21411(8)/2020/O/o. SDGM/HQ/SECR

दक्षिण पूर्व मध्य रेलवे
SOUTH EAST CENTRAL RAILWAY

कार्यालय
वरिष्ठ उपमहाप्रबंधक, बिलासपुर

Office of the
Sr. Dy. General Manager, Raipur.
Tel.No. 64006(Rly), 07752-414229

पत्र सं. No. WS/TRD/R/ 815 दिनांक Dated: 09.06.2020

Divisional Railway Manager,
S.E.C. Railway,
Raipur.

Sub: **Work study on "Review of existing cadre strength vis-a-vis workload of TRD units after implementation of revised yardstick in Electrical (TRD) Department in Raipur Division."**

Ref.: (i) This office letter No. WS/TRD/R/1612, dated 06.12.2019.
(ii) This office letter No. WS/ TRD/R /334, dated 27.04.2020.

The work study of TRD Units of Electrical (TRD) Department in Raipur Division has been conducted to review the existing cadre strength vis-à-vis workload in view of revised yardstick for TRD activity, outsourcing of major works of Over Head Equipment (OHE) & Power Supply Installation (PSI), need base requirement and optimum utilization of manpower. Draft study report vide letter under reference (1) was sent to DRM/R to furnish the remarks. Further, a reminder addressed to Sr. DEE (TRD)/R were also sent to furnish the remarks on the draft report. However, no reply pertaining to above Study report has been received by this office so far. Hence, the draft study report is finalised.

The work study report contains recommendation for surrender of 30 surplus posts (17 vacant) of TRD Asst./ Gen. Asst./Technicians/Vehicle Drivers from Electrical TRD Department in Raipur Division. Besides this, some suggestions are also made to improve the efficiency.

Therefore in view of above, it is requested that suitable instructions may be given to concerned officers for implementation of the work Study report and copy of surrender memorandum may be sent to this office so that progress of implementation of work study can be advised to Railway Board accordingly.

This has the approval of SDGM.

9/6/20

(S. N. Pattnaik)
Asst. Work Study Officer
For Sr. Deputy General Manager

Encl: 1 work study report.

Copy along with one copy of work study report is forwarded to:-

1) The Executive Director, E&R (ME), Railway Board for kind information.
2) Secretary/SECR for kind information of GM.
3) PCEE/SECR/BSP for kind information and necessary action please.
4) Sr. DEE (TRD)/R, Sr. DPO/R for kind information and necessary action.

WORK STUDY REPORT ON "REVIEW OF EXISTING CADRE STRENGTH VIS-A-VIS YARDSTICK OF ELECTRICAL TRD DEPARTMENT IN RAIPUR DIVISION''

कार्य अध्ययन प्रकोष्ठ

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WORK STUDY REPORT ON "REVIEW OF EXISTING CADRE STRENGTH VIS-A-VIS YARDSTICK OF ELECTRICAL TRD DEPARTMENT IN RAIPUR DIVISION''

मार्गदर्शक
श्री अमित कुमार सिंह
वरि.उप महा प्रबंधक

एस एन पटनायक
सहा. कार्य अध्ययन अधिकारी
के नेतृत्व में

द्वारा

श्री अंशुमान हालदार
कार्य अध्ययन निरीक्षक

कार्य अध्ययन प्रकोष्ठ
दक्षिण पूर्व मध्य रेलवे
बिलासपुर
अध्ययन संख्या
SEC/04/2020 - 21

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SUMMARY OF RECOMMENDATIONS & SUGGESTIONS

Rec. No.	Description	Para Reference
	RECOMMENDATIONS:	
1.	Considering the existing work load, it is recommended in Para 3.1 to 3.5 that the requirement of total cadre under TRD units in Raipur Division comes to 203 against sanction of 233 staff. Thus 30 identified surplus (17vacant) posts of TRD Asst./ Gen. Asst./Technicians/Vehicle Drivers should be surrendered from TRD Department of Raipur Division after implementation of outsourcing as follows:- **1st Phase:-** 05 post of Vehicle Drivers are found surplus and should be surrendered from Electrical TRD department of Raipur division and surrender Memorandum may be issued by Sr. DPO/R accordingly. **2nd Phase:-** Balance 25 post of TRD Asst./ Gen. Asst./Technicians should be surrendered from TRD Department of Raipur Division after implementation of outsourcing and surrender Memorandum may be issued by Sr. DPO/R accordingly.	**3.6.1**
2.	The money value resulting after surrender of surplus posts can be utilised for further creation of posts of Electrical TRD department as per need.	**3.6.2**
3.	The vacant post of SSE/JE in Supervisors category should be filled up for better monitoring of contractual and departmental work of Electrical TRD.	**3.6.3**
4.	OHE non-Power Block work and OHE other activities may be outsourced by the Division as per RDSO guidelines. (Ref. Para 2.11.1 and 2.11.6). Only minimum Supervisory and Supporting staffs are required to monitor.	**3.6.4**
5.	All PSI activities to be outsourced by the Division as per RDSO guidelines. (Ref. Para 2.11.2). Only minimum Supervisory and Supporting staffs are required to monitor.	**3.6.5**
6.	Remote Control/SCADA activities may be outsourced as per RDSO guidelines.	**3.6.6**
7.	Road vehicle and Crane activities may be outsourced as per RDSO guidelines.	**3.6.7**
Suggestions:		
1.	Power Block is very crucial for maintenance of tracks. Sometimes due to lack of coordination between departments it becomes tough to get the block approved. Coordination between departments needs to be increased for blocks as and when required.	**3.6.8**
2.	OHE and PSI both are most vital part of TRD organization. The outsourcing staff should be properly trained for operation/handle of high voltage (HV) and extra high voltage (EHV) equipments. For safe, secure and smooth operation of TSS, PSI operators should be present at TSS in all shifts and train the staffs working under outsourcing agent up to optimum satisfaction.	**3.6.9**
3.	For each Switching Stations like Traction Sub-station(TSS), Sectioning and paralleling posts (SP) and Sub Sectioning and paralleling posts (SSP), Supporting Staff should be deployed at convenient stations to assist the outsourcing staff , to monitor the activities and meet the emergency like 132 KV incoming Supply failure, mechanical failure of equipments, relay and other RC failures, DO barrel fallen in section, SCADA failure at posts etc.	**3.6.10**

CHAPTER – I

1.0 Introduction:

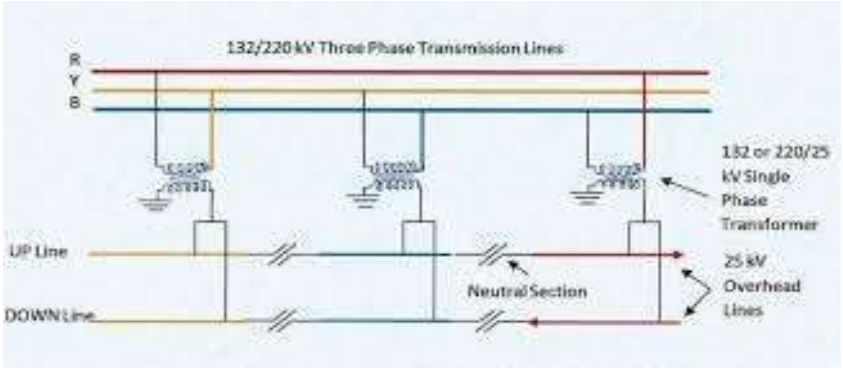
Railway is the largest means of transportation in India and it is ranked in the world as fourth largest railway network. Railway works under the Indian railway which is a state-owned organization of the Ministry of railway.

Indian railway traction system uses mostly 25Kv AC in the country. The supply for traction system is taken from state utility which is three phase source at 132/220 kV. The traction OHE required 25 kV supply, so only two phases are taken and step down to single phase 25 kV through transformer which is present at traction substation. This 25kV is fed to the OHE from feeder then to loco via pantograph which is at the roof of loco.

1.1 Present Scenario:

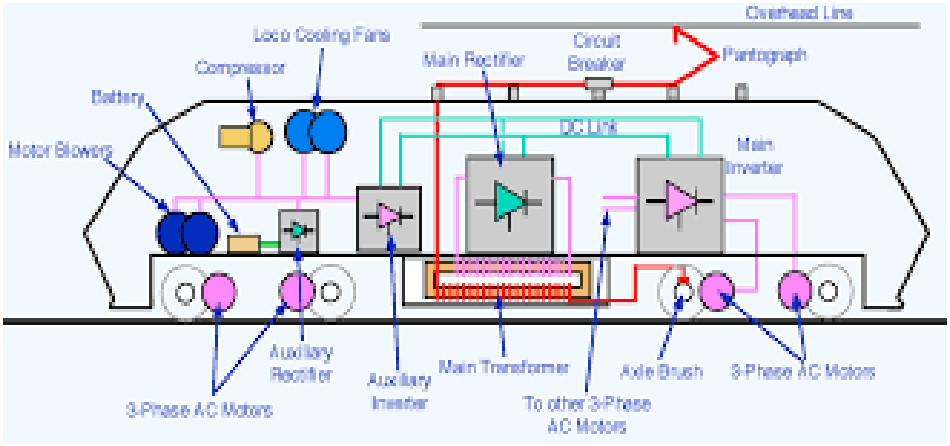
Electrification is most important up-gradation of Indian railway. Total 35,488 (route) km has been electrified by 01 April 2019 which is 55.30% of the total railway network. In present scenario, approximately 54% of passenger traffic and 65% of freight traffic are being operated by electric traction. The detailed traction system can be described by dividing it into three sections such as three phase supply system, traction substation and locomotive system which is described as follows:

1.1.1 Three phase supply system:- The power generated from generating station is transmitted to the grid substation via three phase distribution system. The three phase distribution system is at voltage level of 220 KV or 132 KV from normal. But Indian railway accepted the 25 kv system therefore the available three phase voltage has to be step down to 25 kv. The step down transformer is connected to any of two phases of normal three phase lines to step down the 220/132 Kv to 25kv. This causes imbalance and dip in voltage in three phase system. For balancing of the load on the power system, the OHE contact wires are supplied from A-B, B-C, C-A at regular intervals (about 40-60Km) at traction substation .If one phase is fed from A-B then the next substation is fed from b-c phase. This type of combination of phases does not change the phase sequence of the system. To avoid the short circuit between the phase's neutral section or dead zone is provided between two consecutive sections which is powered from two different set of phases.



1.1.2 **Traction substation** At traction substation 220/132 kV is step down to 25 kV through single phase transformer. The 25 kV AC voltage is drawn as single phase system from a three phase systems. One connection of transformer is permanently solidly earthed which work as return. The traction substation not only consists of transformer but also various protective devices. It includes lightning arrestor, circuit breaker, transformer protection etc. This 25 kv is then supplied to the feeder then to the OHE line.

1.1.3 **Locomotive Subsystem** The power required for propulsion of loco is taken from OHE via pantograph. The AC or DC drives are used for loco. The traction motors used are DC series motor, three phase induction motor. But new locos are come up with three phase induction motor. The induction traction motor has many advantages over dc series motor like high power at low speed, absence of commutator, VVVF control and regenerative breaking system. In today's scenario WAP7 and WAG9 are the passenger and goods loco which are mostly used. It consists of transformer, DC link in between line converter and motor converter.



1.2 **Traction Distribution(TRD) Department:** TRD department deals with high voltage (132/25KV) transmission, distribution, control and maintenance and it provides uninterrupted power supply to overhead equipments for smooth operation of traffic. It is divided into following wings as follows:

1.Over Head Equipments (OHE)
2.Power Station Installation and Substation(PSI & SS)
3.Traction Power Control (TPC)
4.Running Repair Depot(RRD)

1.3 **TRD Raipur:-** It has the section Main line from Km 722/1 to Km 866/31, Ex- BSP (Excluding) to DUG (Including) and Branch line 867/1-877 with total electrified track kilometer (ETKM) 922.

1.4 Terms of Reference:

The following terms of reference were adopted for conducting the study:-

I. Review of staff strength vis-à-vis existing workload.
II. Outsourcing activities.
III. Identifying redundant/unproductive activities to eliminate wastages.
IV. Suggesting ways and means to improve the standard in view of outsourcing and system improvement.

1.5 Methodology Adopted:

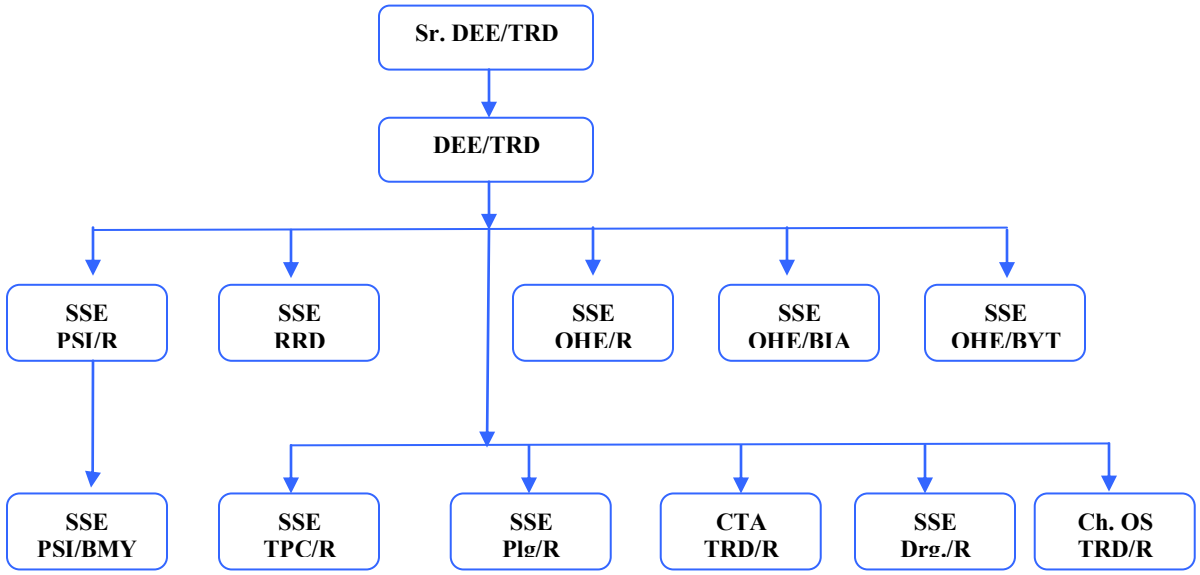
The work study team conducted a review of proposed outsourcing of TRD activities as per Railway Board's guidelines. Raipur Division having total sanctioned strength is **233,** Actual strength is **216** and vacancy is **17.**

The work-study team has adopted the following technique to complete the study:-

- Verification of Data provided by TRD offices in detail with reference to quantum of work load.
- Direct observations regarding working of staff and discussion in details with officer/ Supervisor /Staff.
- Assessment of staff requirement and utilization of existing Manpower in other activities.
- Critical analysis of the data collected.
- Making recommendations for need base staff in the modern context.
- Work out financial implication involved in saving as a result of surplus staff.

1.6 Organisational Chart of Electrical Traction Department (TRD) Raipur Division :

TRD department is a part of Electrical Engineering department, functions under the administrative control of Sr. DEE (TRD)/Raipur. Officers having entrusted with a particular section comprising of sectional SSE/OHE/PSI/TPC/RRD/OHE are in-charge of TRD Units and are responsible for up-keeping of 25Kv overhead lines**.**



1.7 Details of TRD Units existing in Raipur Division:

The TRD Department / Raipur Division has been divided into 03 OHE units , 03 PSI units, 01 TPC unit and 01 RRD unit which are located as under:-

S.No.	Name of TRD Unit	Station/HQ
1	OHE Depots	BYT,R,BIA
2	PSI Depots	BYT,R,BMY
3	TPC/RC Centre	R
4	RRD Depot	R

1.8 Functions of different TRD units:-

1. **Overhead Equipments (OHE):** It deals with the schedule and non-schedule maintenance of overhead high voltage electrical equipments.
2. **Power Station Installation and Substation (PSI/SS):** It deals with the schedule and non-schedule maintenance of overhead high voltage electrical equipments like CBs, BMs, protection relays, transformers etc provided at SP,SSP and Traction Sub Stations.
3. **Traction Power Control (TPC):** It deals with uninterrupted power supply to cater the demand of Locomotive with continuous contact with Power supply Authorities.
4. **Running Repair Depot(RRD):** It deals with maintaining, providing , transporting stores to the OHE units in the division as and when required as well as disposal of released materials. Also it deals with the schedule and non-schedule maintenance of Tower cars , Tower wagon and Road vehicles in the Division.

CHAPTER-II

2.0 OBSERVATIONS :

Consolidated Staff strength Unit wise:

The consolidated cadre strength of various TRD Units of Raipur Division as furnished vide Sr. DEE/TRD office is given below:

Category	Level	Sanction	Div. Office	TPC/RC	TRD/R	TRD/BIA	TRD/BYT	Other Unit	Total On Roll	Total Vacancy
			On Roll	On Roll	On Roll	On Roll	On Roll			
Supervisors										
SSE	L-7	20	03	05	05	02	02	03	20	00
JE	L-6	10	01	01	01	02	03	00	08	02
Total		**30**	**04**	**06**	**06**	**04**	**05**	**03**	**28**	**02**
Drawing Section										
SSE	L-7	01	01	00	00	00	00	00	01	00
JE	L-6	01	01	00	00	00	00	00	01	00
Total		**02**	**02**	**00**	**00**	**00**	**00**	**00**	**02**	**00**
Ministerial										
Ch. OS	L-7	01	00	00	00	00	00	00	00	01
OS	L-6	08	04	00	00	01	01	02	08	00
Sr. Clerk	L-5	02	00	00	01	00	00	00	01	01
Jr. Clerk	L-2	00	00	00	00	00	00	01	01	-01
Total		**11**	**04**	**00**	**01**	**01**	**01**	**03**	**10**	**01**
Technicians										
Sr. Tech.	L-6	32	00	00	13	07	09	00	29	03
Tech.-I	L-5	63	00	02	21	14	12	02	51	12
Tech.-II	L-4	09	00	00	05	05	03	00	13	-04
Tech.-III	L-2	17	00	00	05	04	05	01	15	02
Total		**121**	**00**	**02**	**44**	**30**	**29**	**03**	**108**	**13**
Vehicle Driver										
MVD-I	L-5	01	00	00	01	01	01	00	03	-02
MVD-II	L-4	03	00	00	01	00	01	00	02	01
MVD-III	L-2	01	00	00	00	00	00	00	00	01
Total		**05**	**00**	**00**	**02**	**01**	**02**	**00**	**05**	**00**
Group D										
Asst. TRD	L-1	59	00	03	30	12	11	02	58	01
Gen. Asst.	L-1	03	01	01	00	00	00	01	03	00
TADK	L-1	01	01	00	00	00	00	00	01	00
Chowkidar	L-1	01	00	00	00	00	01	00	01	00
Total		**64**	**02**	**04**	**30**	**12**	**12**	**03**	**63**	**01**
Grand Total		**233**	**12**	**12**	**83**	**48**	**49**	**12**	**216**	**17**

Other Unit:
Supervisor: SSE- Const./R=01, Const./BSP=01, RE/JBP=01 (Total=03)
Ministerial: OS: Sr. DSO/R=01, Const./R=01
Jr. Clerk: Const./R=01(Total=03)
Technician: Tech.-I: Const./R=02
Tech.-III: Const./R=01(Total=03)
Group D: Gen. Asst.: Sr. DSO/R=01
Asst. TRD: Const./BIA=02(Total=03)

2.1 **Unit wise distribution of staff in field :**

Unit wise deployment of various TRD field Units of Raipur Division as furnished vide Sr. DEE/TRD office is given below:

Category	Level	ON ROLL								
		PSI/R	**PSI/BYT**	**PSI/BIA**	**OHE/BYT**	**OHE/R**	**OHE/BIA**	**RRD/R**	**TPC/RC**	**Total**
Supervisors										
SSE	L-7	02	00	01	02	02	01	02	05	15
JE	L-6	00	00	00	03	01	02	00	01	07
Total		**02**	**00**	**01**	**05**	**03**	**03**	**02**	**06**	**22**
Ministerial										
OS	L-6	00	00	00	01	00	01	00	00	02
Sr. Clerk	L-5	01	00	00	00	00	00	00	00	01
Jr. Clerk	L-2	00	00	00	00	01	00	00	00	01
Total		**01**	**00**	**00**	**01**	**01**	**01**	**00**	**00**	**04**
Technicians										
Sr. Tech.	L-6	00	03	02	06	09	05	04	00	29
Tech.-I	L-5	07	02	02	09	08	12	05	02	47
Tech.-II	L-4	02	00	02	03	02	03	01	00	13
Tech.-III	L-2	01	04	02	02	03	02	01	00	15
Total		**10**	**09**	**08**	**20**	**22**	**22**	**11**	**02**	**104**
Vehicle Driver										
MVD-I	L-5	00	00	00	01	00	01	01	00	03
MVD-II	L-4	00	00	00	01	01	00	00	00	02
Total		**00**	**00**	**00**	**02**	**01**	**01**	**01**	**00**	**05**
Group D										
Asst. TRD	L-1	12	02	03	09	10	10	07	03	56
Gen. Asst.	L-1	00	00	00	00	00	00	00	01	01
Chowkidar	L-1	00	00	00	01	00	00	00	00	01
Total		**12**	**02**	**03**	**10**	**10**	**10**	**07**	**04**	**58**
Grand Total		**25**	**11**	**12**	**38**	**37**	**37**	**21**	**12**	**193**

2.2 Duties of TRD staff:-

2.2.1 SSE/OHE:

He is the senior supervisor working under the control of Sr. DEE/DEE (TrD) and directly responsible for the proper maintenance of OHE including the 25 kV feeders and return feeders from the traction sub-stations to the feeding posts. He should be fully conversant with the lay-out and sectioning of OHE in his jurisdiction as also the rules and procedures laid down for efficient maintenance of OHE and safe working on OHE. In particular he shall:-

1. Supervise the maintenance of installations under his charge in accordance with the prescribed schedules, to keep them fully serviceable and in a state of good repair.
2. Plan in advance the requirement of power blocks for OHE maintenance based on the work to be done in consultation with his section supervisors and ensure the completion of the work within the time allotted.
3. Carry out detailed inspection of OHE under his control by push-trolley or motortrolley to cover the entire section once in 3 months.
4. Scrutinize daily the reports on foot-patrol and other defects on OHE, as well as reports from section supervisors and inspection reports of officers and arrange prompt rectification of defects pointed out and report compliance to Sr. DEE/DEE/AEE (TrD).
5. Check the work by sectional gangs under him to ensure that quality work is done and that compliance with prescribed schedules is adhered to.
6. Keep the organization for attending to break-downs in constant readiness to act promptly and expedite restoration whenever there is a break-down.
7. Instruct and train the staff under him in the correct methods of maintenance with special reference to safety precautions.
8. Arrange to send his staff for training courses as required.
9. Ensure that special testing instruments, tools and equipment including the OHE inspection cars and breakdown vehicles, provided for maintenance of OHE are properly cared for and maintained in proper condition.
10. Keep a watch on availability of spare parts and stores required for maintenance of OHE and initiate timely action to recoup stocks.
11. Ensure proper accounting and periodical verification of the stores and tools under his charge;
12. Submit the prescribed periodical returns to DEE/AEE(TrD) and carry out their instructions issued, if any, on the basis of such returns.
13. Keep his superior officers fully informed of each and every important development and seek their guidance when required.
14. Carry out such other duties as may be allotted to him by his superior officers.
15. Carry out inspections as per ACTM.

2.2.2 SSE/PSI:

He is the senior supervisor working under the control of DEE/AEE (TrD) and directly responsible for the safe and efficient operation and maintenance of traction power supply installations including sub-stations (when owned by the railway), switching stations, booster transformers and auxiliary transformers in his jurisdiction. He shall be thoroughly conversant with all technical details of the equipment under his charge including their rating, trend of power demand as also correct methods of their operation and maintenance.

In particular, he shall:-

1. Supervise the maintenance of installations under his charge in accordance with the prescribed schedules to keep them fully serviceable at all times and in a state of good repair.
2. Maintain proper co-ordination with the Traction Power Controller. SSE(OHE). Supply Authorities and render assistance when required to ensure reliability of power supply.
3. Keep his organisation in constant readiness to deal promptly with any breakdowns and failures

of equipment.

4. Ensure that the programme of testing and maintenance of protective relays is adhered to and ensure that other safety equipment including bonding and earthing are functioning effectively.
5. Instruct, train and supervise staff under his control and ensure that they do operate and maintain the equipment properly and in particular do actually observe all rules and regulations and safety precautions laid down.
6. Depute staff for refresher courses as prescribed, particularly for such staff as are found deficient in their working.
7. Ensure that special instruments and tools provided for maintenance operation and testing of all installations are properly cared for.
8. Keep a close watch on availability of spare parts and other stores required for maintenance and operation of the installations and initiate timely action to recoup stocks.
9. Ensure proper accountal and periodical verification of stores and tools in his charge.
10. Depute staff when required to man sub-stations and switching stations in the event of failure of remote control equipment.
11. Inspect all installations under his charge at least once a month, with particular attention to safety aspects.
12. Submit prescribed periodical returns after careful scrutiny to AEE (TrD) and Sr. DEE/DEE (TrD).
13. Keep his superior officers fully informed of all important development and seek their guidance when required;
14. Carry out such other duties as may be allotted by superior officers from time to time.
15. Carry out inspections as per ACTM.

2.2.3 SSE(TPC):-

He is the official direct in charge of the control of 25 kV power supply for electric traction and shall be fully acquainted with all the traction power supply installations, and sectionalizing arrangements. There will be a TPC in each shift in the RCC and depending upon the workload, he may be assisted by an ATPC. The essential duties of the TPC/ATPC are as under :

1. When taking over shift duty, he should acquaint himself with the prevailing position of the entire section including working of the RC equipment, condition of all transformers, circuit breakers, interrupters and isolators, sections under power block, any special instructions to be carried out, movements or important officials connected with the traction distribution system, position of the OHE Inspection Cars and breakdown vehicles etc.;
2. Maintain continuous contact with the Power Supply Authorities;
3. Maintain continuous contact with the Traffic Section Controllers in regard to power supply affecting train movements, imposition of power blocks etc.;
4. In the event of power supply interruptions or other failures, take prompt action in accordance with prescribed rules and local instructions for restoration of supply;
5. Imposition of and removal of power blocks as required, following the prescribed procedure and safety rules.
6. In the event of power supply failures, OHE break-downs, accidents etc. in the electrified section, advise promptly the concerned Foreman, AEE, DEE/Sr. DEE (and other officials in accordance with local instructions), and keep them posted with ail important developments;
7. Record in the Log Book, on prescribed proforma, full details of all switching operations carried out, power blocks imposed or refused (or delayed) and other occurrences in the distribution system;
8. Maintain the following registers and records in the proforma prescribed :- (i) Shift Duty Register indicating points of importance including messages, movements of ODC involving power blocks and other details to be noted by following shifts. (ii) Record of standing instructions. (iii) Register of temporary instructions. (iv) Register of Staff Movements; (v) Emergency Telephone Testing Register. (vi) Register of train delays due to failures of signal supply. (viii) Weather forecast register.

9. By 10 h each day submit the following reports to Sr. DEE/ DEE (TrD) and other officials as laid down in local instructions:-
   i. List of power blocks availed.
   ii. Particulars of telecommunication failures.
   iii. Particulars of RC failures.
   iv. Power Supply failures.
   v. Maximum demand and energy consumption at each traction sub-station.
   vi. Condition of traction sub-station equipment.
   vii. (vii) All unusual occurrences, if any

2.2.4 Technicians:-

OHE technicians carryout OHE assets maintenance every year like Cantilevers, Isolators, T/outs, X/Overs and etc.in power block and when there no Power block due to heavy traffic then Non power block works will be carried so as Bond tightening ,tree trimming, number plates replacement, muffings cleaning and so on..

2.2.5 Helpers:-

Helpers are deployed to help the main fitter/lineman in carrying out repairs/maintenance of electrical equipments which may go defective or require periodical maintenance to the orderly running of electrical part of train services.

2.3 Details of Electrified Sections in Raipur Division:-

Description	SECTION	TOTAL TKM
Main Line & Yard	BSP –DUG & RVH-LAE	725.175
Sidings	VIIPL(VIMALA)/MDH	0.859
	RICPL/MDH	1.607
	NACAST/MDH	5.75
	SEML/MDH	3.771
	CENTURY CEMENT/BKTH	5.00
	SBPIL	5.168
	SKS ISPAT & POWER LTD RSD/WRS	0.81
	RSD Line No.3	1.05
	MCBIPL Pvt Siding at DPH	3.282
	CCFL (CHIDAMBARA)/KMI	1.053
	GMR Siding	19.657
	LAFARGE/NPI	28.515
	ACEL/BYT	32.86
	RH /HN	6.00
	ULTRA TECH & GRASIM/HN	58.618
	HIRRI /DPH	2.227
	NOVA/DGS	0.280
	NSPCL/BIA	4.541
	Jamul Cement Works/BIA	8.752
	GPIL	1.556
Total Siding TKM		**196.825**
Total Electrified TKM		**922**
Total Electrified RKM		**235.312**

2.4 General Statistics of Elect. TRD in Raipur Division:-

S. No.	Description	Nos	Post/Station
1	Traction Sub Stations (TSS)	3	Bhatapara, Raipur, Bhilai.
2	Sub Sectioning and paralleling posts (SSP)	13	Dadhapara, Belha, Nipania, Hathbandh, Budgahan, BKTH, Silyari, Mandhar, Sarona, Kumhari, Bhilai, Bhilai Nagar , Durg.
3	Sectioning and paralleling posts (SP)	3	Dagori, Tilda, Sarona,
4	Tower Car 8 wheeler	2	T/Car No. 6505A &. 6531 RU
5	Tower Wagon 4 wheeler	2	TW 6050M-III, T/W M-IV No 0072 Phooltoss

2.5 Location and Capacity of Power Transformer of Elect. TRD in Raipur Division:-

Sl.No.	Locations	Transformer	Capacity	Make
1.	BIA/TSS	TR-01_BIA	21.6 MVA	Telk
2.	BIA/TSS	TR-02_BIA	13.5/20 MVA	CGL
3.	BIA/TSS	TR-03_BIA	21.6 MVA	Areva
4.	URK/TSS	TR-01_R	13.5/20 MVA	BHEL
5.	URK/TSS	TR-02_R	13.5/20 MVA	BHEL
6.	URK/TSS	TR-03_R	21.6 MVA	Areva
7.	BYT/TSS	TR-01_BYT	13.5/20 MVA	CGL
8.	BYT/TSS	TR-02_BYT	13.5/20 MVA	CGL
9.	BYT/TSS	TR-03_BYT	21.6 MVA	Areva

2.6 Traction Energy Consumption in Raipur Division:-

Item	2015-16	2016-17	2017-18	2018-19	2019-20 (Till Sept.)
BHATAPARA TSS					
Energy (KWH Million)	68.59	60.36	71.28	74.81	36.72
Energy Charges (Rs Million)	396.61	428.63	319.85	321.67	151.59
Unit Rate (Rs)	**5.78**	**6.26**	**4.49**	**4.30**	**4.13**
URKURA TSS					
Energy (KWH Million)	67.93	71.48	73.05	75.74	36.26
Energy Charges (Rs Million)	364.72	413.54	331.83	322.65	152.67
Unit Rate (Rs)	**5.37**	**5.78**	**4.54**	**4.26**	**4.22**
BHILAI TSS					
Energy (KWH Million)	65.19	68.68	69.25	74.26	36.27
Energy Charges (Rs Million)	343.02	390.14	302.51	303.11	147.27
Unit Rate (Rs)	**5.26**	**5.68**	**4.37**	**4.08**	**4.07**

27 Performance of OHE depots in Raipur Division:-

S#	ITEM	Jan	Feb	Mar	Apr	May	June	July	August	Sept
1	Ferrous Scrap (MT)	24.951	25.951	29.521	3.770	3.770	10.291	10.291	17.085	17.085
2	Non Ferrous Scrap (MT)	4.489	3.993	4.029	0.538	0.538	1.529	1.529	2.593	2.593
3	ETKM	1558.341	1563.939	1649.949	162.416	352.308	570.226	781.675	1010.715	1251.268
4	Asset Failures	1	1	1	0	0	0	0	0	0
5	Attending to critical implantation.	6	3	3	0	0	0	4	7	8
6	Attending to Leaning mast	16	15	16	0	4	5	6	20	43
7	Replacement of bad batch insulators.	137	166	166	64	69	78	90	109	123
8	Stay	79	95	98	36	39	44	51	62	63
9	Bracket	87	103	106	27	29	32	37	45	55
9A	9-Ton	18	16	17	1	1	2	2	2	5
9B	IOH of OHE [TKM]	318.323	316.618	341.989	20.544	69.086	111.047	137.595	167.405	195.226
9C	POH of OHE [TKM]	177.510	191.209	206.663	17.152	47.532	68.667	81.614	98.174	118.636
10	AOH of OHE [TKM]	495.754	507.748	548.573	37.696	116.618	179.714	219.209	265.579	313.862
11	POH of cantilevers	143	125	125	87	205	305	373	399	430
12	Section Insulator checking, cleaning & Adjustment [Nos]	302	335	349	24	29	57	95	176	243
13	Re-tensioning of FTA [Nos] (2 Yearly) Both end	3	3	5	2	2	4	4	4	15
14	POH of Regulating Equipment (4 Yearly) (Nos]	266	296	305	13	40	64	87	102	111
15	Checking / Adjustment of turnout [Nos]	288	327	374	16	27	41	64	87	117
16	Checking / Adjustment of Cross	180	215	233	22	25	34	66	146	191
17	AOH of Isolator (OHE)	210	223	247	9	35	67	89	106	141
18	Checking of PTFE section Insulator.	22	23	27	4	11	15	18	21	23
19	AOH of jumpers including Feeder Jumper	2754	2733	2817	107	361	514	737	985	1348
20	Annual Checking of Power line crossings.	1102	1102	1102	2	5	28	36	39	44
21	Annual Checking of over line structures.	47	47	47	2	7	19	27	30	33

22	Annual Checking of LC gates.	136	136	137	4	15	26	35	49	59
23	Annual Checking of Bonding & earthing of platform	5	5	7	2	7	11	15	17	21
24	Checking of feeder wires.	6	6	6	2	4	8	12	14	18
25	Checking of critical implantations.	4	8	8	0	2	6	8	12	13
26	Tower wagon Checking (Height + stagger) (By 8 wheeler) Live line checking	118	117	146	17	37	50	63	88	104
27	Rail Rod checking.	455	360	395	0	35	50	65	80	95
28	Current collection Test	8	0	0	0	94	130	131	132	132
29	Strengthning of OHE under over line structures	11	11	11	3	10	13	15	22	25
30	Contact wire in Out of Run OHE	1209	1277	1423	92	331	472	672	838	1029
31	Replacement of Failure prone insulators	156	154	180	21	25	34	34	43	45
32	Instruction for use of copper cross feeders at switching stations.	9	7	7	2	2	5	14	16	16
33	Replacement of Contact wire	0	0.730	0.730	0.000	0.000	0.000	0.000	0.000	0.000
34	Replacement of ATD	173	296	304	13	40	64	87	104	113
35	Replacement of drop jumpers of 105 sq. mm by 150 sq. mm	8	8	8	0	0	3	7	9	9
36	Removal of OHE from unfit tracks/uprooted tracks.	0	0	0	0	0	1	1	1	1
37	Replacement of 800 Amps capacity isolator by 1250 Amps isolator	0	0	0	0	0	0	0	0	1
38	Free movement of cantilever	6379	7167	8518	1030	2402	3475	4540	5583	6558
39	Status of overhauls of ATD and its free movement	1572x3	1572x3	1572x3	1572x3	1572x3	1572x3	1572x3	1572x3	1572x3
40	Checking of PG calms, splices by thermo vision camera	3480	5630	5730	670	2670	2820	2970	3120	3270

41	Provision of missing S/Bonds/ Rail bonds	280	274	374	60	117	167	239	269	306
42	Cleaning of insulator at finalized interval	9552	9552	11582	1526	3124	4179	5557	6811	7711
43	Replacement of rusted cantilever assembly	477	449	449	6	124	230	339	442	552
44	Provision of screens to 1.83 m height on all FOBs to cover between two lines.	0	2	2	0	0	1	2	2	2
45	Power block demanded for maintenance In Hr	2215:20	2483:50	2661:20	213:30	456:50	676:35	889:05	1146:35	1355:35
46	Power block demanded for other works In Hr	78:00	78:00	78:00	15:30	20:30	79:30	134:30	204:30	342:30
47	Power block availed for maintenance In Hr	1179:56	1322:49	1399:47	113:09	264:17	390:18	514:48	669:02	807:37
48	Power block availed for other works In Hr	68:33	68:33	68:33	7:30	9:30	48:37	80:17	150:21	252:06
49	Tree branches trimmed	15650	15520	16255	380	855	1645	2045	2195	2545
50	Insulator replacement Stay	255	235	238	76	194	294	392	421	567
51	Insulator replacement Bracket	282	248	251	72	190	291	386	420	563
52	Insulator replacement 9T	56	53	54	6	6	7	7	10	12
53	Bird nest removed	1317	1261	1314	17	144	299	381	441	521
54	Checking of G/X jumpers	825	799	868	45	148	250	401	586	690
55	Position of protective screen on FOBs & ROBs	15	17	17	3	3	4	5	5	5
56	Critical Implantation	3	0	0	0	0	0	4	7	8
57	Leaning Mast	2	4	5	0	7	8	9	23	46
58	Checking by Thermal Image Camera	3973	3873	3973	100	1400	1550	1700	1850	2000
59	Progress of T/Out checking by Rail Rod	325	328	376	25	52	67	82	97	112
60	Progress of X/Over checking by Rail Rod	233	212	247	20	43	58	73	88	103

2.8 Performance of PSI depots in Raipur Division:-

S#	ITEM	Jan	Feb	Mar	Apr	May	June	July	August	Sept
1	Replacement of oil type BMs	11	11	11	0	0	0	0	0	0
2	AOH of Isolator (PSI) [Nos]	76	87	109	7	14	38	62	86	125
3	Maintenance of gantry	13	14	16	1	2	5	9	11	13
4	AOH of Auxiliary Transformer	18	61	147	0	25	25	25	25	25
5	AOH of Interrupters	0	33	99	0	33	33	33	33	33
6	Testing of relays.	0	0	0	0	3	3	3	3	3
7	Maintenance of Capacitor Banks & reactors.	17	17	17	0	0	0	0	0	0
8	Use of thermal Imaging camera at all TSS & switching post once a year.	15	18	24	0	3	6	9	12	18
9	AOH of power transformer	4	4	4	0	0	0	0	0	0
10	AOH of 132 KV CB	4	4	4	0	0	0	0	0	0
11	Checking and caliberation of protective relay at specified interval	0	0	0	0	3	3	3	3	3

2.9 Disposal of Materials (DS-8) in Raipur Division:-

S#	ITEM	Jan	Feb	Mar	Apr	May	June	July	August	Sept
1	Other ferrous scrap	**14.037**	**15.037**	15.037	3.77	3.77	10.2912	10.2912	17.0852	17.0852
2	Copper	**1.369**	**1.551**	1.587	0.0557	0.0557	0.4137	0.4137	0.5217	0.5217
3	Brass	**1.2929**	**1.4129**	1.4129	0.373	0.373	0.864	0.864	1.36	1.36
4	Alluminium	**1.68**	**2.03**	2.03	0.109	0.109	0.2509	0.2509	0.7113	0.7113
5	Battery	**0**	**0**	55	0	0	0	0	0	0

2.10 Details of Inspections carried out in Raipur Division:-

Sl No	ITEM	Jan	Feb	Mar	Apr	May	June	July	August	Sept
1	Inspection of TSS	**11**	**13**	15	2	4	8	11	14	17
2	Inspection of SSP/SP	**16**	**18**	20	2	4	8	12	16	21
3	Inspection Foot plate	**25**	**29**	35	4	8	15	20	25	30
4	Inspection by T/W	**56**	**64**	72	8	16	24	32	40	48
5	Inspection of LC gates	**75**	**85**	99	10	20	31	42	53	64
6	Inspection of Station	**45**	**51**	59	7	14	23	30	37	44
7	Other inspections	**29**	**33**	39	4	8	16	20	24	28
8	Inspection of Depot	**56**	**64**	73	8	16	24	32	40	48
9	Inspection of RCC	**0**	**0**	0	0	0	1	2	3	4
10	Night foot plate Inspection	**28**	**32**	36	5	10	14	19	24	29
11	Night Inspection of LC gates	**28**	**32**	36	4	8	13	17	21	25
12	Night Inspection of Station	**14**	**16**	18	2	4	7	9	11	13
13	Night Inspection of TSS/SP/SSP	**0**	**0**	0	0	0	0	0	0	1

2.11 TRD activities which are to be outsourced as per RDSO guidelines:-

2.11.1 OHE activities which are to be outsourced as per RDSO guidelines:-

As per the terms of reference, the following non-power block activities may be outsourced by the Division/ Construction/ Field units :-

S#	Description of Activity
1	Over Hauling of Auto Tensioning Device (ATD).
2	Fabrication of Cantilever, Dropper & Jumper
3	Over Hauling of Cantilever along with Zyglo testing of non-ferrous parts.
4	Supply & Erection of Structure Identification Plates, Number Plates as per RDSO Specification with Galvanised Fasteners.
5	Supply & Erection of various Caution Boards.
6	Cutting, Drilling holes, Painting & Erection of all kind of Bonds [Structure Bond, Cross Bond, Continuity Bond, Impedance Bond & Rail Bond etc.] Disconnection/ Reconnection of Bonds.
7	Cleaning of area around muff of OHE Mast/ Portal by removing vegetation.
8	Recasting of new muff, Disconnection of Structure Bond, Drilling hole in Mast/ Portal and reconnection/replacement of Bonds where ever the muff height needs to be raised. Surface preparation and applying cement based Whitewash of approved colour on the surface.
9	Casting of OHE foundation, grouting/muffing of mast, cleaning of muff.
10	Testing of Insulators in Depot.
11	Marking/Writing/ Painting of Rail Level (RL), Setting Distance on OHE Masts/ Structure, Elementary Section, ATD temperature marking, Stenciling of symbol, Direction of Emergency Telephone Socket, Painting of Guy Rods/ Isolator Handle, ATD Counter Weight.
12	Deputing Assisting staff in foot patrolling along with OHE lineman/ Emergency Socket testing
13	Manning and housekeeping of OHE/PSI/RC Maintenance Depots
14	Material Handling Works

15 Chopping/ Trimming of trees, cutting of Bushes/ grass, Security of OHE Maintenance Depot.
16 Erection of Mast
17 All the Workshop related activities of OHE Maintenance Depot (like Small Parts Steel, Fabrication of Bracket Assembly, Dropper, Bonds etc.)
18 Repair, testing and calibration of tools and plants.

2.11.2 **PSI activities which are to be outsourced as per RDSO guidelines:-** As per the terms of reference, the following PSI activities may be outsourced by the Division/ Construction/ Field units :-

1 Maintenance & repair of all Equipments of Traction Sub-Stations, Switching Stations including HT Cable/ feeder line & Auxiliary Transformer (at the level crossing gate, yard, station) and associated L.T. cable and switchgear.
2 Screening of Ballast, Cleaning & upkeep of Switch yard of Traction Sub-Stations and switching station.
3 Cutting/ Removal of unwanted grass/ vegetation from Switch yard of sub-station and switching station.
4 Spraying of antiweed herbicide chemical over Switch yard.
5 Manning & Housekeeping of Traction Sub-Stations.
6 Maintenance of Control Room, Control Cubicle and Remote Control Room Equipments.
7 Petty repair of Cable Trenches, Cable Trench Cover, Earth Pit Cover, Earth Pit, Foundation of Equipments etc. as per requirement.
8 Overhauling of Auxiliary Transformer
9 Oil filtration of Traction transformer, Auxiliary Transformer.
10 Maintaining Earthing pits/ Earthing Stations at the Traction Sub-Station, Switching Post, Auxiliary Transformer Stations etc.
11 Maintenance & Certification of Fire Extinguishers including filling of gas if required, Fire Buckets & First Aid Box.
12 Painting & Numbering of all PSI equipment at the Traction Sub-Stations, Switching Stations.
13 Maintenance of Battery set & battery charger at TSS, Switching posts, RCC
14 Material Handling Works.

2.11.3 **Remote Control/SCADA activities which are to be outsourced as per RDSO guidelines:-** As per the terms of reference, the following RC activities may be outsourced by the Division:-

1 Maintenance contract for Complete Supervisory Control & Data Acquisition (SCADA) System.
2 Upgradation of SWR diagrams

2.11.4 **Tower Car activities which are to be outsourced as per RDSO guidelines:-** As per the terms of reference, the following Tower Car activities may be outsourced by the Division:-

1 Maintenance and repair of Tower Car including painting.
2 Maintenance and repair of Engine and Drives by OEMs/authorized dealer
3 Rehabilitation/ Maintenance and repair of other Sub-assemblies by OEMs/Authorised Dealer

2.11.5 **Crane/Road Vehicle activities which are to be outsourced as per RDSO guidelines:-** As per the terms of reference, the following Crane/Road Vehicle_activities may be outsourced by the Division:-

1 Hiring of Road Crane (05 Tonne/10 Tonne Capacity) for loading and unloading works, as and when required at any place in the jurisdiction.
2 Hiring of passenger and multi-utility road vehicle.

2.11.6 **Power Block activities which are to be outsourced as per RDSO guidelines:-** In addition to the non-power block activities which have been proposed to be given for outsourcing in reference to the terms of reference (TOR), the following Power Block activities may be outsourced by the Division:-

1 Special TRD Activities Needing Traffic/Power Block.
2 All activities of replacement/rehabilitation of TRD equipment which are not covered under the purview of schedule maintenance.
3 Schedule maintenance of TRD assets in sidings, yards and branch lines.
4 Schedule maintenance of TRD assets on main lines in case of non-availability of adequate staff (men on roll below 0.35 staff/TKM). All these power blocks activities will be carried out under the supervision of Railway's representative (who will take power block and issue permit-to-work).

2.12 **Current Outsourcing activities in TRD Raipur Division:-** Following TRD activities are currently outsourced in Raipur Division are as follows:-

1. AMC of T/Car and T/W
2. AMC of SCADA.

CHPTER-III

3.0 CRITICAL ANALYSIS & RECOMMENDATIONS :-

3.1 The actual staff strength of TRD units over Raipur Division is **216** as against the sanctioned strength of **233** along with vacancies of **17** as on 23.10.2019. The requirement of Traction staff has been assessed based on the proposed outsourcing, direct observations and discussion held with SSE/JE of TRD units.

As per Rly. Board's letter No.E(MPP)2019/1/12 dated 30.09.2019, an action plan was formulated by Board for Manpower Management wherein it was decided that O&M activities of various departments be revised taking into account of technology upgradation. Accordingly, the yardsticks of certain activities have been revised and according to it, the requirement of manpower for the said activities should be calculated based on the revised yardsticks.

GOVERNMENT OF INDIA
MINISTRY OF RAILWAYS
RAILWAY BOARD

No. E(MPP)2019/1/12. New Delhi, Dated. 30 / 09 /2019

The General Managers,
All Indian Railways, including Production Units and
Others

Sub: Revision of Yardsticks.

An action plan was formulated by Board for Manpower Management, wherein, it was decided that yardsticks of O&M activities of various departments be revised taking into account technology Upgradation, Outsourcing experience and Benchmarking standards set by different Railways.

2. Accordingly, the yardsticks of certain activities have been revised and enclosed as an Annexure.

3. Henceforth, the requirement of Manpower for the said activities should be calculated based on the revised Yardsticks. The Manpower strength for the existing assets should be reviewed, based on the revised Yardsticks and excess posts be surrendered.

4. All the clarifications/queries/references, if any, regarding revised yardsticks are to be made to respective Directorates.

5. This issues with the concurrence of Finance Directorate of the Ministry of Railways.

6. This supersedes all earlier instructions on the Yardsticks of the respective activities, specified in the annexure enclosed.

7 Please acknowledge receipt.

30/9/19
Ajay Jha
Joint Director E(MPP)
Railway Board

Annexure

Annexure to Board's letter no. E(MPP)2019/1/12 dated. 30/09/2019

1. Yardstick for **TRD** activity of Electrical Department for **Non-Suburban Area** is fixed as **0.22/Track Kilometer**, with the following activities to be additionally outsourced.

Activity	Remarks
OHE non-power block	These activities to be outsourced. Only minimum Supervisory agency and related work to be in house.
OHE other works	
PSI Maintenance	All PSI activities to be outsourced. Only minimum supervisory and supporting staff required to monitor.
PSI Operation & Manning	
Centralized Activities	Activities excluding TPC manning, drawing and technical staff including clerical staff and Helpers at home.

2. The revised staff Yardsticks for **Electric Loco Maintenance (TRS)** in loco sheds for different types of locomotives are decided as under,

Type of Locomotives	Revised Yardstick
Conventional Loco(freight) with DC drive with Hitachi TM(WAG5) and NAG7	3 staff / loco
Other conventional locos with DC drive including coaching locos	3.5 staff / loco
3-phase locomotive (WAG9, WAP7)	2.5 staff / loco.

with activities for outsourcing noted hereunder :

Already a number of activities are mandated to be outsourced and are being outsourced in various loco sheds. In addition the following activities to be additionally outsourced:

Conventional Locomotives – DC TM overhauling; overhauling of contractors by OEMs; Overhauling of auxiliary motor.

Three Phase Locomotives –
Compressor overhauling; TM overhauling; Overhauling of Auxiliary motors

Further, activities to be outsourced can be identified by respective loco sheds and followed accordingly with the approval of respective PCEE on local need basis and local conditions.

3. **Crew Review – Freight Services**

After review of various methods followed by different Zonal Railways, it was decided to uniformly adopt on all Zonal Railways, the following method for **requirement of freight crew:**

- the method of progressive crew hours based on peak six monthly review, i.e. 12 fortnights for the preceding year, should be followed for calculating the bare crew requirement ; and
- the additional requirement Leave Reserve, Rest Giver etc shall be governed by extant rules.

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30/9/19
JD/MPP

4. Coach Maintenance – Electrical : Maintenance & escorting staff for AC coaches as well as maintenance staff for TL coaches.

Revised yardstick for Coaching stock (Electrical) for maintenance for AC coaches, TL coaches, power cars, escorting staff & train passing staff in the Coaching depot is as under :

Activity	Revised yardsticks
(a) TL COACHES:	
(a) Primary maintenance: SG TL/LHB TL coaches	0.24 staff per coach holding for primary maintenance (ICF).
(b) **Secondary maintenance:** SG TL/LHB TL coaches	0.15 staff per coach handled for secondary maintenance.
(c) **Train passing** for TL/AC coaches	0.05 staff per coach holding
(d) **Sick line attention**	0.05 per coach holding.
(ii) AC COACHES:	
(a) Primary maintenance :	
ICF & LHB SGAC coach with RMPU	1.10 staff/coach holding for primary maintenance
ICF & LHB EOG AC coach with RMPU	0.8 staff/coach holding for primary maintenance
(b) Secondary maintenance:	
ICF & LHB SGAC coach with RMPU	0.46 staff/coach holding for Secondary maintenance
ICF & LHB EOG AC coach with RMPU	0.36 staff/coach holding for Secondary maintenance
(c) Sick line attention	0.20 staff per coach

5. Coach Maintenance – Mechanical

Primary Maintenance	ICF/LHB STOCK	0.85/Coach (ICF&LHB) with Interior amenity attention to be outsourced
Terminal attention under RPC-4	ICF/LHB STOCK	0.3 Man/Coach
PF return trains nominated for Rolling in Examination + Clean Train Station etc.	ICF/LHB STOCK	0.2 Man/Coach
Sick Line		0.12 Man /Coach
Inspection Carriages	Per IC holding	1.76 Man/IC holding
Staff training (Requirement of trainer)		As per training norms
• **ART & Accident relief ,** • **Mill Wright,** • **Welfare measure,** • **Ancillary staff**		• Existing norms for ART & Accident relief • Balance activities to be on need basis.
Linen Management	Per AC coach holding	0.18/AC Coach holding* * Zonal Railways to consider outsourcing this activity.

Note:

1. Leave reserve & rest givers may be provided as applicable in addition to above yardstick.
2. The norm does not cover Ministerial staff and Divisional Control staff.

Activities to be outsourced:

1. All coach cleaning and watering activities including en-route watering (Already identified for outsourcing).
2. Coach amenity attention including carpentry, welding, trimming, plumbing/pipe fitting and provision of items like window glass, mirror, bottle holder, snack table, taps and faucet etc.
3. Attention to fire extinguishers (Already outsourced).
4. Linen washing and distribution (Already outsourced on most of the depots).
5. New amenity/security activities like PA/PIS, CCTV & infotainment etc.

32/9/19
JD/MPP

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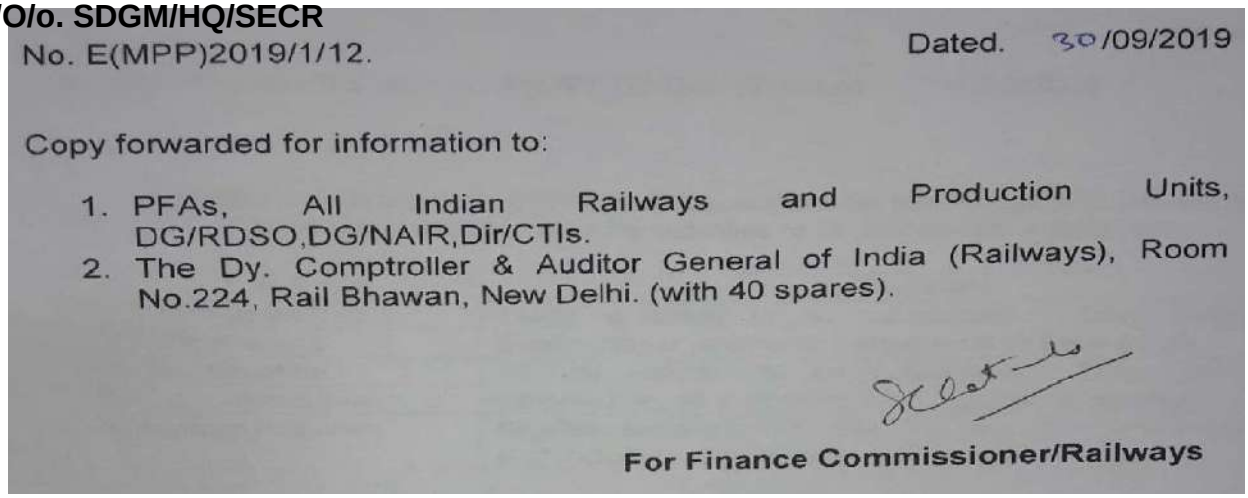

No. E(MPP)2019/1/12. Dated. 30/09/2019

Copy forwarded for information to:

1. PFAs, All Indian Railways and Production Units, DG/RDSO,DG/NAIR,Dir/CTIs.
2. The Dy. Comptroller & Auditor General of India (Railways), Room No.224, Rail Bhawan, New Delhi. (with 40 spares).

For Finance Commissioner/Railways

The yardstick for TRD activities of Electrical department for Non-Suburban Area is fixed as 0.22/Track Kilometer with the following activities to be additionally outsourced.

Activity	Remarks
OHE non Power Block	These activities to be outsourced. Only minimum Supervisory agency and related work to be in house.
OHE other work	
PSI Maintenance	All PSI activities to be outsourced. Only minimum Supervisory and supporting staff required to monitor.
PSI Operation & manning	
Centralized activity	Activities excluding TPC manning, drawing and technical staff including clerical staff and Helpers at home.

3.2 As per Railway Board's guidelines, total 18 activities of OHE (ref. Para-2.11.1), 14 activities of PSI(ref. Para-2.11.2), 02 activities of RC/SCADA(ref. Para-2.11.3) , 03 activities of T/Car (ref. Para-2.11.4), 02 activities of Crane/Road vehicle(ref. Para-2.11.5) and 04 Power Block related activities(ref. Para-2.11.6) for rehabilitation/maintenance of TRD equipments should be proposed for outsourcing.

Presently in Raipur Division, only following TRD activities are under outsourced.

1. AMC of T/Car and T/Wagan
2. AMC of SCADA.

Remaining activities which are not outsourced should start process for inviting tender for outsourcing.

3.3 **PSI Activities**:- PSI HQ is at Raipur which has two sub-units; one is at Bhilai and other one is at Bhatapara. They ensure maintenance of traction power supply installations including Sub-Stations, Switching Stations, Auxiliary Transformers, Lightening Arresters, relays etc in his jurisdiction i.e. Ex- BSP (Excluding) to DUG (Including).

Existing PSI staffs deployed in Raipur Division is as follows:-

Category	**Raipur**	**Bhatapara**	**Bhilai**
Supervisors	02	00	01
Ministerial	01	00	00
Technicians	10	09	08
Asst. TRD	12	02	03
Total	**25**	**11**	**12**

Hence total PSI staff in Raipur Division is = 25+11+12=48.

As per Rly. Board's letter No. Ref. Para 3.1, all PSI activities should be outsourced. Only minimum Supervisory and supporting staff required to monitor.

3.4 **Requirement of Manpower in TRD Raipur**: - Requirement of Manpower at TRD Raipur can be assessed as follows.

a. **Implementation of revised yardstick. (**Reduction of Workload after implementation of outsourcing w.r.t. existing workload)

As per Rly. Board's letter No.E(MPP)2019/1/12 dated 30.09.2019, the revised yardstick for TRD activity of Electrical department for non-Suburban area is fixed as 0.22/Track Kilometer.

TRD organization in Raipur Division has following ETKM distributions.

Description	SECTION	TOTAL TKM
Main Line & Yard	BSP –DUG & RVH-LAE	725.175
Sidings	VIIPL(VIMALA)/MDH	0.859
	RICPL/MDH	1.607
	NACAST/MDH	5.75
	SEML/MDH	3.771
	CENTURY CEMENT/BKTH	5.00
	SBPIL	5.168
	SKS ISPAT & POWER LTD RSD/WRS	0.81
	RSD Line No.3	1.05
	MCBIPL Pvt Siding at DPH	3.282
	CCFL (CHIDAMBARA)/KMI	1.053
	GMR Siding	19.657
	LAFARGE/NPI	28.515
	ACEL/BYT	32.86
	RH /HN	6.00
	ULTRA TECH & GRASIM/HN	58.618
	HIRRI /DPH	2.227
	NOVA/DGS	0.280
	NSPCL/BIA	4.541
	Jamul Cement Works/BIA	8.752
	GPIL	1.556
Total Siding TKM		**196.825**
Total Electrified TKM		**922**

Manpower requirement for TRD organization after implementation of outsourcing is 0.22/TKM as per revised Yard stick.
Hence, total Manpower requirement for TRD organization of Raipur Division after implementation of outsourcing comes to = 0.22 x 922 = 203 out of total sanction of 233.

Therefore, total Manpower to be reduced and found surplus =233-203 =30.

b. **Eliminating the activity of Vehicle Drivers**:- There are 05 Vehicle Driver deployed in Raipur Division under TRD department against total sanction of 05.

As per Railway Board's D.O. L. No. E(MPP)2006/1/89, dated 04.10.2006 regarding vehicle drivers and vehicle maintenance staff "to be taken as diminishing category and activity to be outsourced."

Hence, the Work Study team proposed to redeploy the existing category of Vehicle Drivers in suitable category as per need of administration after implementation of outsourcing and thus 05 post of Vehicle Drivers are found surplus and should be surrendered. It is noted that this posts are included in defined 30 surplus posts.

3.5 120Km Electrification works between MXA-DRZ over Raipur Division is under progress and tentative target date for completion is 31.10.2020. It includes 02 nos OHE depots, 01 no PSI depot, 02 nos TSS and 06 nos switching station.

However, as per Railway Board's letter No. E(MPP)2012/1/10 dated 04.09.2012, GMs are empowered to create non-gazetted posts chargeable to revenue only for new assets and new organizations, with matching surrender and in consultation with their FA&CAOs.

3.6 RECOMMENDATIONS & SUGGESTIONS:

RECOMMENDATIONS:

Assessment of requirement of staff Strength of TRD units of Electrical (TRD) department over Raipur Division which are as under:

3.6.1 Considering the existing work load, it is recommended that as per details given in Para 3.1 to 3.5, the requirement of total cadre under TRD units in Raipur Division comes to 203 against sanction of 233 staff. Thus 30 identified surplus (17vacant) posts of TRD Asst./ Gen. Asst./Technicians/Vehicle Drivers should be surrendered from TRD Department of Raipur Division after implementation of outsourcing as follows:-

1st Phase:- 05 post of Vehicle Drivers are found surplus and should be surrendered from Electrical TRD department of Raipur division and surrender Memorandum may be issued by Sr. DPO/R accordingly.

2nd Phase:- Balance 25 post of TRD Asst./ Gen. Asst./Technicians should be surrendered from TRD Department of Raipur Division after implementation of outsourcing and surrender Memorandum may be issued by Sr. DPO/R accordingly.

3.6.2 The money value resulting after surrendering of surplus posts of TRD staffs can be utilised for further creation of posts of Electrical TRD department as per need.

3.6.3 The vacant post of SSE/JE in Supervisors category should be filled up for better monitoring of contractual and departmental work of Electrical TRD.

3.6.4 OHE non-Power Block work and OHE other activities may be outsourced by the Division as per RDSO guidelines. (Ref. Para 2.11.1 and 2.11.6). Only minimum Supervisory and Supporting staffs are required to monitor.

3.6.5 All PSI activities to be outsourced by the Division as per RDSO guidelines. (Ref. Para 2.11.2). Only minimum Supervisory and Supporting staffs are required to monitor.

3.6.6 Remote Control/SCADA activities may be outsourced as per RDSO guidelines.

3.6.7 Road vehicle and Crane activities may be outsourced as per RDSO guidelines.

Suggestions:

3.6.8 Power Block is very crucial issue for maintenance of tracks; it was informed that due to lack of coordination between departments It is very tough task to get the block approved. Coordination between departments needs to be increased for blocks as and when required.

3.6.9 OHE and PSI both are most vital part of TRD organization. The outsourcing staffs should be properly trained for operation/handle of high voltage (HV) and extra high voltage (EHV) equipments. For safe, secure and smooth operation of TSS, PSI operators should be present at TSS in all shifts and train the staffs under outsourcing agent upto optimum satisfaction.

3.6.10 For each Switching Stations like Traction Substation(TSS), Sectioning and paralleling posts (SP) and Sub Sectioning and paralleling posts (SSP), Supporting Staff should be deployed at convenient station to assist the outsourcing staff, to monitor the activities and meet the emergency like 132 KV incoming Supply failure, mechanical failure of equipments, relay and other RC failures, DO barrel fallen in section, SCADA failure at posts etc.

CHAPTER-IV

4.0 FINANCIAL EVALUATION & RESULTS:-

Savings due to surrender of 30 identified surplus posts:-

Designation	Pay Scale	Level	No. of Post to be surrendered	Mean pay	Cost per Month per staff (Mean Basic pay+ D.A. @ 17%)	Total cost per month (in ₹)	Total cost per year (in)
MVD-I	29200-92300	L-5	01	60750	71078	71078	**852936**
MVD-II	25500-81100	L-4	03	53300	62361	187083	**2244996**
MVD-III	19900-63200	L-2	01	41550	48614	48614	**583368**
Tech-III	19900-63200	L-2	13	41550	48614	631982	**7583784**
TRD Assistant	18000-56900	L-1	12	37450	43817	525804	**6309648**
Total			30			1464561	**17574732**

Hence, total recurring savings to the tune of 17574732 say **176 Lakhs** can be achieved due to surrender of **30 surplus** posts (05 MVD, 13 Tech & 12 TRD Assistant) from Electrical TRD department of Raipur division and surrender Memorandum may be issued by Sr. DPO/R/SECR accordingly.

-x-x-x-x-