OPTIMIZATION & INCREASING EFFICIENCY

OF

STAFF WORKING AT RDIs

OVER

JAIPUR DIVISION

(G/HQ/WS/463/03/RDI/Mech./JP/2019-20)

GUIDED BY

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	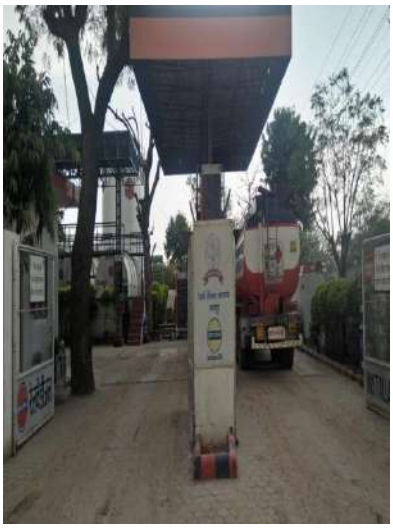	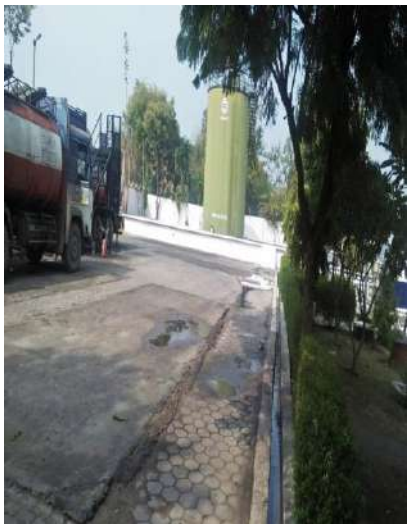
RDI, FL	RDI, JP	RDI, RE

WORK STUDY ORGANIZATION

NORTH WESTERN RAILWAY

JAIPUR

EXECUTIVE SUMMARY

S. No.	03			
Study No.	G/HQ/WS/463/03/RDI/Mech./JP/2019-20			
Subject	Optimization & Increasing Efficiency of Staff working in Railway Diesel installation over Jaipur Division.			
Area	Railway Diesel installation over Jaipur division.			
Division	Jaipur			
Department	Mechanical			
Terms of Reference	Assessment of Man Power requirement			
Present Cadre	**Jaipur**	**Phulera**	**Rewari**	**Total**
	17	15	21	**53**
Proposed Cadre	14	15	21	**50**
Projected Surplus Man Power	**3**	**0**	**0**	**3**
Total No. of Recommendations	06			
Financial Implication	Rs.15.77 Lac per annum.			
Month of Circulation	June' 2020			

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CHAPTER 1	INTRODUCTION

Indian Railway is the biggest transport organization in India and playing an important role in the development and economy of the country. Along with the Commercial activities, the Railways have to fulfill the social obligations also, especially in the time of natural calamity and towards the weaker sections of the society. For the healthy existence of such an important organization it is necessary to be financially viable, which can be achieved by ensuring optimum utilization of the resources i.e. Man, Material and Machinery.

With the implementation of 7th pay commission, **the establishment charges have gone up drastically and hence manpower has become an important factor in bringing economy in the system**. In order to check the cost of manpower, the Railway administration issues guidelines from time to time, in the form of **yardsticks, circulars etc. Now-a-days, benchmarking is being utilized to ensure best utilization of manpower. Benchmarking is a continuous process of comparing different units and identifying which one is the best in the business, followed by learning how this excellence was achieved** and then setting out to improve the efficiency of those units, which were left behind. The optimum utilization may further be ensured by **multi skilled use of man power**. With the introduction of **computers in the offices, paper activities has been reduced considerably** resulting in further **possibilities of diminution in manpower has become mandatory** due to lesser manual exercise in all the offices over entire railways.

Productivity has acquired a new and broader meaning in the light of highly competitive economic environment, increasing educational levels, degradation of physical environment and increasing population, creating pressure on the limited available resources.

All efforts should be made to ensure that the revenue is spent carefully over assets, infrastructure and manpower. In other words, Railway administration should curtail wasteful expenditure in operational and maintenance costs so as to bring down the operating ratio which is the prime indicator of Railway's financial efficiency.

Keeping in view of the above mentioned factors, SDGM/NWR has approved the Work Study – "Optimization & Increasing Efficiency of Staff working at RDIs over Jaipur division."

CHAPTER 2	ACKNOWLEDGEMENT

2.1 Coordinating Officials of the department:

The Study Team expresses its sincere thanks and gratitude to Sh. Man Mohan Meena, Sr.DME (EnHM & Fr.)/JP, and Co-ordinator Sh.- Surendra Sharma, CLI/Div. HQ/JP and also thankful to divisional staff for co-operation during the course of study.

2.2 Terms of Reference:

This study has been conducted under the following terms of reference:-

i) Review of staff vis-a-vis workload on existing working conditions.

ii) Suggesting the ways and means for improving the system economically and efficiently.

2.3 Methodology Adopted:

The following techniques of method study as well as work measurement have been applied to conduct the study:-

i) Data collection and its critical analysis to arrive on factual status of present working.

ii) Analyzing effect of introduction of improved technology in work process.

iii) Holding discussions at various levels with a view to produce fruitful results.

iv) Sample checks and spot observations.

2.4 Field units visited:

Work study team has visited at Mechanical & Personnel Branch of DRM office, Jaipur and RDIs of Jaipur, Phlura, and Rewari.

Salient features of JPO between NWR and M/s. BPCL for receipt, stocking and issue of HSD oil in new RDI at UP side Jaipur, on the concept of TFM:

GOVERNMENT OF INDIA
MINISTRY OF RAILWAYS
(RAILWAY BOARD)

54

New Delhi, 28.10.2016

No. 2015/Fuel/282/15 Pt.

The General Manager,
North Western Railway,
Jaipur.

Sub: Joint Procedure Order (JPO) between NWR and M/s. BPCL for receipt, stocking and issue of HSD oil in new RDI at UP SIDE Jaipur, on the concept of Total Fuel Management (TFM).

Ref: NWR's file no. NWR/HQ/MECH/FUEL/7 New RDI Vol. VIII dated 24.05.2016

M/s BPCL has proposed to set up a new 290 KL RDI at UP side Jaipur on the concept of Total Fuel Management (TFM). A JPO between NWR and M/s. BPCL had been prepared for receiving, stocking and issue of HSD in new RDI at Jaipur and M/s BPCL has also accepted it. The JPO was submitted to Railway Board for approval.

The proposed JPO submitted by NWR has been examined in consultation with Board's finance. Discussions were also held with concerned officials of NWR. The JPO has been approved by Board (MTR) with slight modifications. Revised JPO is enclosed herewith for implementation.

NWR is advised to take necessary action accordingly and send progress of implementation of TFM/ JPO regularly to Railway Board.

DA: As above (6 pages)

(Vivek Kumar)
Exe. Dir. Mech. Engg. (Tr.)
Railway Board

No. 2015/Fuel/282/15 Pt.

New Delhi, dt.28.10.2016

Copy to: FA & CAOs, All Indian Railways.

For Financial Commissioner, Railways

No. 2015/Fuel/282/15 Pt.

New Delhi, dt.28.10.2016

Copy to:

(i). The General Managers, All Indian Railways (Except NWR): On successful implementation on NWR, the JPO may be replicated in entire IR. Suggestions for improvement may also be sent by Zonal Railways to Railway Board.

(ii). M/s.BPCL/Mumbai, M/s.IOCL/Mumbai, M/s. HPCL/Mumbai, M/s. MRPL/ Bengaluru, M/s. RIL/Mumbai, M/s. Essar Oil Ltd./ Mumbai.

(iii). EDRS(C), Railway Board.

(Vivek Kumar)
Exec. Dir. Mech. Engg. (Tr.)
Railway Board

(14) 23

Salient features of up side RDI at JP station commissioned by M/S BPCL on Total Fuel management concept

1. M/S BPCL has commissioned complete set up of RDI with 200 KL (2x100 under ground tanks) capacity. Total project cost ₹ 2.0 crores (Approx). The work was started by M/S BPCL in July 2016. Testing of yard pipe line and tankage done in June 2017. Trial fueling was started in August 2017. The RDI was formally opened by CRB/NDLS on 23.12.17. The functioning of RDI is being governed by JPO issued by Rly Board vide letter no. 2015/Fuel/282/15 Pt dt. 24.10.2016.

2. Land and electric connection are provided by Railways.

3. Explosive license from PESO is obtained by M/S BPCL with their own name.

   Fire fighting equipments are provided by M/S BPCL, their upkeep, refilling and testing as per prescribed interval will also be arranged by M/s BPCL.

5. Provisions of earthing of electric equipments, pannel etc and their up keep is arranged by M/s BPCL.

   M/s BPCL will up keep and operate the RDI through third party operator and all operational activities of the RDI to receipt and deliver fuel to locomotive round the clock will be taken care by them. With this saving in terms of Man power and monetarily will be achieved by Railway as under:-

   Ministerial staff :- (GP 2400, Level-4)
   Fuel Clerks 3+1 LR/RG= 4
   Saving in terms of money 4 X 57,031 = 2,28,124/- (@ ₹ 57031/- per month)
   Technical Staff :- (GP 2400, Level-4)
   Statical pump operators 3+1 LR/RG= 4
   Saving in terms of money (@ ₹ 57031 per month) = 4 X 57031 = 2,28,124/-
   Unskilled (MPK) :- (GP 1800, Level 1)
   3+1 LR/RG= 4
   Saving in terms of money 4 X 40071 =1,60,284/- (@ ₹ 40071 per month)
   Total saving per month = ₹ 6,16,532/-
   Saving per annum = ₹ 73,98,384/-

7. The inventory and handling losses of HSD oil will be born M/S BPCL. M/S BPCL will maintain adequate stock level at all the time.
   As per present guidelines of Rly Board and NWR HQ inventory of HSD oil equal to 5 days consumption is to be maintained all the time. The present issue of HSD oil in up side is 75 KL per day as such the inventory of 5X75 = 375 KL is mandatory to maintain.
   Therefore the one time cost saving of 375 X 70372 = ₹ 2.63 Crores (@ ₹ 70372/- per KL)
   Saving on account of handling loss:-
   HSD oil issued per day = 75 KL
   HSD oil issued per annum = 75 X 365 = 27375 KL
   Handling loss of HSD oil (considering equal to a moderate quantity 0.05% of cumulative issue against permissible limit of 01 % as per Rly Board JPO) = 13.6 KL
   Savings achieved by Railway = 13.6 X 70372 = ₹ 9.57 Lakhs per annum.

Total saving to Railway :-

(A) Per annum :-

(i) On account of man power =₹ 73.98

(ii) On account of handling loss = ₹ 9.57

Total 73.98 + 9.57 = ₹ 83.5 Lakhs

(B) One time saving on account of Inventory = ₹ 2.63 Crores

Ownership of the product shall change hands from BPCL to NWR at point of delivery of HSD in locomotive.

The quality of HSD oil will be ensured by Railway representative through conducting all prescribed tests in lab on arrival of tank lorries at RDI.

The issues will be accounted as per the flow meter at the delivery end which will be verified by Railway representative i.e. Loco Pilot and on duty crew controller for each delivery made. All the delivery will be made through the electronic digital type flow meter calibrated by legal metrology department of state govt. Only flow meter readings will be taken for the purpose of accounting of the issues.

M/S BPCL to provide full automation which facilitate online real time monitoring of dip level/density of oil in tanks, reports giving details of fuelling transactions, on line availability of fuelling activity log for fuelling in locomotive, on line availability of the delivery made to each locomotive accessible to Railway officials. The fuelling details will also be available on line visible to loco pilot through hand held tab. After completion of fuelling, a slip containing all the relevant details i.e. loco no., home shed, name & I.D. no of LP initial and closing reading of flow meter, starting and completion time of fuelling total quantity issued etc, will be generated through printer machine wirelessly connected with tab. LP will be give acknowledgement with sign on slip. This will be done through a dedicated internet connection of Rail tale through satellite and optical fiber cable. All time availability of internet will be ensured by M/S BPCL.

Payment of HSD oil will be made on the basis of received invoice generated on the total delivery on daily basis. The invoice quantity will jointly certified by Railway and BPCL representative.

CHAPTER 4	CADRE POSITION, DUTY & DEPLOYMENT

4.1 Cadre Position of RDI, Jaipur:

Designation	Pay-Scale	GP	SS	OR	Vac.
Sr. Tech. (RDI)	35400-112400	L-6	2	2	0
Tech.-I (RDI)	29200-92300	L-5	1	0	1
Tech.-II (RDI)	25500-81100	L-4	1	0	1
Tech.-III (RDI)	19900-63200	L-2	0	2	-3
MPK (Misc.)	18000-56900	L-1	13	13	1
Jr. Clerk	19900-63200	L-2	0	1	-1
Total			**17**	**18**	**-1**

4.2 Cadre position of RDI, Phulera:

Designation	Pay-Scale	GP	SS	OR	Vac.
Sr. Tech. (RDI)	35400-112400	L-6	1	1	0
Tech.-I (RDI)	29200-92300	L-5	4	3	1
Tech.-II (RDI)	25500-81100	L-4	0	0	0
Tech.-III (RDI)	19900-63200	L-2	1	2	-1
MPK (Misc.)	18000-56900	L-1	9	13	-4
Tech-II (DSL)	25500-81100	L-4	0	2	-2
Total			**15**	**21**	**-6**

4.3 Cadre position of RDI, Rewari:

Designation	Pay-Scale	GP	SS	OR	Vac.
Sr. Tech. (RDI)	35400-112400	L-6	2	1	1
Tech.-I (RDI)	29200-92300	L-5	4	1	3
Tech.-II (RDI)	25500-81100	L-4	0	4	-4
Tech.-III (RDI)	19900-63200	L-2	2	1	1
MPK (Misc.)/(RR)/RRB	18000-56900	L-1	13	6	7
Total			**21**	**13**	**8**

4.4 Cadre position of RDIs over JP division:

Sr.No.	RDI	SS	OR	Vac.
1.	Jaipur	17	18	-1
2.	Phulera	15	21	-6
3.	Rewari	21	13	8
	Total	**53**	**52**	**1**

4.2.0 Duties & Deployment of RDIs Staff over Jaipur division:

4.2.1	**RDI, Jaipur:**		
Sr. No.	**Deployed of staff**	**Duties of Staff**	**No. of staff**
1.	**SSE/Loco=01:** 01 SSE/Loco is deputed for supervision of RR, RDI and troubleshooting staff of locos in General shift duty from 09.00 to 17.00 hrs.		
2.	**CLI=01:** 01 CLI is deputed at RDI Jaipur in General shift duty from 09.00 to 17.00 hrs. He is performing following duties: 1. Supervision of RDI staff. 2. Doing correspondence related to RDI. 3. To verified and accountal of HSD oil. 4. Decanting of road tankers. 5. Inspection of RDI and fuel points.		
3.	**CMT=01:** 01 CMT is deputed at RDI Jaipur in General shift duty from 09.00 to 17.00 hrs. He is doing work lab testing of HSD fuel oil in both RDIs at Jaipur.		
4.	**Sr. Tech.=02 & Tech.-III=02 :** (Shift 08.16 to 16.00, 16.00 to 24.00 & 00.00 to 08.00 hrs) 01 staff is performing duty in pump room in each shift (i.e. 1x3=3 round the clock and 01staff is utilized as LR/RG.	1. To operate motors & valves in pump room for supplying the fuel in yard and storage tanks. 2. To maintain record of fuel issuing from pump room.	4
5.	**MPK=08:** (Shift 08.16 to 16.00, 16.00 to 24.00 & 00.00 to 08.00 hrs) 02 staff are performing duty in yard in each shift (i.e. 2x3=6 round the clock and 02 staff are utilized as LR/RG.	These staff working as fuel issuer in yard. They are maintained records of HSD oil which issued to Locomotives in yard at Gandhi Nagar Ends	8
6.	**MPKh=01:** (Shift 09.00 to 17.00 hrs.) 01 staff is performing duty at RDI as assisting decanting of road trucks and other official works.	To help in Road tanker decanting and doing work of dak received & dispatch.	1
7.	**MPKh (Misc.)=04:** (Shift 09.00 to 17.00 hrs.) 04 staff are performing duties at Lobby & other locations.	01 staff deployed at Lobby office, 01 staff is deployed at SSE/ Loco office & 02 staff are deployed at CPCR office at DRM office.	4
8.	**Jr. Clerk=01:** (In roster duty)	He is performing duty to maintain record of HSD oil in yard.	1
Total			**18**

4.2.1	**RDI, Phulera:**		
Sr. No.	**Deployed of staff**	**Duties of Staff**	**No. of staff**
1.	**CLI=01:** 01 CLI is deputed at RDI Phulera in General shift duty from 09.00 to 17.00 hrs. He is for forming following duties: 1. Supervision of RDI & Running Room staff. 2. Doing correspondence related to RDI. 3. To verified and accountal of HSD oil. 4. Decanting of road tankers. 5. Inspection of RDI and fuel points.		
2.	**Sr. Tech.=01,Tech.-I=03 & Tech.-III=01 :** (Shift 08.16 to 16.00, 16.00 to 24.00 & 00.00 to 08.00 hrs) 1. 01 staff is performing duty in pump room in each shift (i.e. 1x3=3 round the clock. 01 staff utilized for LR/RG. 2. 01 staff is used as decanting of fuel tankers to fuel storage tanks.	1. To operate motors & valves in pump room for supplying the fuel in yard and storage tanks. 2. To maintain record of fuel issuing from pump room. 3. To issue fuel to locomotive in yard.	*5*
3.	**Tech-III=01, Tech.-II (DSL)=02 & MPK (Misc.)/(RR)=13:** (Shift 08.16 to 16.00, 16.00 to 24.00 & 00.00 to 08.00 hrs) 04 staff are performing duty in yard in each shift on both side (i.e. 4x3=12 round the clock and 04 staff are utilized as LR/RG.	1. These staff working as fuel issuer in yard. They are maintained records of HSD oil which issued to Locomotives in yard at both ends.	16
Total			**21**

4.2.1	**RDI, Rewari:**		
Sr. No.	**Deployed of staff**	**Duties of Staff**	**No. of staff**
1.	**CLI=01:** 01 CLI is deputed at RDI Jaipur in General shift duty from 09.00 to 17.00 hrs. He is performing following duties: 1. Supervision of RDI & Running Room staff. 2. Doing correspondence related to RDI. 3. To verified and accountal of HSD oil. 4. Decanting of road tankers. 5. Inspection of RDI and fuel points.		
2.	**Sr. Tech.=01:** 01 MCM is deputed at RDI RE in General shift duty from 08.00 to 17.00 hrs.	This staff is working at RDI and yard for manage the duties of staff.	1
3.	**Tech.-II=04 & Tech.-III=01, MPK (Misc.)=02, RRB=02 & MPK(RR)=01, MPK (TS)=02:** (Shifts- 08.16 to 16.00, 16.00 to 24.00 & 00.00 to 08.00 hrs) These staff are performing duty in yard in each shift round the clock at both UP & DN sides .	These staff are working as SPA and fuel issuer in yard. They are maintained records of HSD oil which issued to Locomotives in yard at both ends of Rewari Railway station and They are also doing work of dak received & dispatch and other office work in lobby.	12
Total			**13**

CHAPTER 5	FUEL STATISTICS OF RDIS OVER NWR

5.1 Fuel statistics of RDIs over Jaipur division:

Detail monthly position of HSD oil issued to Locos at RDIs over Jaipur division from December 2018 to November 2019 at RDI Phulera & Rewari and April 2018 to March 2019 at RDI, Jaipur. To calculate of issued quantity of fuel to locos per day.

5.1.1 Month-wise position of fuel issued with locos of FL RDI:

Sr. No.	Month	Mail/Exp.& Passengers Trains		Goods Trains		Total	
		No. of Loco	Fuel Issued	No. of Loco	Fuel Issued	No. of Loco	Fuel Issued
1.	Dec.18	212	394100	1633	4265300	1845	4670250
2.	Jan.19	260	445000	1630	4238300	1890	4707550
3.	Feb.19	223	398800	1480	3894900	1703	4305540
4.	Mar.19	217	387500	1718	4495500	1935	4896600
5.	Apr.19	212	370200	1599	4292800	1811	4669550
6.	May19	206	355100	1599	4197600	1805	4559200
7.	Jun.19	189	328600	1584	4208600	1777	4539800
8.	Jul.19	179	286500	1687	4515600	1869	4804100
9.	Aug.19	268	395200	1689	4472400	1963	4871300
10.	Sep.19	162	256800	1681	4457100	1856	4734750
11.	Oct.19	172	291800	1668	4302000	1852	4609700
12.	Nov.19	189	300100	1541	4148700	1741	4462050
Total		**2489**	**4209700**	**19509**	**51488800**	**22047**	**55830390**

5.1.2 Month-wise position of fuel issued with locos of JP RDI:

Sr. No.	Months	Mail/Exp. & Passenger Trains		Goods Trains		Total	
		No. of Loco	Fuel Issued	No. of Loco	Fuel Issued	No. of Loco	Fuel Issued
1.	Apr.18	1080	2149000	41	110600	1121	2338400
2.	May18	1097	2139000	60	144700	1157	2350200
3.	Jun.18	1140	2165400	66	152500	1206	2396200
4.	Jul.18	1049	2003500	53	143600	1102	2211160
5.	Aug.18	1063	2000600	39	115400	1102	2176600
6.	Sep.18	1064	2147234	33	98600	1097	2315034
7.	Oct.18	1162	2345300	41	118700	1203	2533550
8.	Nov.18	1102	2233500	34	96900	1136	2393925
9.	Dec.18	1135	2200500	52	163100	1187	2413200
10.	Jan.19	1087	2086450	40	116500	1127	2250050
11.	Feb.19	970	1845200	39	107600	1009	2005100
12.	Mar.19	1089	2127700	29	80900	1118	2264960
Total		**13038**	**25443384**	**527**	**1449100**	**13565**	**27648379 ***
***755895 Litres HSD fuel oil has been issued to other than Chg & Freight stocks.**							

5.1.3 Month-wise position of fuel issued with locos of RE RDI:

Sr. No.	Months	Mail/Exp. & Passengers trains		Goods Trains		Total	
		No. of Loco	Fuel Issued	No. of Loco	Fuel Issued	No. of Loco	Fuel Issued
1.	Dec.18	530	782800	1174	1651700	1704	2434500
2.	Jan.19	530	763300	1173	1512300	1703	2277600
3.	Feb.19	494	707600	1113	1424300	1607	2131900
4.	Mar.19	562	799200	1196	1540300	1758	2339500
5.	Apr.19	513	729400	1065	1419000	1578	2153100
6.	May19	565	832600	1168	1700900	1733	2533500
7.	Jun.19	498	719900	1146	1632600	1644	2352500
8.	Jul.19	515	618400	1117	1646800	1632	2419200
9.	Aug.19	509	812100	1083	1608600	1592	2420700
10.	Sep.19	473	729000	1041	1685000	1514	2414000
11.	Oct.19	465	719300	1076	1658600	1541	2377900
12.	Nov.19	450	659500	1068	1653100	1518	2312600
Total		**6104**	**8873100**	**13420**	**19133200**	**19524**	**28167000**

5.2.0 Fuel issued position in RDI over Jaipur division:

Shift-wise position of HSD oil issued to Locos in yards over Jaipur division. To calculate total quantity of fuel after issued to locos and frequency of locos at both ends per day.

5.2.1 Shift-wise Position of Fuel issued at RDI, Phulera:

5.2.1.1 DN Side in Shift 08.00 to 16.00:

Sr. No.	Engine No.	Name of Shed	Balance fuel in Loco's Tank	Qty. of fuel issued	Total	Reporting Time of Loco
1.	12442	BGKT	4150	1400	5550	08.10
2.	12556	BGKT	3250	2200	5450	08.22
3.	14775	SPJ	2950	2500	5450	9.18
4.	49019	ROJA	2200	3300	5500	10.18
5.	14829	LDH	3400	2100	5500	10.40
6.	12347	SBI	2550	2900	5450	12.07
7.	13515	RTM	3200	2300	5500	12.44
8.	70775	TKD	2600	3000	5600	12.58
9.	49144	ROJA	4150	1400	5550	13.07
10.	12840	SBI	1700	3800	5500	14.08
11.	70108	SBI	3050	2500	5550	14.15
12.	12174	SGUJ	1700	3800	5500	14.30
13.	13275	RTM	4600	0900	5500	14.36
14.	12973	JHS	2150	3400	5550	15.56
Total			**41650**	**35500**	**77150**	**168.69**

5.2.1.2 UP Side in Shift 08.00 to 16.00:

Sr. No.	Engine No.	Name of Shed	Balance fuel in Loco's Tank	Qty. of fuel issued	Total	Reporting Time of Loco
1.	49151	ROZA	2550	3200	5750	9.26
2.	16454	JHS	2700	3000	5700	10.14
3.	13065	JHS	3000	2900	5900	10.54
4.	12250	SBI	2050	3700	5750	10.59
5.	14016	ABR	3600	1100	4700	11.08
6.	12558	SBI	3200	2500	5700	14.09
7.	12672	BGKT	2200	3500	5700	15.12
Total			**19300**	**19900**	**39200**	**80.82**

5.2.1.3 DN Side in Shift 16.00 to 24.00:

Sr. No.	Engine No.	Name of Shed	Balance fuel in Loco's Tank	Qty. of fuel issued	Total	Reporting Time of Loco
1.	12927	BGKT	2950	2500	5450	16.06
2.	49048	ROJA	2950	2500	5450	18.29
3.	12732	BGKT	3000	2500	5500	18.40
4.	12269	BGKT	2100	3400	5500	20.14
5.	14050	ABR	2900	1700	4600	20.36
6.	14731	LDH	2600	2900	5500	21.20
7.	12229	SBI	3200	2300	5500	22.07
8.	70701	ABR	2750	2700	5450	23.22
9.	12247	SBI	2700	2800	5500	23.33
Total			**25150**	**23300**	**48450**	**183.07**

5.2.1.4 UP Side in Shift 16.00 to 24.00:

Sr. No.	Engine No.	Name of Shed	Balance fuel in Loco's Tank	Qty. of fuel issued	Total	Reporting Time of Loco
1.	16434	ABR	2500	2100	**4600/4550**	16.12
2.	70618	LDH	4150	1600	**5750/5600**	17.07
3.	12231	SBI	4400	1300	**5700/5600**	17.25
4.	70872	TKD	4550	1200	5750	18.10
5.	49160	ROZA	2700	3000	5700	18.30
6.	12442	BGKT	4800	0800	5600	18.42
7.	49014	ROZA	3700	2000	5700	19.51
8.	12656	BGKT	2150	3600	5750	20.10
9.	40586	TKD	2700	1000	3700	20.24
10.	18908	Tower Wagon	-	0700	700	20.45
11.	13103	SPJ	2400	3300	**5700/5600**	21.05
12.	16833	VTA	3200	1000	4200	21.20
13.	70869	TKD	3600	2100	5700	22.08
14.	13613	SPJ	2950	2800	5750	22.40
15.	13165	SPJ	1550	4200	5750	23.00
16.	12731	BGKT	2100	3600	5700	23.26
17.	11158	JHS	3600	1100	4700	23.43
18.	16366	JHS	3500	1200	4700	23.54
Total			**54550**	**36600**	**91150/90850**	**365.52**

5.2.1.5 DN Side in Shift 00.00 to 08.00:

Sr. No.	Engine No.	Name of Shed	Balance fuel in Loco's Tank	Qty. of fuel issued	Total	Reporting Time of Loco
1.	70612	LDH	2200	3300	5500	00.15
2.	70004	JHS	3200	2300	5500	01.53
3.	12674	BGKT	2400	3100	5500	02.05
4.	181518	Tower Wagon	-	0800	0800	02.38
5.	13657	UDL	2900	2600	5500	02.24
6.	70306	IZN	2400	3100	5500	03.20
7.	70541	DZN	2050	3500	5550	03.36
8.	49041	ROZA	2350	3200	5550	04.35
9.	70638	LKO	3350	2100	5450	06.12
10.	16833	VTA	2900	1100	4000	07.50
Total			**15950**	**25100**	**48850**	**32.88**

5.2.1.6 UP Side in Shift 00.00 to 08.00:

Sr. No.	Engine No.	Name of Shed	Balance fuel in Loco's Tank	Qty. of fuel issued	Total	Reporting Time of Loco
1.	12230	SBI	1800	3800	5600	00.40
2.	40583	BGKT	2750	1300	4050	00.48
3.	16770	ABR	2600	2000	4600	01.37
4.	12271	BGKT	2300	3400	5700	02.07
5.	14551	ABR	3550	2200	5750	02.48
6.	12429	LKO	2200	3500	5700	03.44
7.	49021	ROZA	2100	3600	5700	05.47
8.	12192	BGKT	1900	3800	5700	06.27
9.	49161	ROZA	1750	4000	5750	07.45
Total			**20950**	**27600**	**48550**	**29.43**

5.2.2 Shift-wise Position of Fuel issued at RDI, Rewari:

5.2.2.1 DN side in Shift 08.00 to 16.00:

Sr. No.	Engine No.	Name of Shed	Balance fuel in Loco's Tank	Qty. of fuel issued	Total	Reporting Time of Loco
1.	70189	ABR	2500	2500	5000	10.05
2.	11580	SPJ	4100	1400	5500	10.40
3.	12435	SBI	3950	1000	4950	11.10
4.	13483	RTM	2900	1600	4500	11.10
5.	14962	NKJ	3850	1000	4850	11.30
6.	16198	RTM	2000	2600	4600	14.40
Total			**30650**	**17000**	**47650**	**68.35**

5.2.2.2 UP side in Shift 08.00 to 16.00:

Sr. No.	Engine No.	Name of Shed	Balance fuel in Loco's Tank	Qty. of fuel issued	Total	Reporting Time of Loco
1.	16815	RTM	2950	1600	4550	10.45
2.	16782	LDH	3050	1500	4550	12.00
3.	16276	ABR	2900	1600	4500	13.58
4.	70599	IZN	2450	2200	4650	15.32
Total						**51.35**

5.2.2.3 DN side in Shift 16.00 to 24.00:

Sr. No.	Engine No.	Name of Shed	Balance fuel in Loco's Tank	Qty. of fuel issued	Total	Reporting Time of Loco
1.	70447	SBI	3450	1100	4550	17.13
2.	13595	R	3950	600	4550	17.20
3.	16662	LDH	2900	1600	4500	18.16
4.	12273	SBI	3600	2000	5600	18.50
5.	14165	ET	2900	1600	4500	20.15
6.	16079	ET	3200	1300	4500	20.28
7.	16399	LDH	3400	1100	4500	21.04
8.	49115	ROZA	4000	2000	6000	21.58
9.	16434	ABR	2150	2400	4550	22.35
Total			**41100**	**22300**	**63400**	**176.39**

5.2.2.4 UP side in Shift 16.00 to 24.00:

Sr. No.	Engine No.	Name of Shed	Balance fuel in Loco's Tank	Qty. of fuel issued	Total	Reporting Time of Loco
1.	70818	TKD	2900	1600	4500	16.39
2.	14746	LDH	3550	1500	5050	19.59
3.	49130	ROZA	2500	3500	6000	20.49
4.	12778	SBI	2600	2000	4600	22.21
Total						**78.68**

5.2.2.5 DN side in Shift 00.00 to 08.00:

Sr. No.	Engine No.	Name of Shed	Balance fuel in Loco's Tank	Qty. of fuel issued	Total	Reporting Time of Loco
1.	12208	BGKT	3550	1000	4550	23.50
2.	13527	RTM	3900	1100	5000	00.13
3.	29027	ROZA	4500	1500	6000	00.31
4.	16815	RTM	3400	1200	4600	00.50
5.	16528	ET	3700	800	4500	01.24
6.	18987	ABR	2800	1800	4600	02.48
7.	49045	ROZA	2600	3400	6000	03.04
8.	12627	BGKT	3350	1800	5150	05.29
9.	12215	LKO	3050	1500	4550	05.44
10.	40049	TKD	2550	600	3150	06.14
11.	13452	RTM	2800	2700	5500	07.25
Total			**36200**	**16500**	**53600**	**55.32**

5.2.2.6 UP Side in Shift 00.00 to 08.00:

Sr. No.	Engine No.	Name of Shed	Balance fuel in Loco's Tank	Qty. of fuel issued	Total	Reporting Time of Loco
1.	16276	ABR	3600	1000	4600	23.15
2.	49114	ROZA	1650	3800	5450	23.40
3.	12436	SBI	2750	1800	4550	02.04
4.	16301	LDH	3300	1300	4600	02.19
5.	49014	ROZA	2150	4000	6150	03.52
6.	12262	SBI	3300	1200	4500	04.28
7.	12478	BGKT	3200	1300	4500	04.53
8.	12487	SBI	3000	1600	4600	05.06
9.	16662	LDH	4200	500	4700	06.51
10.	12208	BGKT	3900	700	4600	07.49
Total			**31050**	**17300**	**48250**	**82.17**

5.2.3 Shift-wise Position of Fuel issued at RDI, Jaipur:

5.2.3.1 GADJ Side in Shift 00.00 to 08.00:

Sr. No.	Engine No.	Name of Shed	Balance fuel in Loco's Tank	Qty. of fuel issued	Total	Reporting Time of Loco
1.	11532	RTM	2500	2000	4500	00.10
2.	16132	LDH	1800	2700	4500	00.13
3.	20096	BGKT	2000	1800	3800	00.50
4.	40218	BGKT	2500	2200	4700	01.31
5.	11543	-	2800	500	3300	02.42
6.	20086	BGKT	2500	3000	5500	03.50
7.	40080	BGKT	2400	1400	3800	04.26
8.	20095	BGKT	1950	2100	4050	04.52
9.	40034	BGKT	2100	1900	4000	05.28
10.	20093	BGKT	3500	2000	5500	05.46
11.	20078	BGKT	2400	2000	4400	07.30
12.	16794	ABR	4150	500	4650	07.51
Total			**30600**	**22100**	**52700**	**42.29**

5.2.3.2 GADJ side in Shift 08.00 to 16.00:

Sr. No.	Engine No.	Name of Shed	Balance fuel in Loco's Tank	Qty. of fuel issued	Total	Reporting Time of Loco
1.	12482	SBI	2500	1400	3900	08.40
2.	40364	BGKT	1650	3100	4750	09.45
3.	49089	ROZA	3600	2200	5800	10.02
4.	40474	BGKT	3000	1600	4600	10.45
5.	19869	ABR	1900	2800	4700	12.30
6.	70868	TKD	2000	3700	5700	13.55
7.	42131	IZN	2150	1900	4050	14.22
8.	11423	VTA	2000	3000	5000	15.30
9.	40132	IZN	2200	2600	4800	15.38
Total			**21000**	**22300**	**43300**	**109.07**

5.2.3.3 GADJ side in Shift 16.00 to 24.00:

Sr. No.	Engine No.	Name of Shed	Balance fuel in Loco's Tank	Qty. of fuel issued	Total	Reporting Time of Loco
1.	40599	TKD	3400	600	4000	16.10
2.	16837	RTM	2350	2200	4550	16.50
3.	40087	TKD	4050	600	4650	17.00
4.	40002	BGKT	3400	1100	4500	17.35
5.	40081	TKD	2500	1000	3500	17.42
6.	16423	ABR	2300	1600	3900	18.03
7.	20099	BGKT	3400	2000	5400	18.20
8.	18882	T/W	-	1000	1000	18.45
9.	03854	PC	-	600	600	20.00
10.	20087	BGKT	4900	600	5500	20.26
11.	14058	LDH	2200	2300	4500	20.56
12.	40083	BGKT	1450	3200	4650	21.15
13.	20078	BGKT	3300	2000	5300	21.35
14.	20092	BGKT	2100	1800	3900	23.02
15.	24022	DEMU	1250	1300	2550	23.26
Total			**36600**	**21900**	**58500**	**288.65**

CHAPTER 6	CRITICAL ANALYSIS & RECOMMANDETIONS

6.0.0 Critical analysis & Recommendations:

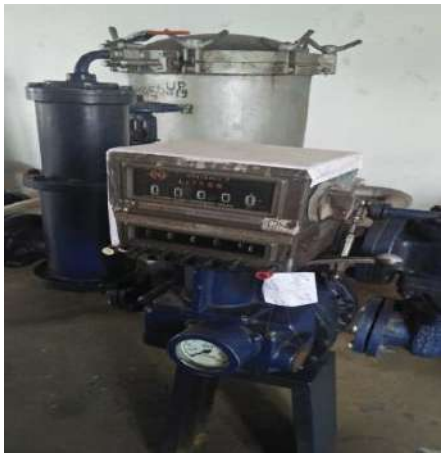
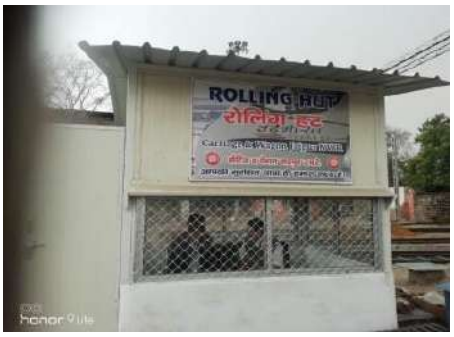
6.1.0 Critical analysis:

6.1.1	**RDI, Jaipur:**
6.1.1.1	Total 18 Staff have been deployed against sanctioned cadre of 17, at RDI, Jaipur. 04 Technicians & 08 MPK (Misc.)/ 01 Jr.Clerk are working as fuel pump operator and fuel Checker/ issuer and 05 MPKhs are working as office assistant at lobby and other locations.
6.1.1.2	01 Vertical fuel tank for the capacity of 400 KL & 03 horizontal fuel tanks with capacity of 70 KL each are available at JP RDI. Total reserve fuel capacity of RDI JP is 325 KL. Approximate 75 Kilolitres fuel have been issued per day in 37 locomotives.
6.1.1.3	To maintain continue services of fuel supply to locomotives at the time of electric failure, a 63 KVA capacity silent generator has been installed at RDI, JP.
6.1.1.4	As per guidelines of Railway board one end (FL side) has already been outsourced and operated by BPCL from December'2017 and the working performance of BPCL is found satisfactory.
6.1.1.5	**After critical analysis of existing workload, it is observed by work study team that, 14 staff (Tech./MPK) are sufficient to manage the work load of RDI, JP. 03 staff for pump operation, 06 staff for fuel issuing and up-keeping of record at fuel point in yard & 01 staff for decanting and other official requirement at RDI. 04 staff are required for LR/RG. Thus, 03 posts of MPKs may be considered surplus and advised to surrender forthwith.**
6.1.2	**RDI, Phulera:**
6.1.2.1	Total 21 Staff have been deployed against sanctioned cadre of 15, at RDI, Phulera. 06 Technicians, 02 Tech. from DSL shed, 04 MPKs from RR & 09 MPK (Misc.) are working as fuel pump operator and fuel Checker/ issuer at RDI Phulera.
6.1.2.2	05 Vertical fuel tanks & 06 underground fuel tanks are available at RDI/ FL. Total reserve fuel capacity of RDI JP is 750 KL . Approximate 153 Kilolitres fuel have been issued per day in 60 locomotives.
6.1.2.3	To maintain continue services of fuel supply to locomotives at the time of electric failure, a 65 KVA capacity silent generator has been installed at RDI, FL.
6.1.2.4	**After critical analysis of existing workload, it is observed by work study team that, 21 (Tech./MPK) are sufficient to manage the work load of RDI, FL. 03 staff for pump operation, 12 staff for fuel issuing and up-keeping of record at fuel point in yard & 01 staff for decanting and other official requirement. 05 staff are required for LR/RG.** **Presently 21 staff (06 Technicians, 02 Tech. from DSL shed/ FL, 04 MPKs from RR & 09 MPK (Misc.) are working at RDI Phulera but sanctioned cadre of RDI Phulera is 15 only. Therefore, it is advised that the sanctioned cadre of RDI /FL may be reviewed.**

6.1.3	**RDI, Rewari:**
6.1.3.1	Total 13 Staff have been deployed against sanctioned cadre of 21, at RDI/ Rewari. 07 Technicians, 06 RRB/ MPK (RR) / MPK (Misc.) are working as fuel pump operator and fuel Checker/ issuer at RDI Rewari.
6.1.3.2	01Vertical fuel tank & 02 horizontal fuel tanks are available at RDI/ RE. Total reserve fuel capacity of RDI/RE is 450 KL. Approximate 77 Kilolitres fuel have been issued per day in 54 locomotives.
6.1.3.3	To maintain continue services of fuel supply to locomotives at the time of electric failure, a 35 KVA capacity silent generator has been installed at RDI/ RE.
6.1.3.4	**After critical analysis of existing workload, it is observed by work study team that, 21 Tech./MPK are sufficient to manage the work load of RDI/RE. 03 staff for pump operation, 12 staff for fuel issuing and up-keeping of record at fuel point in yard & 01 staff for decanting and other official requirement. 05 staff are required for LR/RG. Therefore 21 posts (Tech. & MPKs) are considered justified.**

6.2.0 Recommendations:

6.2.1	In view of above, 50 staff to be sufficient to meet out the existing workload of RDIs over Jaipur division. Therefore, 03 MPKs (Misc.) from RDIs of Jaipur division have been considered surplus and advised to surrender forthwith. In accordance to Railway Board's Policy circulated vide letter no.- 2015/ Fuel/282/15 Pt. dated-24.10.2016 one end of RDI operation at Jaipur station has been outsourced to BPCL on.-23.12.2017 and performance of the same is satisfactory. A large number of staff is required to engage in operation of RDI which lead to huge expanses to the organization. In view of above it is being recommended to outsource RDIs operation at one end of each Phulera and Rewari station. Soon after outsourcing the operation of other end of RDI/ JP and one end at Phulera and Rewari addition man power of 26 (JP-10, FL-08 & RE-08) will be surplus/released and 24 staff will be sufficient to meet out with the remaining work load of RDIs over Jaipur division.
6.2.2	During the work study it has been noticed that neither sanctioned cadre of RDI nor pin pointing have been circulated except for cadre of SPM. In absence of proper sanctioned cadre man-power is randomly being deployed without specification of work assigned to the designation as well number of man power are also not appropriate at Rewari in accordance to workload. Therefore it is being recommended that, the sanctioned cadre or pin pointing of RDI should be circulated as per workload and staff should be re-deployment accordingly.
6.2.3	It is observed that de-canting process adopted as mentioned in the JPO is traditional and time consuming this is required to revise. The IOCL measures the quantity of oil through flow meter while filling the tanker but while decanting measurement is received manually. It is being advised that while decanting the oil from the tanker measurement should be received though flow meter. This will reduce the manual efforts and time in decanting as well as improve the accuracy of measurement. This will reduce variation in measurement

	as well.	
6.2.4	As per JPO (No.-NWR/HQ/Mech/Fuel/2/policy, dated-03.07.20218) implied over NWR presently calibration of the flow meter is done once in every year with the help of fuel tank of capacity 200 Litres. As such average consumption of oil per day is approximately 80 K Liters which leads to monthly consumption 2400 K Liters which is very high in quantity, thus any variation may lead to gross difference in balance of HSD oil on ground as well in the book. The long period of gap in calibration may lead to huge difference therefore, the span of calibration of flow meter may reduce to suitable period like quarterly or monthly and needful correction may be made in the JPO. It has also been observed that the calibration tube attached to calibration tank in not duly marked and it is measured with the help of a separate scale fixed behind it. Thus, it can raised inaccuracy in measurement at the time of calibration. Hence, it is being advice that the glass tube attached to the measurement tank of 200 Liters must be marked with self-engrosses marking; this will improve the accuracy of calibration and will reduce any dispute. In addition to this, this will help to reduce the time taken for calibration.	 
6.2.5	It is noticed that cover shed has not been provided on decanting point at RDI Rewari by IOCL so the staff of RDI & IOCL feels uncomfort during decanting of Road tankers in rainy and summer season. Therefore, it is advised that the cover shed should be provided on decanting point at RDI/Rewari.	
6.2.6	It is observed that hut has not been provided for fuel issuer staff in yard so the fuel issuer staff cannot keep safely their items i.e. fuel points key, wakki- takki, record registers, lunch box, etc. They also cannot easily change their uniform in rainy season. Therefore, it is advised by work study team that the huts should be provided for fuel issuer staff at both ends in yard as like rolling in/ Rolling Out C&W staff.	

6.3.0 Summary of surplus posts of RDI staff over Jaipur division.

Sr. No.	Cat.	Jaipur					Phulera					Rewari					Total				
		SS	OR	V	Prop	Surp	SS	OR	Vac	Prop	Surp	SS	OR	Vac	Prop	Surp	SS	OR	Vac	Prop	Surp
1.	Sr. Tech.	2	2	0	2	0	1	1	0	1	0	2	1	1	2	0	**5**	**4**	**1**	**5**	**0**
2.	Tech. -I	1	0	1	1	0	4	3	1	4	0	4	1	3	4	0	**9**	**4**	**5**	**9**	**0**
3.	Tech. -II	1	0	1	1	0	0	0	0	0	0	0	4	-4	0	0	**1**	**4**	**-3**	**1**	**0**
4.	Tech. -III	0	2	-2	0	0	1	2	-1	1	0	2	1	1	2	0	**3**	**5**	**-2**	**3**	**0**
5.	MPK (Misc.) /Jr. Clerk/ Tech-II (DSL)	13	14	-1	10	3	9	15	-6	9	0	13	6	7	13	0	**35**	**35**	**0**	**32**	**3**
Total		**17**	**18**	**-1**	**14**	**3**	**15**	**21**	**-6**	**15**	**0**	**21**	**13**	**8**	**21**	**0**	**53**	**52**	**1**	**50**	**3**

CHAPTER 7	DISCUSSIONS AT OFFICER'S LEVEL

7.1 Discussion at officer's level:

Minutes of meeting held with Sr.DME (EnHM & Fr.)/JP on 02.06.2020

The recommendations of work study report of RDIs staff which working at RDIs over Jaipur division were briefed and discussed with Sr. DME (EnHM & Fr.)/JP by AWSO/Jaipur. The work study has been carried out on the basis of actual requirement of staff as per existing workload. The following recommends are accepted by above officers.

In view of above the 50 staff out of sanctioned cadre 53 {18-Tech. & 35 MPKs (Misc)} in RDIs over Jaipur division are sufficient to meet out with existing workload. Thus 03 posts of MPKs (Misc.) have been considered surplus and advised to surrender forthwith.

Sr.DME (EnHM & Fr.)/JP
02/06/20

AWSO/NWR/HQ/JP
02/06/2020

CHAPTER 8	SUMMARY OF RECOMMENDATION

8.1 Summary of recommendations is as follows:

Sr. No.	Recommendations	Para no.	Accepting/ Implementing Authority
1.	In view of above, 50 staff to be sufficient to meet out the existing workload of RDIs over Jaipur division. Therefore, 03 MPKs (Misc.) from RDIs of Jaipur division have been considered surplus and advised to surrender forthwith. In accordance to Railway Board's Policy circulated vide letter no.- 2015/ Fuel/282/15 Pt. dated-24.10.2016 one end of RDI operation at Jaipur station has been outsourced to BPCL on.- 23.12.2017 and performance of the same is satisfactory. A large number of staff is required to engage in operation of RDI which lead to huge expanses to the organization. In view of above it is being recommended to outsource RDIs operation at one end of each Phulera and Rewari station. Soon after outsourcing the operation of other end of RDI/ JP and one end at Phulera and Rewari addition man power of 26 (JP-10, FL-08 & RE-08) will be surplus/released and 24 staff will be sufficient to meet out with the remaining work load of RDIs over Jaipur division.	6.2	DRM/JP
2.	During the work study it has been noticed that neither sanctioned cadre of RDI nor pin pointing have been circulated except for cadre of SPM. In absence of proper sanctioned cadre man-power is randomly being deployed without specification of work assigned to the designation as well number of man power are also not appropriate at Rewari in accordance to workload. Therefore it is being recommended that, the sanctioned cadre or pin pointing of RDI should be circulated as per workload and staff should be re-deployment accordingly.		
3.	It is observed that de-canting process adopted as mentioned in the JPO is traditional and time consuming this is required to revise. The IOCL measures the quantity of oil through flow meter while filling the tanker but while decanting measurement is received manually. It is being advised that while decanting the oil from the tanker measurement should be received though flow meter. This will reduce the manual efforts and time in decanting as well as improve the accuracy of measurement. This will reduce variation in measurement as well.		

4..	As per JPO (No.-NWR/HQ/Mech/Fuel/2/policy, dated-03.07.20218) implied over NWR presently calibration of the flow meter is done once in every year with the help of fuel tank of capacity 200 Litres. As such average consumption of oil per day is approximately 80 K Liters which leads to monthly consumption 2400 K Liters which is very high in quantity, thus any variation may lead to gross difference in balance of HSD oil on ground as well in the book. The long period of gap in calibration may lead to huge difference therefore, the span of calibration of flow meter may reduce to suitable period like quarterly or monthly and needful correction may be made in the JPO. It has also been observed that the calibration tube attached to calibration tank in not duly marked and it is measured with the help of a separate scale fixed behind it. Thus, it can raised inaccuracy in measurement at the time of calibration. Hence, it is being advice that the glass tube attached to the measurement tank of 200 Liters must be marked with self-engrosses marking; this will improve the accuracy of calibration and will reduce any dispute. In addition to this, this will help to reduce the time taken for calibration.		
5.	It is noticed that cover shed has not been provided on decanting point at RDI Rewari by IOCL so the staff of RDI & IOCL feels uncomfort during decanting of Road tankers in rainy and summer season. Therefore, it is advised that the cover shed should be provided on decanting point at RDI/Rewari.		
6.	It is observed that hut has not been provided for fuel issuer staff in yard so the fuel issuer staff cannot keep safely their items i.e. fuel points key, wakki- takki, record registers, lunch box, etc. They also cannot easily change their uniform in rainy season. Therefore, it is advised by work study team that the huts should be provided for fuel issuer staff at both ends in yard as like rolling in/ Rolling Out C&W staff.		

CHAPTER 9	FINANCIAL IMPLICATIONS

9.1 FINANCIAL IMPLICATIONS:

With the proposal for surrender of **03 posts** at Running Room of Mechanical department over Jaipur division. The recurring savings per annum in money value amount is given as below:-

Sr. No.	Category	Pay Band		Mean Pay	DA @ 17%	Total Pay	No. of posts	Total saving per month (Rs.)	Total saving per year (Rs.)
1.	MPKh. (Misc.)	18000	56900	37450	6367	43817	03	131451	1577412

Total savings of **03 surplus posts** is **Rs.15.77 lakhs.**

Note:

After outsourcing the operation of other end of RDI/JP and one end at Phulera and Rewari addition man power of 26 (JP-10, FL-08 & RE-08) will be surplus and 24 staff will be sufficient to meet out with the remaining work load of RDIs over Jaipur division.