be used in Diesel generators also.
3. Proper blending machine to be used.
4. Blended diesel is also available with oil companies as per Bds letter to be enquired.
5. Workshop consumption of diesel oil is average 7000 ltrs/month for 15-16. 5 % mix of bio diesel would come to 350 ltrs.
6. 1000 ltrs is indented on stores. Tender opened , single offer received. PO will be released in a weeks time.

WATER CONSERVATION  
&  
RECYCLING

# Rain water harvesting pits

THREE Rain water harvesting pits constructed in  
2014/15-16

- Opposite to Progress Office
- Stores depot
- Besides CMT Laboratory.



## DRINKING WATER CONSUMPTION

	2014-15 Cumm. And Avg/month	15-16 (UPTO FEB) Cumm. and Avg/month	Remarks
Fresh water consump.(KL)	8431 KL/  702 KL	6102 KL  554 KL (Less supply recd)	Average reqt / day is 28000 ltrs. (702 KL/month)
Water recycling done	-	-	Water let out after roof testing – Recycling arrangement is being done.
Water Audit done	-	-	Accountal of water is water audit. a) Drinking water received from division is recorded on daily basis, through meter reading. b) For Bore water & open well water 2 meters are to be provided. c) We may engage a consultant for a full study and report.



## Performance on Environment Management for the Month of February-16

SN	Item Description	Target current year	Perfor 14-15	Performance 2015-16		Remarks on the trend
				Cum. (up to Feb)	In current month (Feb'16)	
1.0	<u>Electrical Energy consumption</u>					
1.2	Non Traction energy consumed ( KWHr)	18928 21	19716 89	1927967	165440	
2.0	<u>HSD oil consumption (KL)</u>					
2.1	Non Traction Fuel consumed (KL)	89.7	82.81	81.784	8.481	
3.0	<u>Renewable Energy/Bio Fuels</u>	NIL	NIL			
3.1	Renewable energy sources commissioned (MW)	*0.02 266	0.004	--	--	P.Os released for 4 Nos. of solar panels (18.06 KWP) and 01 no is at COS/SC for 4.6 KWP
3.2	Renewable energy generated (KWHr)	--	2795	5433	517	
3.6	Bio fuel consumed(KL)	NIL	NIL	20 ltrs	NIL	

## Performance on Environment Management for the Month of February-16

SN	Item Description	Target 15-16	Performance 14-15	Performance 2015-16		Remarks on the trend
				Cum. (up to Feb)	In current month (Feb'16)	
4.0	<u>Energy audits done in energy intensive activity centers (Nos.)</u>	#	8 shops	--	--	# Audit done in Jan'15
5.0	<u>Water</u>					
5.1	Fresh Water Consumption in A1 & A Cat. Stns, Coaching Depots(>100Hldg)& Workshop/Pus (kilo Liters)		8431 KL	6102 KL	713 KL	---
5.2	Water Recycling Plants commissioned (Kilo Liters)	--	---	--	---	---
5.5	Water Audit done in major consumption centers (as per 5.1	--	--	--	--	Analysis of water pot ability is done once in a month from

# EFFLUENT TREATMENT

## ETP SANCTIONED IN MODERNISATION.

- Only few shops generating pollutants to be provided like wheel, bogie, paint to cut down on cost.
- Drainage system to be studied and assessment made through a BQ.
- Costing of ETP to be revised.

# Water Pollution Prevention Measures

- Use of water in cleaning has been reduced by using grit/sand blasting
- ETP has been provided wherever water is used to clean components
- Water samples (Drinking and effluent) taken once in a month for analysis. Pollutant levels are within the limits

# AIR Pollution Preventive Measures

- Sand and grit blasting is done in closed environment, away from the work area
- Incinerator (80 Kg/Hrs) is installed for disposal of cotton waste , paper packing & packing wood
- Incinerator flu gas emission is within CPCB limit
- Completely switched over to 134A refrigerant in AC coaches which is CFC free

# Incinerator & Test Report of Flue Gas

**Care Labs™**  
Assuring quality check  
(Estd. : 2005)

**Corp. Off.:** 3-11-482/2, Plot No. 1, 3rd Floor,  
Sai Sadan Complex, Above PNB Bank,  
Shiva Ganga Colony, L.B. Nagar, Hyd - 074.  
**Branch Office:** Mathikere, Bangalore - 560 005.  
**Tel. :** 040-3241 6241  
**Cell :** 98854 39529, 88860 55529  
**E-mail :** mail@carelabs@gmail.com  
**Web :** www.carelabs.in

A.P. Govt. Regd. No. 2461/05 & K.A. Govt. Regd. No. RJR/282/2012  
An ISO 9001 : 2008 Certified Laboratory  
Recognised by Ministry of Environment & Forests, Govt. of India

**TEST CERTIFICATE**

<b>Our Ref:</b>	CL/SK/315-006/13	<b>Job No:</b>	1883	<b>Issued To:</b>	
<b>Reporting Date:</b>	12.12.2013	<b>Sample Received on:</b>	05.12.2013	<b>M/s. Chief Work Shop Manager,</b>	
<b>Collection Date:</b>	04.12.2013	<b>Sample Analysis Completed On:</b>	12.12.2013	<b>Carriage Work Shop, Lalaguda,</b>	
<b>Sample</b>	STACK EMISSION				
<b>Particulars:</b>	Sampling location INCINERATOR				

**TEST RESULTS**

S.NO	PARAMETERS	UNITS	RESULTS	CPCB STANDARDS
1.	Suspended Particulate Matter	mg/Nm <sup>3</sup>	79	< 115
2.	Sulphur Dioxide	mg/Nm <sup>3</sup>	167	< 800
3.	Oxides of Nitrogen	mg/Nm <sup>3</sup>	193	< 600

**Instrument Details:-**  
 Instrument : Stack Monitoring Kit  
 Make : Aero Vironment  
 Model / SI No : SEA C 80WITH DGM060307  
 Calibration Due : 23.05.2014

*[Signature]*  
Chief Chemist

*[Signature]*  
Authorized Signatory

**Small Scale Industries Certified Laboratory**

**TESTING SERVICES**  
Water, Food Materials, Oils, Cakes, Rice Bran, Poultry & Animal Feed,  
Soil, Chemicals, Metals Ores, Industrial Effluents & Environmental Consultancy  
CL/HYD/F/07



Stack emission report

# Noise Pollution Control

- Sound levels at six different locations are measured once a month
- Noise levels are <75dB specified
- by CPCB



## AMBIENT NOISE STANDARDS (Noise Rules, 2000 and its amendments)

Category of Area / Zone	Limits in dB(A) Leq	
	Day time	Night time
Industrial area	75	70
Commercial area	65	55
Residential area	55	45
Silence Zone	50	40

### Note :-

1. Day time shall mean from 6.00 a.m. to 10.00 p.m.
2. Night time shall mean from 10.00 p.m. to 6.00 a.m.
3. Silence zone is an area comprising not less than 100 meters around hospitals, educational institutions and courts, religious places or any other area which is declared as such by the competent authority.
4. Mixed categories of areas may be declared as one of the four above mentioned categories by the competent authority.

# Solid Waste disposal

## Plastics & Rubbers

- Plastics are being segregated
- Sold to recyclers about 360 MT /year
- Balance non recyclables are sent to GHMC dump yard

## Metallic scrap

- Sold through Auction by scrap depot
- 3600 MT /year

## Paint & Grease Sludge etc.

- Disposed at APPCB approved Land fill site on payment

Waste wood, Papers etc. incinerated inside workshop



## Environmental issues

### Disposal of hazardous scrap

- **Collection, transportation and disposal of hazardous waste. Qty 115.5 MT. ( Val Rs 30,34,608/-)**
  - **Contract awarded to M/s.Hyderabad Waste Management Project, Sy.No.684/1, Dundigal (V), Qutbullapur (M), R.R.Dist – 43.**
  - **LOA on 12.11.2014, Original date of Expiry – 11.11.2015.**
  - **Qty disposed 49.25 MT (upto Oct)**

# ETP for axle box cleaning Plant



## ETP UNDER MODERNISATION

- Rs 23.5 lakhs available under mechanical estimate.
- For 1 lakh litre per day , ETP would cost Rs 1.35 Cr. M/S Soambansi Enviro Engg Pvt Ltd, Ghaziabad
- Revision of estimate would be required.

## Plantation programme.

### Action plan :

- 200 sapling were planted on 5-6-15 in connection with world environment day, which was participated by CME,CWE, Organised labour & shop staff.
- 200 more saplings are planned by end of March'16

Total = 828 sq.m planned Dec'15 to March'16

# Provision of Rain water harvesting

1. First rain water harvesting pit was inaugurated by GM on 31-3-2015.
  - Pit size - 2.4m x2.4m x2m.
  - Catchment area i- 1800 sq.m
  - Charge - 14 Lakhs Itrs



# Provision of Rain water harvesting

TWO more rain water pits were constructed and Inaugurated by CME & CWE respectively.

- a) At the store depot – besides workshop gate.
  - Pit size is 2mx1.6mx2m.
  - Catchment area =1600 sq.m (Charge- 13.28 Lakh Itrs)
- b) Adjacent to CMT lab
  - pit size 7.5mx2.9mx1.7 m.
  - Catchment area = 2880 sq.m ( Charge 23.90 Lakh Itrs)



Cmt Lab



Stores depot

# Incinerator



## Plantation programme.

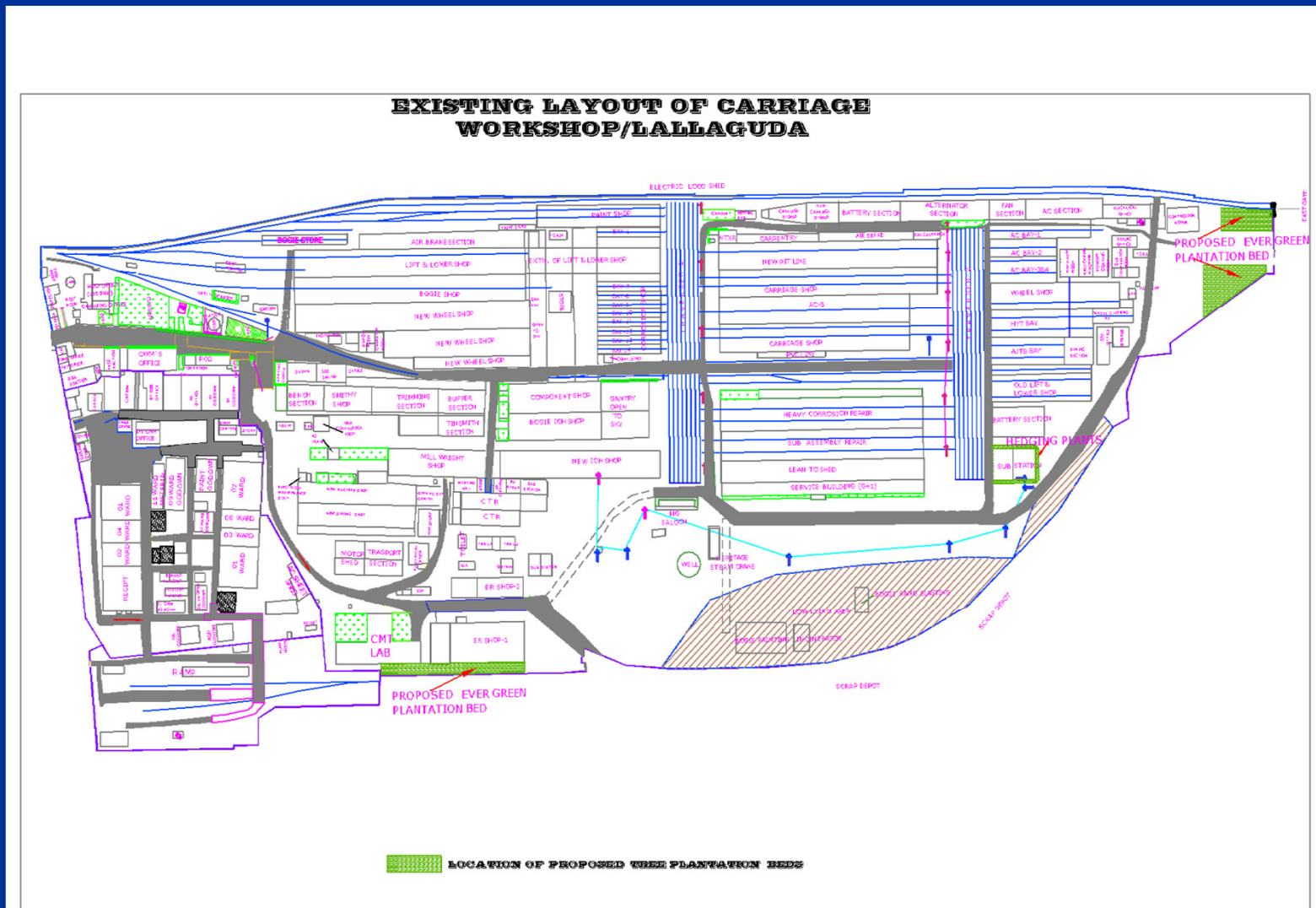
### Area identified for green coverage:

- a. Behind CMT lab to ER I shop. – 108 sq.m.(90x1.2m)
- b. Behind new substation near ER I shop. =  
240.sq.m.(160x1.5)
- c. Near east gate of w/shop 480.sq.m (40x8+1/2x40x8)

Total = 828 sq.m planned for 2015-16



# Plantation Programme - Map





# Prevention and Control of Pollution

## Chapter-II

# Summary

## Pollution

Item no	Description	Status	PDC
2.1.1	<p>a)Sec 21 of Air Act 1981 Sec 25 of water Act 1974 – No one to operate industrial plant without consent of SPCB. No let out of polluted water and air.</p> <p>b) Env statement Form V to be submitted every year by September.</p> <p>c) Monitoring of Air, Water pollution.</p>	<p>a)CFO applied – Approval awaited.</p> <p>b) Complied from 2013 onwards.</p> <p>c) Being done once a month by outside agency.</p>	<p>2015-16</p> <p>Complied.</p> <p>Complied</p>

## 2.1 Statutory Compliance

### 2.1.1 Consent to Establish and Operation

Under section 21 of the Air Act 1981 and under Sections 25 of water(prevention and control of pollution) Act 1974 no person shall except with the previous consent of the SPCB, establish or operate any industrial plant in an air pollution control area or permit flow of any poisonous, toxic or polluting matter into any stream, well, sewer and land without treating it.

It is mandatory to obtain CFO from state pollution control board for all industrial units.

LGDS has applied for CFO in the year 2009 and it is still pending with TSPCB on the issue of consent fees to be paid retrospectively from 1997.

It is now decided to pay the CFO fees from 1997 in order to obtain CFO to LGDS.

## 2.1 Statutory Compliance

### 2.1.2 Environment Statement

1. Rule 14 of the Environment Rules 1986 provides that every organisation carrying on an industry, operation or process requiring consent under Water Act, 1974 or under Air Act, 1981 or both should submit to the concerned PCB's an Environmental statement in the form V every financial year on or before the 30<sup>th</sup> September.

Starting from 2013, LGDS is submitting environmental audit in form-V by an agency approved by state pollution control board and is submitting to SPCB before 30<sup>th</sup> September.

### 2.1.3 Compliance of Consent and Renewal Conditions

SPCB lays down certain instructions and conditions at the time granting CFO and its periodical renewal of authorization under Air and Water Act.

LGDS is yet to receive CFO and hence compliance of consent conditions doesn't arise.  
However LGDS is filing returns regularly since 2013-14.

## 2.2 Monitoring Pollution

### 2.2.1 Air Pollution Control Equipment

According to Section 22 (5) of Air Act 1981, every person to whom consent has been granted shall, inter-alia provide for control equipment of such specifications as the SPCB may approve in this behalf.

Frequency of monitoring air pollution will be indicated at the time of issuing CFO. LGDS is monitoring ambient air at four different locations once in a month.

### 2.2.2 Air Quality Monitoring

As per the National Ambient Air Quality Standard (24 hours average), the concentration of Particulate Matter (PM<sup>10</sup>) for industrial and residential area is 100 micro gm per cubic metre and the prescribed limit for oxides of sulphur and Nitrogen is 80 micro gm per cubic metre.

Ambient air analysis conducted once in a month at four locations shows the air pollutant levels are within the prescribed range.

## 2.2 Monitoring Pollution

### 2.2.3 Controlling Noise Pollution from DG Sets

1. CPCB prescribed 'Systems and procedures for compliance with noise limits for diesel generators sets'. As per these standard, adequate control measures such as provision of standard acoustic enclosures, suitable exhaust muffler and stack with minimum prescribed height above building.

2. For installation of DG sets, NOC is required from Regional Inspectorial Organisation of State Electricity Board.

Acoustic enclosure is provided to 320kva DG set out of three DG sets operating in LGDS. Other two DG sets are inside a closed chamber thereby will not emit more sound to open area.

Stack height is maintained as per the norms.

Max noise level recorded is 71.2 db as against 75db max. prescribed.

For Railways not applicable as CEE is the chief inspector for all such purposes.

### 2.2.4 Noise Level Monitoring

Schedules to rules 3(1) & 4 (1) of Noise Pollution Rules 2000 , Noise level in industrial area should not exceed 75 dB during day time and 70 dB during night time.

Noise pollution levels at all three DG sets as well as stack emission from DG sets is being monitored once in every month and are within the limits specified.



## 2.2 Monitoring Pollution

### 2.2.5 Water pollution

1. Section 24 of Water Act, 1974 provides that no person shall knowingly cause or permit flow of any poisonous, noxious or polluting matter into any stream.
2. Section 25 provides that no person shall, without the previous consent of the SPCB establish any industry, operation or process which is likely to discharge sewage or trade effluent into a stream or well or sewer or on land.

Effluent water from main discharge to GHMC sewerage line is collected and analysed once in a month by SPCB approved agency for water pollution levels. All the prescribed parameters are within the range as prescribed by SPCB/CPCB.

Issue of consent is pending with TSPCB.

### 2.3 ISO Certification

Workshops and Sheds obtain ISO 14001 and ISO 18001 certification to demonstrate their commitment to environment, health and safety.

LGDS is an ISO 9001:2008 certified unit. Process is under process for IMS certification combining ISO 9001, 14001 and 18001 (QMS,EMS&OHSAS)

# Conservation of Resources

## Chapter - III

## 3.1 Conservation of Energy

### 3.1.1 Renewable Energy

1. Solar energy is one of the growing sources of alternative renewable source of energy which converts sunlight directly into electricity.
2. Use of at least 10% of the required energy from renewable sources for reducing carbon foot print.

1. Solar water heater for canteen of 1000 Ltrs. per day was installed
2. 4KWP SPV panel with grid connected system provided at new wheel shop.
3. 4.5KWP SPV for administrative office is proposed.
4. Solar water heater of 8000 Ltrs. per day for axle box cleaning plant is proposed.

### 3.1.2 Energy Audit

Energy Conservation Act, 2001 classifies IR as an energy Intensive Industry. Every Designated Consumer (Indian Railways) shall have to employ an Energy Manager who is certified by BEE and every DC has to get the energy audit done periodically .

Recent Energy audit was done in Jan'15.

## 3.2 Conservation of Water

### 3.2.1 Water Recycling Plant

RB instructed (July/August 2006) the ZR's to provide water Recycling Plant(WRP), especially at such locations (stations/sheds) where water is scarce in comparison to its demand.

Water recycling plant is not available in LGDS.

### 3.2.2 Rain Water Harvesting (RWH)

In February 2005, RB instructed all zones to implement RWH in Railway Establishments.

One rain water harvesting pit was constructed and inaugurated by GM on 30.3.15. Two more pits are under construction and will be put in use from 05.06.15.

# Waste Management

## Chapter-IV

## 4.1-Management of Hazardous waste

### 4.1.1 Authorization For Handling Hazardous Waste

1. As per rule 5(1) of Hazardous wastes(Management, handling and Transboundary Movement)Rules,2008 workshops are required to obtain authorisation from SPCBs for handling hazardous waste.

Generally included in CFO. However TSPCB will be inquired whether separate approval is required.

### 4.1.2 Accumulation and accounting

In terms of Rule(7), the occupier may store the hazardous waste for a period not exceeding 90days.

Hazardous waste is being lifted at regular intervals ( approx once in 15days)by the agency.

## 4.1-Management of Hazardous waste

### 4.1.3 Documentation

Rule 22 of Hazardous Wastes Rules 2008 provides that the occupier generating hazardous wastes and operator facility for disposal of hazardous waste shall maintain records of such operations in Form - 3

Since 2013, all the hazardous waste generated is being disposed by authorised disposal facility. However, Form-3 is not being maintained in the desired format. This will be started immediately.

### 4.1.4 Handling and Disposal

Rule 4(2) of Hazardous Wastes Rules 2008, the hazardous waste generated should be sent or sold to a recycler or re-processor or re-user registered or authorized by the CPCB

Form-4 will be submitted annually to SPCB before 30<sup>th</sup> June'15 for 2014-15

## 4.1-Management of Hazardous waste

### 4.1.5 Environment Impact Assessment

It provides the operator of a facility, occupier or any association of occupiers shall undertake EIA of the selected site(s) and shall submit the report to the SPCB

Environment Impact Assessment is required for units established after the enactment of law, and hence it is not applicable to LGDS

### 4.1.6 Reuse and Re-cycling of Hazardous Waste

The protocol for Hazardous Waste Management issued by the CPCB states that the hierarchy in efficient management of hazardous waste is to reduce, reuse, recycle, re-process and finally dispose of wastes in an eco-friendly manner.

Hazardous wastes generated in workshop is segregated and being sent to authorised TSDF for disposal in a scientific and environment friendly manner.

### 4.2 Disposal of used Batteries

As per the Batteries Rules 2001, used batteries are required to be sold only to registered recyclers

Condemned batteries are sold only to CPCB authorised recyclers.  
Hly returns not filed with CPCB- will be done by Electrical dept.



# Health & Safety

## Chapter - V

# 5.1 Ventilation and Lighting

<b>5.1 Ventilation and Lighting</b>	
As per Section 13 and 17 of the Factories Act, effective and suitable provision shall be made in every factory/ workshop for securing and maintaining adequate ventilation, suitable lighting (natural/artificial)	All shops in LGDS are equipped with proper lighting and ventilation. All sheds constructed under modernisation are being equipped with transparent poly carbonate sheets for better lighting.
Layout plan of the workshop shall be approved by the Inspector of factories.	Approval of layout plan by Inspector of Factories is in advanced stage.
<b>5.2 Health care facilities</b>	
Indian Railway Medical Manual (IRMM) provides that medical officer should visit the shop for conducting periodic inspections and health check ups.	A massive health camp was organised by CH/LGD for testing and general check up of all employees. Records are being maintained for health camp

# 5.1 Ventilation and Lighting

## 5.3 Maintenance of medical records

IRMM provides for proper maintenance of workers health record and occupational disability record for future planning, development and efficient operation of occupational health services.

Medical book lets have been issued to all staff availing medical facilities by the zonal Hospital which is 1 KM away.

5.4 Occupational safety  
Use of personnel protective equipment(PPEs)

LGDS has provided all necessary PPEs to staff as per requirement.

# Environment tests conducted by M/S SAI Laboratories/HYD

<b>Air ambient quality monitoring at :</b> <b>1) Near old safety Office</b> <b>2) Corrosion shop</b> <b>3) Wheel shop</b> <b>4) Spring shop</b>		<b>Last checked 8-3-16</b>
1) Stack emission monitoring at 2 DG sets.		Last checked 8-3-16
Noise monitoring at 6 shops		Last checked 8-3-16
RO water – 19 tests conducted		Last checked 8-3-16

# Green Initiatives – Reply to HQ



दक्षिण मध्य रेलवे South Central Railway  
मुख्य कारखाना प्रबंधक का कार्यालय Chief Workshop Manager's Office  
सनारी डिब्बा कारखाना, Carriage Workshop  
लालगुडा, /Lallaguda

सं. NO. WMS/4/GS

दिनांक /Date: 30.09.2014

**CWE/SC**

Sub: Green initiatives in Workshop.

Ref: 1. Hqrs Lr.No. M.226/WS/ISO/4000/306,dated:23.09.2014.

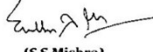
2. Rly. Bd. Lr. No. D. O. No. 2014/M(W)/814/16, dated:12.09.14.

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With reference to the above, the following information of LGDS is furnished:

1. No. of live trees per unit area (sq m) in the workshop premises.
  - a. No. of live trees in the workshop. =276.
  - b. No. of live trees per unit area (1000 Sq. m) of total Workshop area. = 2.
  - c. No. of live trees per unit area (1000 Sq. m) of open areas of the Workshop. (excl. covered shed, & track) =2.9.
  - d. Area under gardens. = 2935 sq. m.
2. Use of non-conventional energy as a percentage of total energy consumption in the workshop:
  - a. Average electrical energy consumption per month (2014-15 up to Aug) : 165893 units.
  - b. Non-conventional energy usage:
    - i. Use of transparent roof sheets to improve natural lighting. = 4175 units per month
    - ii. Solar water heater plant at canteen. Saving in Ele. Energy. =416 units per month
    - iii. 2 Nos of natural light pipe system. Saving in Ele. energy. =208 units per month
    - iv. Total saving in Electrical energy. = 4799 units per month
  - c. % of non-conventional energy used to electrical energy. = 2.89%
3. Following measures for use of non-conventional energy being provided in 2014-15:
  - a. 8 nos. of natural light pipe system are proposed for staff canteen and stores depot.
  - b. 100KW grid solar power plant (5 Nos of 20KW power packs)are proposed to provide on the roof top of sheds/building at a cost of Rs. 121.19 lakhs under PWP 2015-16 (PH-WS). This proposal is sent to CEE/SC for sanction.
  - c. 3 KW/4KW Solar Photo Voltaic modules and inverters is being processed for installation to provide lighting in bearing maintenance.

For kind information.

  
(S.S.Mishra)  
CWM/LGDS

# **Carriage Workshop Lallaguda**

**CWMs Co-ordination meeting  
01-06-2015**

# INDEX

1. Scrap mapping of the Workshop area and planning for its disposal
2. Mapping of Workshop area for plantation and planning for its execution
3. Provisions of rain water harvesting.
4. Water recycling plant.
5. Availability of ETPs.
6. Compliance of C&AG 's report no. 23 of 2014 on“ Environment Management in Workshops, details about the compliance be made available.
7. Action Plan on C & AG report on “Environment Management in Workshops, Shed and production Units of Indian Railways”.
8. RRB indents pending and status at Headquarters levels.
9. Progress towards IMS documentation and readiness for certification and
10. Targets set by/for those officers in the workshop.

# Mapping of scrap & its disposal

Agenda  
item 1

1. Mapping of scrap in LGDS was undertaken in May'2015 as per HQrs directives.
2. A total of 33 locations were identified in the shop along with the quantities available for disposal. Total qty projected is 184 MT.
3. HQrs was advised vide this office letter no. CWM/LGDS/ Scrap/ 15-16 dt 25-5-15. ([Details attached](#))



## Mapping of Workshop area for plantation and planning for its execution.

### Present greenery

s.no	Description	Quantity
1.	No. of live trees in the workshop	276
2.	No. of live trees per unit area(1000 Sq.m)of total Workshop area.	2
3.	No. of live trees per unit area(1000 Sq.m)of open areas of the Workshop.(excl. covered shed, &track)	2.9
4.	Area under gardens.	2935 sq. m.

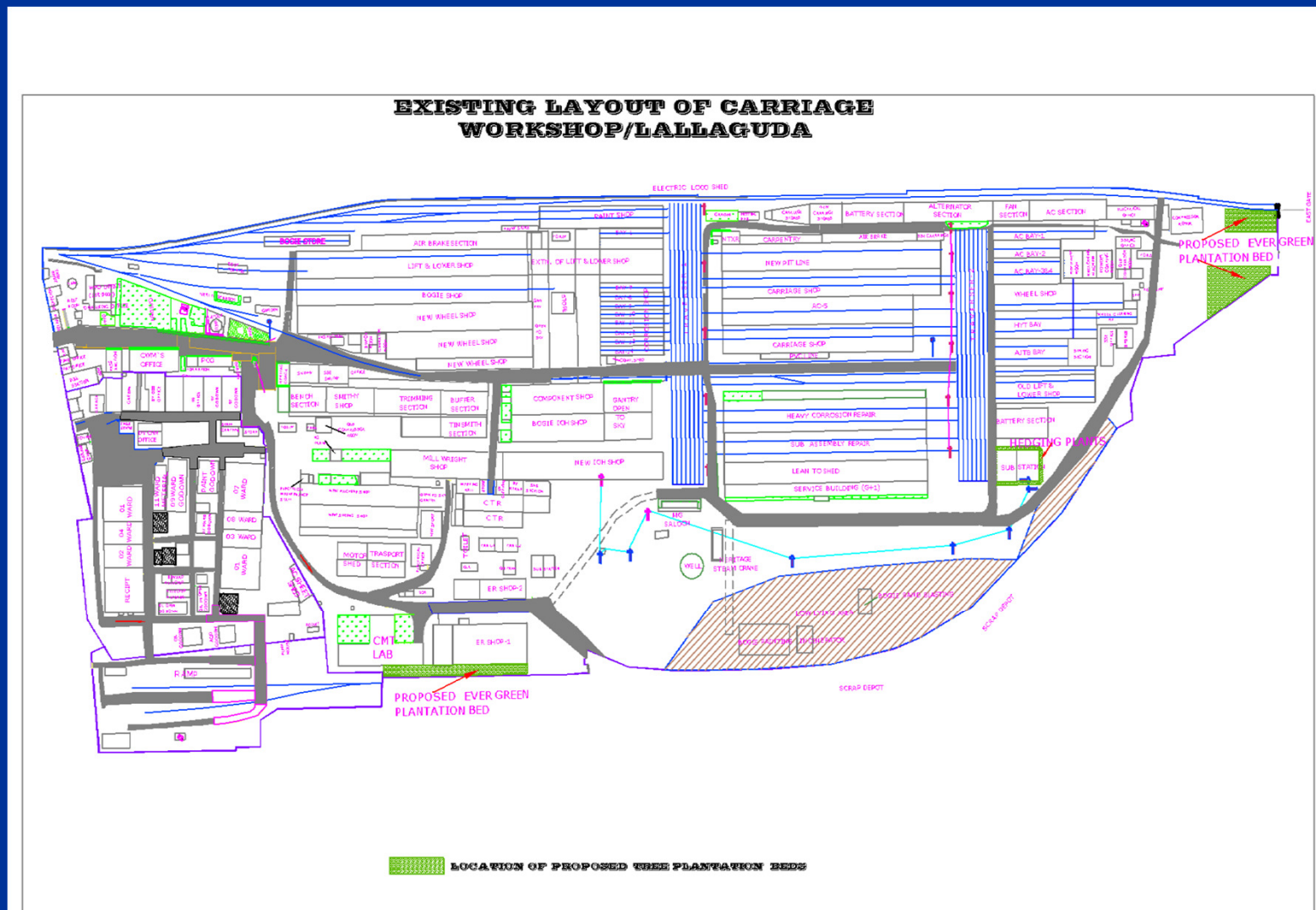
## Mapping of Workshop area for plantation and planning for its execution.

### Area proposed for green coverage:

- a. Behind CMT lab to ER I shop. – 108 sq.m.(90x1.2m)
- b. Behind new substation near ER I shop. =  
240.sq.m.(160x1.5)
- c. Near east gate of w/shop 480.sq.m (40x8+1/2x40x8)

Total = 828 sq.m planned for 2015-16

# Mapping of Workshop area for plantation and planning for its execution.



## Provision of Rain water harvesting

1. The first rain water harvesting pit has been constructed , which was inaugurated by GM on 31-3-2015. Catchment area is = 1800 sq.m (ie. 14 Lakhs ltrs inflow of water annually) . Pit size 2.4m x2.4m x2m.



## Provision of Rain water harvesting

Agenda  
item 3

Two more pits are under completion :

a) At the store depot – besides workshop gate. Pit size is  $2\text{m} \times 1.6\text{m} \times 2\text{m}$ . Catchment area =  $160 \times 10 = 1600 \text{ sq.m} = 13.28 \text{ Lakh ltrs}$



b) Adjacent to CMT lab.(pit size  $7.5\text{m} \times 2.9\text{m} \times 1.7 \text{ m}$ ). Catchment area =  $2880 \text{ sq.m} = 23.90 \text{ Lakh ltrs}$



## Water recycling plant

Waste water from RO plant is being stored in Fire fighting tank provided adjacent to trimming shop (Approximate generation 3000 Liters per day (i.e. 50% wastage)

## Availability of ETPs

1. One ETP has been provided with Axle box cleaning plant of capacity 4000 ltrs/hr.
2. Under modernization one ETP of 0.7 Lakh liters capacity per day is sanctioned at a cost of Rs 23.58 lakhs .This will be set up in 2016-17.

# Compliance /Action plan of C&AG report on Env.Mgmt

Details attached



THANK YOU