## SCHEDULE-I

### (A) TECHNICAL PARAMETERS - LIQUID CO2 STORAGE TANK

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| Construction | Double Walled (Cryogenic Vessel) |
| Insulation | Vacuum + Perlite Insulation |
| Design Code | PED / CE/ EN-13458-2 |
| Statutory authority | PESO |
| Max. Working Pressure | Upto 23 Bars |
| Working Temperature | Upto - 196 deg. Celsius |
| Inner Vessel | Stainless steel |
| Outer Vessel | Blast cleaned Carbon steel with high-quality anti-Corrosion surface protection and a white polysiloxane finishing coat. |
| Pipe work | Stainless steel ASTMA312 TP304 |
| Valves | Forged Stainless steel |
| Gauges | Suitable Pressure gauge and level indicator to be provided |
| Gross Capacity (liters) | 30 KL |
| Net Capacity (liters) | More than 90% of gross capacity |
| Foundation Design | The Vessel shall be designed to comply with norms of CCOE, Nagpur. Load cell arrangement with digital display to be provided for monitoring weight of tank content. |
| Make of Tank | Ferrox, VRV, Chart Linde, Air Liquide only |
| Connectivity | The tank to be interconnected by suitable stainless steel valves & piping with vaporizer |
| Decanting Pump | Decanting pump of suitable capacity to decant liquid CO2 from road tanker to vessel to be provided. |

### (B) TECHNICAL PARAMETERS – VAPORIZER

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| Type | Ambient air heated |
| Design | Should be compatible with the fluid being handled and the design of the whole system (including tank parameters). |
| Duty Cycle | 16 hours of continuous operation before deicing |
| Flowrate | Upto 600 Kg/hr |
| Foundation Design | The foundation shall be designed in accordance to vaporizer weight. |
| Make | Ferrox, VRV, Chart Linde, Air Liquide, IWI only |
| Connectivity | The vaporizer to be interconnected by suitable stainless steel valves & piping with existing gas mixers line in addition to receivers. |

**(C) TECHNICAL PARAMETERS – PLANT LINE ACCESSORIES**

1. Necessary line Isolation valves, filter, line safety valves, pressure regulator (Make : Audco, Vanaz, L&T, Herose, Parker) designed as per tank pressure to be provided.
2. One no. buffer tanks (minimum capacity 2 KL with pressure gauge, safety valve and drain valve) to be provided between vaporizer and outlet to shops. The buffer tank shall be designed as per ASME pressure vessel code or equivalent Indian standard. Necessary drawings of buffer tank to be provided.

**(D) TECHNICAL PARAMETERS – FLOWMETER**

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| End Connections | Flanged ends |
| Design | Should be compatible with the fluid being handled and the design of the whole system (including tank parameters). |
| Range | 0-250 Kg/hr |
| Display | Digital display with Mass flow (in Kg/hr) with totalizer (in Kg) |
| Electrical Supply | Single phase, 50 Hz |
| Connectivity | Flowmeter to be connected in line with necessary isolation valves and by pass loop. |

**(E) TECHNICAL PARAMETERS – PIPE LINE DISTRIBUTION SYSTEM**

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|---|---|
| Size | Main header : 50 NB diameter<br>Down take : 15 NB diameter |
| Material | Seamless Carbon Steel Schedule 40 |
| Header valves | 2" full flow stainless steel isolating valves, class 300, flanged ends<br>Make : L&T, Audco, Parker Legris, Vanaz |
| Down take valves | 1/2" two way needle control valve, threaded ends, MOC : SS304 or Brass |
| Line pressure gauge | Stainless steel, 6" dial, Range 0-30 Kg/cm2, Bottom connection<br>Make : WIKA, Mass, Delta, Pioneer, Micro |

1. Approximate length of 50 NB header : 2000 metres
2. Approximate length of 15 NB downdrops : 575 metres (30 down takes)
3. The down take connection to run vertically along the structure. Each down take shall have two outlet points with 1/2" threaded needle control valves for usage.
4. Isolating valves shall be incorporated in the headers at both ends for easy & quick isolation of sections. The location of these valves shall be close to ladders.

**(F) OTHER REQUIREMENTS**

1. Necessary approvals and license to be acquired from PESO.
2. Foundation work for cryogenic vessel and vaporizer along with foundation drawing to be done in accoradance to PESO.
3. Load cell arrangement with digital display to be made below vessel structure.
4. The pipe line to be adequately supported with iron structures.
5. Dismantling of existing CO2 pipe line and tank and disposal to Scrap Yard.

**(G) PIPELINE DISTRIBUTION SYSTEM DESIGN DETAILS**

1. The objective of the pipeline distribution systems is to distribute CO2 Gas from the storage tanks to various consuming points in the Shell Assembly shop, SMS, Bogie, Tool Room, Machine shop of RCF, as per layout drawings. The work shall comprise of the design, supply of materials, erection, testing, flushing and cleaning, corrosion protection, painting and commissioning of the complete system including civil & structural works.
2. The service pipelines for distribution would generally run overhead Inside/outside of shops at a height of 6/8 mtrs starting from Storage Points to user shops and supported by Brackets/Hangers along periphery & inside the shop. Distribution system would be connected to the down take pipes running vertically on the columns/near consuming points up to a height of 1.5 mtrs from ground level. All the pipelines including the down take pipes, right up to the points of interfacing with the equipments shall be provided by supplier. The height may vary depending upon site conditions. The gas pipeline distribution system shell be of the instant to connect. The proposed system and its components shell comply with ASME B31.3 and B31.1 standard (POWER PIPING-ASME Code for pressure piping). It shell be recyclable and be full bore pressure without diameter restriction for the fittings, in order to avoid high pressure drop.
3. The pipe line distribution system shall incorporate all safeguards and safety features stipulated by statutory and other regulations in force from time to time such as (Indian Boiler Regulations, Indian Explosives Act, and Indian Factories Act) etc and shall be executed as per relevant Indian Standards/British Standards/American Standards, wherever applicable. The workmanship shall be to the highest standards and as per sound engineering practice. The components used must be non-flammable with no propagation of flame.
4. It shall be clearly understood that the tenderer shall base his designs after a thorough study of site conditions, layout drawings and other relevant drawings. The contractor is advised to study the site, particularly with regard to the type, arrangement and configuration etc. of the civil Engineering structures, alignment of the pipes and the nature of the work, etc. The existing structures that can be used to offer most economical solution.
5. The contractor shall attach with his design the detailed drawings for pipelines and catalogs for the fittings and accessories and also the plan of installation details with the bid.
6. Components of pipe work shall be designed, manufactured, assembled and tested in accordance with the latest revision of relevant standards published by Indian Standards Institutions/BIS. In case where suitable Indian Standards are not available, relevant/British/American Standards shall be followed.
7. All piping materials shall be new and standard of laying pipes shall be of first class quality, workmanship and shall be accompanied by manufacturers test certificate, wherever applicable.
8. All fittings and lengths of pipe for service lines shall be examined before assembly and if necessary hammered to free them from scale or dirt. They shall be washed out with a suitable non-flammable solution which would effectively remove grease and dirt, where required.
9. Inside the shop floor areas, the pipelines shall be clamped on support brackets/Hangers to be fixed to the RCC/Steel columns/beams/roof girders etc. Outside the shop floor areas, the pipelines shall be similarly clamped on the brackets carried on support structures. Brackets inside the shop floor area shall be under the scope of work by contractor. In all these case, the contractor shall provide suitable clamps and these clamps shall be secured to the support brackets/inserts by means of screw/bolts and nuts etc. The foundations required for supporting structures shall be made by the successful bidder.
10. Support structure from storage area to Shell Assembly shop, Tool room, Machine Shop, Bogie shop & Sheet metal shop has to be provided by bidder.
11. Wherever pipelines or structures cross the rail tracks/roads & traverse, tracks, the structures are to be designed so as to give a clear minimum height of 8mtr from top of rail level/road to the lowest point of overhead pipelines/structure. Also, the horizontal distance between the centers of the rail track to the nearest edge of the structure should be at a minimum distance of 2745 mm.
12. The contractor shall be responsible for the proper fabrication of all piping systems with regard to expansion and flexibility including the branch lines and connections to equipment.
13. Pipe supporting truss structure shall be made up of structural steel, plates. These structures should be made of high tensile Steel. These structures shall be fitted with fasteners at site for easy and quick installation and painted with approved paints. Only minimal welding and other erection work will be allowed at site.

14. Pipelines offered must be seamless pipes. The pipe line material shall be carbon steel and conform to ASTM A106 Gr B standard.
15. All Pipes must be pre coated with protective paints/primer. The colour of pipe line must be as per IS standard and same to be got approved from RCF.
16. Pipes used must have close control on dimension from outside as well as inside, in order to provide leak free connection with the fittings.
17. Make of pressure gauges to be installed on pipe line shall be Wika, Mass, Micro, Pioneer, Delta. Material shall be SS.
18. Sufficient number of isolating valves, as may be necessary shall be incorporated in the pipe lines system for easy & quick isolation of sections. The location of these valves shall be indicated by the bidder in the schematic layout drawing before installation to the system. The location preferably shall be close to ladders for easy accessebility.
19. Suitable down take pipes are to be provided at the consuming points indicated in the layout drawing.
20. All down take pipes are to be takes down along the RCC/steel columns and the contractor shall provide necessary clamps and suitably secure them.
21. All down take pipes, except those which have to pass through trenches, shall have a shut off valve located at a height of 1.5m.
22. The down take pipes shall be taken from the service line in such a way that no moisture should be passed to down take pipes. The down take connection shall be running vertically along the structure and two way threaded needle flow control valve to be provided at the end.
23. Isolation valves to be located at accessible places for its operation during use/break down in service line keeping in view of staff safety.
24. The Gap between different service pipes as well as different down take pipe should be sufficient for maintenance purpose.
25. Adequate steps should be taken to ensure that minimum required pressure is maintained at farthest point in the system by making loops.
26. Suitable Valves shall be provided in the pipe line system for section isolation equipment isolation, pressure relief, control of pressure and flow rates, for venting and draining etc. The valves provided shall be suitable for the service conditions in all respects and shall be selected and located considering easy operation and maintenance. The provided valves shall include, but no limited to the following. :-
    (i) Isolating Valve at the start of each main branch pipe.
    (ii) At the end of each drop and each tapping connection.
    (iii) The bidder shall furnish a schematic drawing showing the details of the proposed arrangement.
27. The contractor shall clearly indicate makes of different types of valves, meters and gauges used in the scheme.
28. All valve to be provided at suitable location from operation & maintenance point of view and should be preferably of make: L&T, Vanaz, Care Legris, Parker, AUDCO. Material shall be Stainless steel.
29. Approximate length of pipe lines required to be provided is estimated as under:-
    (i) 50 NB Pipe line :- 2000 metre
    (ii) 15 NB Pipe line :- 575 metre

**1. SCOPE OF SUPPLY :**

1.1 The scope of this tender includes design, supply, installation, commissioning of Liquid CO2 storage tank, Vaporizer, Distribution pipe lines and dismantling of existing pipe line and vessel. Details of technical parameter mentioned in Schedule-I are applicable.
The equipment/system installed must be of proven design, incorporating latest features and state of the art manufacturing technology.
1.2 Post successful awarding of the job, a detailed GA drawing is to be submitted. This GAD would be approved by RCF Kapurthala and would form the work basis.

**2. PURPOSE :**

Rail Coach Factory (Kapurthala), Punjab is a production unit engaged in production of Indian Railway Passenger Coaches. RCF is manufacturing light weight, stainless steel coaches under the new technology of manufacturing stainless steel coaches. The current CO2 storage plant and associated pipe line distribution network was laid down in the year 1996. The pipe line is of mild steel and has completed its life. Leaks have developed in the pipe line system. The storage vessel and equipments have also become obsolete. Therefore a new system is required.

**3. EXISTING INFRASTRUCTURE :**

3.1 RCF has CO2 storage tank of capacity 30 MT and of 6000 meter pipe line. CO2 gas is drawn from storage plant is fed into pipe line distribution network via vaporizers and regulator. Pure CO2 gas is used for welding purpose in the Machine Shop, MH Shop, Transport Shop and Tool Room shop.
3.2 CO2 plant is also interconnected to the Argomix gas mixers for production of three gas mixer and two gas mixer which in turn is used for welding in Shell Assembly Shop, SMS, Bogie Shop, Tool Room.

**4. RCF'S REQUIREMENT – CONSUMPTION PATTERN :**

4.1 CO2 gas is one of the gases mixed for production of Shielding gas and subsequently supplied to Shell Assembly Shop, Sheet Metal Shop, Tool Room, Bogie Shop. Pure CO2 is also used in welding in Machine Shop, MH Shop, Transport Shop and Tool Room shop.

4.2 No. of working days /month : 25
No. of Shifts per day : 03
Average daily consumption : 750 Kg

**5. TURN KEY PROJECT :**

Design, supply, installation, commissioning and prove out of the complete Liquid CO2 cryogenic storage vessel with pipe line distribution network system including civil work on Turnkey basis as under:-
5.1 Installation of one Liquid CO2 cryogenic tank of capacity of 30 KL.
5.2 Installation of ambient air heated vaporizer of suitable capacity for converting liquid CO2 to gaseous CO2.
5.3 Distribution pipe line as per "G"
5.4 System complete with flow regulation, pressure indication, safety relief valves and all other safety devices. Digital flowmeter with totaliser to be provided for measurement of gas consumed.
5.5 Load cell arrangement to be provided below vessel supports for measurement of tank contents. System to have digital output display.
5.6 Road approach including decanting pump for evacuating liquid CO2 from road tanker.
5.7 Two nos. buffer tanks suitably designed as per ASME/IS standards with manual drain valve, isolation valve and safety relief valve.
5.8 All related Civil Engg. works in connection with installation of subject system to be carried out by the bidder including installation of liquid CO2 tank, vaporizers, buffer tanks, manifold and pipe line structures.
5.9 Necessary approvals from concerned Govt. Authorities/ Statutory Bodies for the installation of the subject system shall be processed and taken by the bidder on behalf of RCF.

Bidder shall take the license for installation of the system from Chief Controller of Explosive (CCOE)/PESO, Nagpur. License will be obtained by bidder on behalf of RCF.

5.10 Detailed engineering of the system including obtaining approval from third party and statutory authorities (for fabrication & installation) for drawing of pressure vessel for fabrication purposes shall be arranged by the supplier.

5.11 Arranging stage wise inspection during fabrication by nominated inspection agencies and periodic inspection by contractor. However, necessary assistance needed by contractor in this regard would be provided by consignee.

5.12 Preparation of installation drawings and getting the approval from department of Explosives by successful bidder.

5.13 All electrical connections to operate the system will be in scope of supply by contractor.

5.14 Maintenance and periodical inspection of the equipment throughout warranty period will be in the scope of contractor.

5.15 Documents pertinent to the system such as design, drawings, operations, manual/calibration certificate etc. shall be provided to RCF, Kapurthala, by successful bidder.

5.16 A completion & handover certificate shall be provided to RCF, by successful bidder after successful completion of installation & Commissioning.

5.17 Earth Pit with G.I. strip for the CO2 storage tank and vaporizer to be provided.

5.18 The existing CO2 pipe line and storage tank shall be dismantled and disposed off to scrap yard by the successful bidder.

## 6 DESIGN CHARCTERISTICS :

### 6.1 LIQUID CO2 STORAGE VESSEL:

6.1.1 One vertically mounted double walled liquid CO2 cryogenic storage tank of capacity 30 KL, shall be installed. The offered layout should be designed keeping in view the space requirement for movement/decanting of Road tanker to and from the Nitrogen tank.

6.1.2 Inner vessel of the tank should be fabricated from high grade steel adapting the latest manufacturing technologies. Safety standards mentioned /international standards followed shall be detailed in the offer.

6.1.3 The tank shall be super insulated with low evaporation rate.

6.1.4 Pressure vessel should be of state of art design and with highest reliability and shall have practically zero down time.

6.1.5 To resist adverse impact of environment (air, water and pollution) on all the valves, the material of the valve should be of forged stainless steel only.

6.1.6 Specification of Liquid CO2 tanks shall be as per part A of Schedule-I.

6.1.7 Pump for delivery from mobile tank to static tank should be provided in the offer.

### 6.2 VAPORIZER:

6.2.1 One vaporizers for converting liquid CO2 to gaseous CO2 of suitable capacity shall be installed. Design of Vaporizers shall be as per part B of Schedule-I.

### 6.3 DISTRIBUTION PIPE LINE :

6.3.1 Distribution pipe line shall be provided as per part E and G of Schedule-I.

## 7. ATMOSPHERIC, CLIMATIC CONDITIONS & ELECTRICAL REQUIREMENTS:

7.1 The ambient temperature in the region varies from 0°C to 50°C depending upon the seasonal changes over the year. The relative humidity may be as high as 100% during some parts of the year. The atmospheric conditions for major part of year are expected to be dusty.

7.2 The equipments/systems offered shall be capable to work under these atmospheric conditions without any adverse effect on their performance.

7.3 The whole plant set-up electrical/electronic system shall be designed for low tension power supply/feed of three phase 400 V + 10% -15% & 50 Hz +/- 3%. In case of any other specific requirements, the bidders shall clearly mention the utilities that RCF needs to provide.

7.4 The necessary incoming electrical supply shall be made available by RCF at a single point to the power panel which may be located within the operator's room. Beyond this, cabling work would be in the scope of tenderer. Bidder to quote for rate of main power cable in rupees per

meter length.
7.5 Total power requirement shall be indicated by the tenderer s in their offers.
7.6 Necessary separate earthing pits and earthing strips as per relevant IS Specification for safe working of electrical and electronic system and/or storage tank shall be made by the tenderers under their scope of work. Cost of earth pits should be separately indicated.

**8. SPECIAL FEATURES:**

8.1 Special features incorporated into the system, if any, shall be indicated separately by the tenderer, clearly indicating the advantages of these features.

**9. DEVIATIONS :**

9.1 The tenderer should certify that the plant offered fully meets the specifications Various design features incorporated in the machine to fulfill different technical and performance requirements should be fully explained in the offer. However, minor deviations from this specification, which do not affect or in any way interfere with the stipulated performance standards, or would result in improved productivity /safety/ reliability or would reduce recurring maintenance/ operating cost of the machine, can be considered for acceptance. The Tenderer in such eventuality shall clearly indicate the details of the deviations and their implications.

**10.0 TECHNICAL LITERATURE** :

10.1 The successful bidder shall supply 2 copies of technical literature of equipments including Electrical and Electronic equipments. The circuit diagram and pipe line layout diagram shall also be supplied by successful bidder. Any other literature, if required for proper function of the system shall also be supplied by firm to RCF. Bidder should also submit detailed part list of all spares including its make and manufacturer for both Electrical & Mechanical spares including its make and manufacturer for both electrical and mechanical spares. List of bought out item to be submitted along with make and model.
10.2 All technical data regarding safe handling of cryogenic Liquids, drawings/layout of the installation and to provide necessary training for safe operation of equipment.
10.3 Documents pertinent to the system such as operations manual/calibration certificate etc. shall be provided to RCF, Kapurthala, by successful bidder.
10.4 All documents necessary for obtaining approval of statutory authorities Chief Controller of Explosions Nagpur All designing documents as well as certificates will be supplied by the successful bidder.

**11.0 TRAINING:**

11.1 Technical experts of the manufacturer during commissioning of machine will fully and adequately train operators/ maintenance staff nominated by the consignee regarding complete operation, comprehensive preventive maintenance and basic breakdown maintenance.

**12.0 COMMUNICATION:**

12.1 All notices, communications, references made by contractor or railways regarding work shall be written. However telephonic messages shall be followed by writing. Immediate attention by contractor shall not wait for written messages.

**13.0 SAFE WORKING of CONTRACTUAL STAFF:**

13.1 Contractor to abide by all conditions under factory act while working inside RCF plant, he will agree to make available all safety equipment and ensure its enforcement of all safety precaution, he will depute only competent staff with valid competency certification for under taking work of installation and commissioning and will ensure enforcement of minimum wages act. and other legal requirements.

**14.0 SUBLETTING of CONTRACT:**

14.1 The contractor shall not assign or sublet the contract or any part thereof or allow any person to become interested therein in any manner whatsoever without the special permission of the RCF.

**15.0 TRANSPORTATION & RISK IN TRANSIT:**

15.1 The contractor shall make his own arrangements for safe and sound delivery of

equipment and supplies at site. In case any insurance which could be done shall be arranged at their own cost. Any road clearances or statutory road permit to move the vessel is to be obtained by the firm.

**16.0 MAINTENANCE of THE EQUIPMENT:**

16.1 Successful bidder shall conduct periodic checks and necessary maintenance during the period of warranty, as per stipulated guidelines of safety, which in turn fully abide by the Indian Government regulations for period under warranty.

**17.0 APPROVAL of THE DRAWINGS:**

17.1 The layout of the system shall be submitted by Successful bidder within 50 days after getting the order. The layout shall be approved by the consignee before installation. Contractor shall get the design and drawing approved from the consignee within 75 days of the submitting of this layout.

**18.0 ERECTION & INSTALLATION of THE SYSTEM:**

18.1 The successful bidder should complete installation & commissioning within 09 months from approval of GAD or taking over the clear site whichever is later. The installation shall be done by qualified & competent engineers.

**19.0 WARRANTY:**

19.1 Firm will agree to provide warranty for two years for working of plant against manufacturing and workmanship related defects including warranty for bought out items.

**20.0 INSPECTION AND TESTING:**

20.1 Bills of materials will be furnished by the contractor for the purpose of pre-dispatch inspection at firm's premises. Imported items shall accompany the OEM's WTC and warranty certificate. The inspection of material will be done by RITES at firm's premises before dispatch of material.

20.2 All materials under this contract shall be subjected to shop tests as per applicable material standards. Where required, contractor shall notify consignee in writing at least four weeks in advance on the availability of the materials at the manufacture's works for inspection by the appointed inspection agency and shall extend all facilities to the inspecting agency including testing facilities at no cost.

20.3 All fabrication/erection work covered by this specification shall be subject to inspection by consignee and the contractor shall advise consignee promptly at various stages of erection for inspection.

20.4 Entire pipe lines, accessories, fitting etc. after erection in the field are to be tested for performance.

20.5 Test pressure shall be maintained until the entire section under test has been examined for leaks. Defects revealed shall be rectified and the sections retested.

20.6 The leakage losses should not exceed beyond those stipulated in ASME B31.1 viz., 0.5% of the total flow for the entire system at the working pressure.

20.7 The contractor shall arrange to provide for the duration of tests. All such instruments and gauges as would be necessary for conducting the test shall be calibrated. Calibration certificate may be produced at the time of commissioning.

20.8 If the result of the tests of the system performance falls short of the required prescribed standards, the contractor shall bear all expenses for improving the performance of the system by necessary rectification/replacement of equipment/materials and carry out another acceptance test.

20.9 The test pressure shall not be below those stipulated in ASME B31.1 viz., 2 times the working pressure of the passing through gases and for compressed air. OR as per the standard followed by manufacturer whichever is higher.

20.10 Valves, regulators, check valves, etc. Shall be checked as per manufacturer's specifications.

20.11 The pipe line system for each shop shall be subjected to pneumatic test after assembly. There shall not be any pressure drop for the first 2 hours except that arising out of temperature variations. In 24 hours, the maximum pressure drop allowed at the farthest point is 1%.

**21.0 OPERATION OF THE SYSTEM:**

21.1 The system will be operated by firm for one month after commissioning and there after handed over to nominated RCF personnel's.

**22. RESPONSIBILITIES of RCF:**

22.1 Adequate space shall be provided to the successful bidder for complete installation of Liquid CO2 Storage System tank.

22.2 Water, electricity & compressed air required for installation & commissioning and operation of the Liquid CO2 Bulk Storage System shall be provided free of cost to the successful bidder. Source Power will be of good quality, uninterrupted and free of surge and Compressed Air will be free of moisture.

22.3 Road mobile cranes, FLTs, if required, by the supplier/contractor for installation can be provided on rental/hire basis, if available with RCF.

22.4 All necessary information required for processing the approvals from the concerned regulatory bodies like CCOE etc. shall be provided by RCF to the successful bidder.

**23. RESPONSIBILITIES of THE CONTRACTOR:**

23.1 The contractor shall execute the work with great promptness, care and accuracy and shall complete the work within 300 days including the approval of GA drawing or taking over clear site.

23.2 The contractor shall place and keep on the works at all times qualified, efficient and competent staff to give necessary directions to his workmen and to see that they execute their work in sound and proper manner. However, the contract staff must keep updated the plant organization informed of the progress time to time.

23.3 The contractor shall at once remove from the works any agent, permitted sub-contractor, supervisor, workman or laborer who shall be objected to by the Railways. However, these staff should observe the rules and regulations as applicable to RCF staff.

23.4 The contractor will submit a correct record to consignee showing the names of all the staff and workmen employed by him at railway premises.

23.5 The contractor or his staff and employee will observe rules & regulations of Rail Coach Factory, Kapurthala in regard to entry in the factory, safety and identification. Contractor will also to meet all legal requirements while working in RCF premises. The minimum wages act and provide strictly equipment to the staff for ensuring safe working conditions within RCF.

23.6 Contractor shall keep adequate spare parts and necessary tools available all the time at site so that maintenance work is not delayed on this account.

23.7 Contractor shall maintain the system for its maximum efficiency and shall carryout preventive maintenance periodically to keep the system fit for operation at all time.

23.8 The statutory fees to the department of explosives for obtaining approval will be borne by Railways but such approvals are the responsibility of the contractor. Contractor shall advise Railways on necessary fees along with amount and name of statuary agency well in time based on which RCF will process for necessary payments.

23.9 Contractor while carrying out side work at site will ensure that there is no disruption/stoppage of existing system in RCF. If any work requires such disruption it will be done in off duty hours or Sunday / holiday with prior intimation to RCF.