

	<p>(UNDER JURISDICTION OF SINGRAULI COURT ONLY)</p> <p>NORTHERN COALFIELDS LIMITED (A Mini Ratna Company) (A Subsidiary of Coal India Limited/ A Government of India Undertaking) Materials Management Department Regd. Office : PO: Singrauli Colliery, Dist. Singrauli (M.P.) INDIA Ph. No.07805-266606, Fax No.-266388,266640</p>	 
---	---	---

SUPPLY ORDER

Ref. No: 63614155 / 115A1154

Dated: 10/03/2017

[TYPE OF VENDOR: SMALL ENTERPRISE]

M/s Brijbasi Hi -Tech Udyog Ltd.	Fax no.0565-2490721, Ph.No.0565-2490736
Delhi-Agra Bypass Road, Mathura 281004 (UP)	PCC: By Regd.Post VENDOR CODE: B0220

Sub: Formal Supply Order against our Open Tender No. NCL/ SGR/ MMD/ SKA/ 115A1154/ 130 dtd 28.12.15, Techno-Commercial Bid (Cover-I) opened on 01.02.2016 & Price Bid (Cover-II) opened on 19.08.2016 for Procurement of Fire Tenders.

Ref: i) Your offer no. BHTUL-S/WFTDCPFL/6-11/Q/16/384 dtd 27.01.16 and and your subsequent Letters No. BHTUL-S/WFTDCPFL/6-II/Q/C/16/058a dtd 07.06.2016, BHTUL-S/WFTDCPFL/6-11/Q/C/17/254 dtd. 02.01.17 & e-mail dtd 27.02.2017 against Tender ID – 2015_NCL_29424_1.

Dear Sirs,

With reference to the above, we hereby place our formal Supply Order on you for Supply of Fire Tenders at the following price, terms & conditions and also unless otherwise specified as per “General Terms & Conditions for Supply of Stores” enclosed with NIT:-

Scope of Supply:-

Description of Item	Order Qty. (No.)	Unit Basic Price (in Rs.)	Extended Value (in Rs.)
Fire Tender fabricated on Tata LPT2518/48 BSIII Chassis	03	64,50,000.00	1,93,50,000.00

TOTAL EXTENDED VALUE: Rs.1,93,50,000.00 (Rupees One Crore Ninety Three Lakh Fifty Thousand only).

TECHNICAL SPECIFICATIONS: Detailed Technical Specification is enclosed at Annexure-I.

Make: “BRIJBASI”

Chassis Model: “Tata LPT2518/48 BSIII Chassis”

TERMS & CONDITIONS:

- 1. BASIS OF PRICE:** Prices are inclusive of Packing and Forwarding charges on FOR destination basis for which Freight & Transit Risk Insurance charges shall be paid extra as mentioned below. The prices will remain firm till completion of supplies.
- 2. EXCISE DUTY:** Exempted/Not applicable at present. If applicable in future, the same shall be borne by you. However, you shall provide Cenvatable Invoices of Truck Chassis per vehicle in favor of NCL to avail Cenvat credit on chassis. For availing CENVAT credit of Truck Chassis, you shall procure chassis directly in NCL’s name from the nearest chassis dealer at MP & UP Project for which respective Consignee(s) shall provide PAN No. & address proof etc. to you.

For availing CENVAT Credit by NCL, you shall submit copy of CENVATABLE EXCISE Invoice as per rule 11 of CENTRAL EXCISE Rule 2002 at the time of supply of material along with the final bill(s) indicating therein Northern Coalfields Limited’s ECC No, Range, Division and Commissionerate along with other details as detailed below:

Clean Energy Cess Regn. No./ Excise Regn.	Range	Division	Commissionerate
AABCN4884HEM011	Waidhan	Satna	Bhopal

You have to submit your auditor’s certificate along with the bill confirming that refund/ credit if any obtained against Excise Duty has been/ shall be passed on to Northern Coalfields Ltd.

- 3. UP VAT / Central Sales Tax:** UP VAT / Concessional CST will be payable extra at actuals as legally applicable at the time of supply. Present Rate of UP VAT is @14.5% for UP Projects and CST @2% against Form ‘C’ for Amlohri Project. For availing concessional rate of Sales Tax, requisite Sales Tax declaration form will be furnished by the Consignee i.e. Amlohri Project.
- 4. FREIGHT CHARGES (including Temporary Registration):** Shall be paid extra @ 0.5% of Basic Price per vehicle for delivery of the Fire Tenders to respective consignees on FOR destination basis. Safe arrival of vehicles up to destination will be your responsibility.
- 5. TRANSIT RISK INSURANCE CHARGE:** Shall be paid extra @ 0.5% of Basic Price per vehicle for coverage of Transit Insurance of Fire Tenders for supply on F.O.R. destination to the respective consignees.
- 6. Entry Tax:** Entry Tax shall be paid extra at actuals by AFM Amlohri Project directly to M.P. State Authority which is presently applicable @2% for supplies to Amlohri Project situated in the state of Madhya Pradesh only. However for supply to the Projects situated in the state of UP, Entry Tax is not payable and necessary Way Bill, if required, should be obtained by the firm from the respective consignees.

NOTE: If there be any increase in the rates of taxes and duties during the extended delivery period beyond the stipulated / scheduled delivery period, NCL shall not pay the increase in the Taxes & Duties and the increase will be to supplier's account and in case there is any decrease, the same shall be passed on to NCL.

7. SECURITY DEPOSIT: You are advised to submit Security Deposit within 15 days for Rs.21,67,587.00 (Rupees Twenty One Lakh Sixty Seven Thousand Five Hundred Eighty Seven only) in the form of Bank Draft payable at Morwa Branch, Dist, Singrauli (M.P.) of any Nationalized/Scheduled Bank or in the form of Bank Guarantee executed by any Nationalized / Scheduled Bank in the prescribed Format (as per enclosed Annexure II) in favor of Northern Coalfields Limited. In case you fail to deposit the Security Money, the order shall be cancelled & the case shall be processed to order elsewhere & your firm's performance shall be kept recorded for future dealings with you. Security Money will be refunded within 30 days of satisfactory execution of the supply order. Security money may be converted into performance Bank Guarantee. Whenever Security money shall be treated as performance coverage of the supply order the operation of security Money BG/ Performance BG shall be guided by the stipulated Performance Bank Guarantee & Guarantee/ Warranty clause of this supply order.

8. Delivery : Within 180 days from the date of issue of Purchase Order.

9. Consignee & Paying Authority:

Consignee	Paying Authority	Qty. (No.)
The Depot Officer, Regional Stores, Bina Project, PO Bina Colliery, Dist. Sonbhadra (UP)	The Area Finance Manager, Bina Project, PO Bina Colliery, Dist. Sonbhadra (UP)	01
The Depot Officer, Regional Stores, Amlohri Project, PO-Amlohri Colliery, NCL, Dist Singrauli (MP)	The Area Finance Manager, Amlohri Project, PO-Amlohri Colliery, NCL, Dist Singrauli (MP)	01
The Depot Officer, Regional Stores, Khadia Project, PO Khadia Colliery, Dist. Sonebhadra (UP)	The Area Finance Manager , Khadia Project, PO Khadia Colliery, Dist. Sonebhadra (UP)	01

10. TERMS OF PAYMENTS: (a) 80% payment shall be released within 21 days after delivery of Fire Tender at consignee's end or submission of Bills complete in all respect & acceptable Bank Guarantees, whichever is later. The payment will be made by "Electronic Fund Transfer" (EFT) or e-payment after receipt and acceptance of Performance Bank Guarantee.

(b) Balance 20% payment shall be released within 21 days after successful commissioning of Fire Tender to be certified by respective Area Safety Officer of the respective Projects.

11. Bank Details:

Name of Bank : State Bank of India.
Branch Address : Main Branch, Junction Road, Mathura.
Account No. : 10908407024
IFSC Code : SBIN0000678

12. SUBMISSION OF BILLS:

A. Following documents may be submitted to the Consignee:

- i) Delivery Challan in original.
- ii) One copy of the Bill.
- iii) Guaranty/ Warranty Certificate
- iv) Price Fall Clause certificate
- v) Any other relevant dispatch documents specified in the Order.

B. Following documents should be submitted to the Paying Authority:

- i) Bills in triplicate duly pre-receipted and stamped.
- ii) Certificate for Price Fall Clause.
- iii) Copy of the Consignment Note/Warranty /Guarantee Certificate.
- iv) Any other relevant document specified in the Order.

13. LOWEST PRICE CERTIFICATE: You shall submit a certificate certifying that the prices charged by you against this Supply Order are the lowest and are same as applicable to other Government Departments/ Undertakings/ Other Organizations. You shall also certify that the prices charged are not higher than rates quoted / prices charged by you for same / similar items to other Customers.

14. INSPECTION: Pre-delivery inspection at the manufacturer's works as well as Final inspection at the consignee's end shall be carried out by the authorized representative of HOD(S&R)/NCL Hqr.

15. RISK PURCHASE : In the event of failure of supplier to deliver or dispatch the stores within the stipulated date/period of supply order, or in the event of breach of any of the terms and conditions mentioned in the supply order, Northern Coalfields Limited have the right to purchase the stores from elsewhere after due notice to the defaulting supplier at the risk and cost of the defaulting supplier. It is mentioned clearly that in the event of failure of supplier as detailed above, the cost of risk purchase exercise may be recovered from the bills against any other supplies pending at NCL and also in any other Subsidiary Company/Coal India Limited.

16. LIQUIDATED DAMAGE: In the event of failure to deliver the stores within the stipulated date/period in accordance with the specifications mentioned in the supply order and in the event of breach of any of the terms and conditions mentioned in the supply order, NCL should have the right:-
a) To recover from the successful tenderer as agreed liquidated damages a sum not less than 0.5% of the price of any store which the successful tenderer has not been able to supply as aforesaid for each week or part of a week during which the delivery

of such stores may be in arrears limited to a ceiling of 10%. Where felt necessary, the limit of 10% can be increased to 15% at the desertion of GM (MM)/ NCL.

OR

b) To purchase from elsewhere after due notice to the successful tenderer on the account and at the risk of the defaulting supplier the stores not supplied or other of a similar description without cancelling the supply order in respect of consignment not yet due for supply.

OR

c) To cancel the supply order or a portion thereof and if so desired to purchase the stores at the risk and cost of the defaulting supplier and also-

d) To extend the period of delivery with or without penalty as may be considered fit and proper. The penalty if imposed shall not be more than the agreed liquidated damages referred to in clause (a) above.

e) To forfeit the security deposit - full or in part.

f) Whenever under this contract, a sum of money is recoverable from and payable by the supplier, NCL shall be entitled to recover such sum by appropriating in part or in whole by deducting any sum or which at any time thereafter may become due to the successful tenderer in this or any other contract. Should this sum be not sufficient to cover the full amount recoverable, the successful tenderer shall pay NCL on demand the remaining balance. The supplier shall not be entitled to any gain on any such purchase.

17. PRICE FALL CLAUSE: If you, at any point of time during the period of execution of supply of the contract of NCL, supply equipment /store of identical description in India to any customer including CIL, Subsidiary Companies at a price lower than the price stipulated in the first contract, you shall forthwith notify such reduction of sale price and NCL shall amend its contract price to the lower price. In event of non-intimation by you to this effect, suitable penal action may be considered against you. The price fall clause shall apply when the period of execution of supply against contract of NCL (first contract) is concurrent with supply of another contract by you to other organisation including CIL/Subsidiary Companies (other contract). The lower price of the two will be applicable against the supplies made against the first contract, during the concurrent period of execution of supplies of the said two contracts.

18. COMPOSITE WARRANTY/GUARANTEE: Fire Tenders shall be covered by manufacturer's standard composite Warranty/Guarantee for minimum 12 months from the accepted date of Commissioning or 18 months from the date of receipt & acceptance of Fire tender at consignee's end whichever is earlier.

The supplier shall be responsible for any defect that may develop under the conditions provided for by the contract and under proper use, arising from faulty materials, design or workmanship and shall remedy such defect at his own cost when called upon to do so. If it becomes necessary for the supplier to replace or renew any defective part, such replacement or renewal shall be made by the supplier 100% free of cost without any extra cost to Northern Coalfields Limited. The new goods should be supplied on FOR destination basis free of cost.

Warranty Replacement should be completed within a reasonable period maximum within one month from the date of claim free of cost up to ultimate Consignee's end. All cases of warranty replacements to be decided on the basis of joint inspection of the failed goods held between the user's representative and the manufacturer's representative.

19. PERFORMANCE BANK GUARANTEE: You will submit Performance Guarantee for Rs.21,67,587.00 (Rupees Twenty One Lakh Sixty Seven Thousand Five Hundred Eighty Seven only) to cover both satisfactory performance and warranty. The Performance Guarantee should be furnished in the form of Bank Guarantee executed by any Nationalized / Scheduled bank on a Non-Judicial Stamp Paper of required value in prescribed Format (as per enclosed Annexure III). The stamp paper must be in the name of issuing Bank and the BG must be kept valid for minimum 21 months from the date of receipt & acceptance of materials at consignee's end which shall be either released after expiry of its validity period if no claim/dispute is pending or extended thereafter for proper coverage of Guarantee/Warranty of Fire Tenders or may be invoked / encashed by NCL against unsatisfactory/adverse performance of the Fire Tenders as the case may be. Security money may be converted into Performance Guarantee. In case Security money is submitted in the form of Bank Guarantee, the same may be converted into Performance Bank Guarantee provided the validity is 21 months from the date of receipt & acceptance of materials at consignee's end. Whenever Security money shall be treated as performance coverage of the contract, operation of security Money BG/ Performance BG shall be guided by Guarantee/ Warranty clause of this supply order.

20. TECHNICAL SUPPORT & SERVICE: In addition to normal after sales service, you shall render technical support and services to ensure fitment, proper usage, maintenance and satisfactory performance of the supplied Fire Tenders.

21. JURISDICTION OF COURT: All disputes are subject to jurisdiction of "Singrauli Court" only.

This order will also be governed by the "General Terms & Conditions of Supply of Stores" enclosed with our NIT and all the terms & conditions thereof as well as Provisions of CIL Purchase Manual will be applicable unless otherwise specified in this order.

You are requested to kindly acknowledge receipt and acceptance of order within 10 (Ten) days from the date of issue of order. In case no reply is received, it will be presumed that the order has been accepted by you without any precondition.

Yours faithfully,
For and on behalf of Northern Coalfields Limited, Singrauli

(S K Agrawal)
Chief Manager (MM)

(M A Siddiqui)
Chief Manager (MM)

Encl:

1. Details of Technical Specification – Annexure-I
2. Format for Security Bank Guarantee – Annexure-II
3. Format for Performance Bank Guarantee – Annexure-III

Copy to:-

The Chief Vigilance Officer, NCL, Singrauli.
 The Director Technical (Operation), NCL, Singrauli
 The General Manager(E&M)/(S&R), NCL, Singrauli
 The General Manager(Finance), NCL, Singrauli
 GM/SO(E&M)/SO(Safety)/AFM/Depot Officer, Bina/Khadia/Amlohri.
 The General Manager(MM), CIL/CCL/BCCL/ ECL/SECL/ WCL/ MCL/NEC.

This supply order is issued against Indents of Bina, Khadia & Amlohri Projects as detailed below for procurement against replacement of Fire Tenders / PR Provisions (PRP)/ Approved Scheme:

Sl. No	Project	Indent No. & Date	Sanction No. & Date / Survey Off Sanction No. & Date	Against Surveyed off / PRP / Approved Scheme
1	Bina	Nil dtd. 09.02.2015	-----	Approved Scheme
2	Khadia	KHD/E&M/P&M-1/2015/2196 dtd 27.08.15	NCL/SGR/E&M/Sanction/2015/1049 dtd 19.12.15 : NCL/SGR/E&M/2015/644 dtd 17.08.15	Survey Off of HR 01B2374P
3	Amlohri	Nil dtd 10.10.2014	-----	Against PR Provision

NOTE: As per office Memorandum of Ministry of Finance Govt of India, Purchase of vehicles is banned except against condemned vehicles. This Supply Order for the procurement of 01 No. of Fire Tender for Khadia Project is made against Survey off Fire Tender as per FD's following decision taken in its 456th meeting received vide letter no- NCL/Board/11/(456)/ 421 dtd. 19.05.2014 of Company Secretary:

Quote:

FDs approved the proposal, as submitted, for procurement of vehicles against the initial surveyed off vehicles with the condition that immediately after receipt of new vehicles it is ensured that the corresponding vehicle against which new vehicle is received is grounded for disposal.

Unquote

This instruction must be strictly complied by HOD(S&R) NCL and GM(KHD).

This Supply Order for the procurement of remaining 02 Nos. of Fire Tenders against PR Provision and approved Scheme are made as per FD's following decision taken in

its 465th meeting received vide letter no- NCL/Board/11(465)/ 974 dtd 08.11.2014 of Company Secretary:

Quote:

FDs agreed to the proposal for considering Diesel Bowser, Explosive Vans, Fire Tender, Hydraulic Ladder, Mobile Service Van, Truck Mounted Crane, Water Tanker as supporting equipment for operation and maintenance of mining activities and not barely a vehicle and directed that procurement of new equipment be processed accordingly.”

Unquote

This Supply Order is issued against Indent Registration No. 115A1154 dtd 27.12.15 for procurement of 03 Nos. of Fire Tenders with the concurrence of Dir(Fin), NCL and approval of CMD, NCL having Finance Concurrence No. NCL/HQ/FC/2017-18/Capital/Other P&M_Safety/01 dtd 02.03.17 for Rs.2,16,75,870.00 (Rupees Two Crore Sixteen Lakh Seventy Five Thousand Eight Hundred Seventy only) and Budget Certified vide ref. no. NCL/HQ/C&B/Capital/Other P&M_Safety/2017-18/01 dtd 02.03.17 for Rs. 2,16,75,870.00 (Rupees Two Crore Sixteen Lakh Seventy Five Thousand Eight Hundred Seventy only) of GM (Fin) C&B.

Chief Manager (MM)

Chief Manager (MM)

ANNEXURE-I**DETAILED TECHNICAL SPECIFICATION**

Detailed technical specification for fire tender (Water-Cum-Foam with CO₂ & DCP) should be fabricated on **Tata LPT2518/48 BSIII Chassis** with standard fittings & Schedule of equipment to be supplied with the Fire Tender.

1. The appliance shall incorporate a fire pump of 4000 Liter per minute (LPM) capacity at 5.5kg/cm square, a water tank of 8000 ltrs. capacity, a foam tank of 800 ltrs. Capacity and connected equipment for foam production and also supplementary extinguishing agent (see Appendices A & B).
2. The appliance shall be capable of delivering not less than 2200 ltrs/min of water foam solution converted into foam through a combination of monitor and side lines and not less than 900 ltr/min. of water foam solution converted into foam through the side lines alone when the monitor is not in use or not less than 900 ltrs/min of water converted into foam through the monitor alone.
 - 2.1 The Monitor and the side lines should employ the self-aspirating type of foam production system where aeration is done at the branch pipe. The expansion ratio of the foam produced shall not be less than eight times with the use of the foam compound as prescribed in IS:4989-1974 to give the performance indicated in 2.
 - 2.2 The foam induction system may be a manually operated foam proportioning system of round the pump type selector valve having 0,1,2,3 and 4 position for operation of one or two foam branches or monitor, one foam branch and monitor, 2 foam branches and monitor shall be incorporated with an induction of 5 to 6% in relation to the output of water/ foam solution from the foam branches/monitor.
 - 2.3 A hose reel service shall be provided on the appliance. In addition to water carried on it, it should also be possible to use water from a hydrant or static supply.
 - 2.4 The supplementary agent used for firefighting shall be dry chemical powder (i.e. Appendix-A).
 - 2.5 The unit shall be designed to be as compact as possible, compatible with ease of accessibility in all service parts. The pump and foam making equipment controls shall be so arranged that one man can operate foam or water line from the pump control panel.
 - 2.6 Wheel type valve controls shall be preferred throughout unless these are impracticable in any case.
 - 2.7 CCE approved detachable spark arrestor shall be provided on the exhaust pipe.
- 3. Details of the Carrier Vehicle of the fire tender:-**
 - 3.1 The Fire Tender (WATER-CUM-FOAM WITH CO₂ & DCP) shall be fabricated on **Tata LPT2518/48 BSIII Chassis**, to match engine and pump characteristics. The carrier vehicle shall be provided by the supplier of the Fire Tender.
 - 3.2 The Fire Tender shall be fabricated in a manner so as load distribution conform to the chassis manufacturer's recommendation.

The chassis shall be 6x4, with not less than size 285x65x7 ladder type frame with riveted / bolted cross members. Right hand drive, BS III (Euro III) having more than 4800 mm wheelbase & with fully trimmed drive-cum-crew cabin with suitable PTO. The chassis shall be brand new TATA's LPT2518 of maximum GVW 25000 Kg equipped with the following specifications:

- 3.3 **Engine:** The engine shall be proven with six cylinders in line, water cooled, Turbo charged, Inter cooled, diesel engine, developing min.180 HP @ 2500RPM, with Electronic diesel control system.
- 3.4 **Transmission:** The vehicle should be equipped with automated gearbox, synchronized type with forward and reverse gears. The gearbox can be used by the driver either in fully automatic or in semi- automatic mode. The P.T.O. shall be provide with gear box to drive auxiliary units
- 3.5 **Front Axle:** Heavy duty live axle for four wheel drive mode.
- 3.6 **Rear Axle:** Single or Hub reduction, hypoid gears, fully floating axle shaft
- 3.7 **Steering:** Integral hydraulic power assisted steering.
- 3.8 **Brakes:** Dual circuit fully air braking system with pneumatically operated parking brakes. The braking system shall be including **ABS** (Anti-lock Braking System) to insure excellent braking performances and safety.
- 3.9 **Suspension:** Parabolic / semielliptical leaf spring at front and rear with “Bell crank with multi string” / Hydraulic double acting shock absorber.
- 3.10 **Frame:** The chassis frame shall be provided with adequate cross members, so designed and constructed as to support the gross weight of the body and load, power plant, and all other equipment under specified operating conditions. A bumper fitted to the front of the frame structure and a rear bumper should be supplied. Towing eye should be integrated with the frame rails one at the front and one at the rear of the vehicle.
- 3.11 **Wheels and Tyres:** 10R20 – 16 PR or equivalent (including spare wheel)
- 3.12 **Fuel Tank:** Minimum 300 liters capacity.
- 3.13 **Electrical System:** 12/24 volts. With suitable Ah capacity battery with Alternator. Battery main switch for cutting all power from the battery, switch shall be located at suitable location.
- 3.14 **Telematics / GPS Tracking:** Vehicle shall be providing with suitable telematics / GPS tracking system.
- 3.15 **Drive-cum-Crew cabin:** Specific Fire Fighting forward-control double cab Construction. Self-supporting body fully made of welded sheet steel,

hydraulically tilt-able by means of hydraulic jacks for easy access to engine for service and maintenance purposes.

Corrosion protection, Cavity sealing and under body protection.

Doors: 4 (2 on each side). Opening angle approx. 90°, with winding windows glasses.

Seats layout 1+5 (1 driver plus 5 crew seats)

1 comfortable and adjustable driver's seat, 1 seat beside the driver's seat and 1 bench for 4 men, at the rear of the cab with B.A. set support bracket integrated in the back of the seats. The cab shall be roomy and offer enough space for the crew member to move in and out easily. The cab shall be adequately insulated against noise and the noise level within the cab does not exceed 85 dB A during normal operational conditions. The cab should be equipped with rear view mirrors and close mirror. Fully trimmed with entry assist handles, two piece full width sun blinds, 3 way adjustable driver's seat and fixed with inertial reel lap and diagonal seat belt and heat restraints.

Storage space under rear bench seat. The four (4) seats of the fire crew members at rear, should be equipped with integrated SCBA brackets, which allow for donning the SCBA sets during driving. A shelf with padded front above BA frames for face masks shall be fitted.

Grab-handles and illuminated access steps to allow fire fighter to mount and dismount in safety. Steps to be of sufficient depth to facilitate safe use. The doors should be fitted with electrically/manually roll-down windows. The doors should be forward opening (100%) and made of materials as drivers cab.

The cab shall offer an excellent all-round vision, One piece windshield made of laminated safety glass. Windows glass made of toughened safety glass.

Cabin Accessories: Grab handles for the crew members. Ceiling light for crew cabin, adjustable padded sun visors. Twin electric road horns, front interior lights, kerb mirror on left side, spot lamp, dual speed windscreen wipers, front fog lamps, switched head lights, locker light switch on dash, wiring to roof for light bar and beacons, wiring to dash for amplifier.

Dashboard: The dashboard should be equipped with all necessary gauges, pilot lamps and switches.

Alarm system: A separate control box, holding all controls and switches for the Public Address System shall be dashboard mounted within easy reach of the driver or co-

driver. This control box holds controls and switches for adjusting the electronic siren to the required signal and for simultaneous operation with the Public Address System. Windshield wipers and washers, Cab interior illumination, 12 Volt electrical supply for radio, through an approved voltage dropper.

Other requirements

In addition to normal road lights the vehicle shall be fitted with the following:

Four side lights (two on each side);

Two automatically operated reversing lights with back-up alarm;

Cab light bar: Federal Signal Corporation, All-light system, orange / blue colour mounted on the cabin's roof with model PA 300 electronic siren and light control, plus speakers (microphone).

Rear lamps: Adequate lighting should be provided in all lockers internally automatically switched on while opening the roller shutter.

Note: All labels and plates in the cab will be in English language, where pictograms do not serve the purpose.

3.16 Tool kit : Standard tool kit with jack.

4. MATERIALS SELECTION AND TREATMENT:

4.1 The selection of materials to be used for the construction of the appliance shall be made with a view to combine lightness with strength and durability and BIS applicable for different components shall be as per appendix-C.

4.2 Timber shall not be used in body construction.

4.3 The appliance is intended for use in tropical conditions with constant high humidity and heat. This shall be given full consideration while selecting the materials and reason, use of rubber or other similar materials shall be avoided as far as possible. When it is unavoidable, the parts made out of these materials shall be easily replaceable and shall be easily available.

4.4 All parts which form water ways or come into contact with foam solution shall be of corrosion resisting materials or suitably treated with corrosion resistant compound. All metal parts exposed to atmosphere shall either be of corrosion resisting materials or treated suitably to resist corrosion.

4.5 Ferrous metal shall not be used with chromium plated fitting and the plating of all such fittings shall be of proper equality i.e. of SS304.

4.6 Lubricating nipples shall be provided wherever necessary.

4.7 Pipes used shall be at least of medium duty and shall withstand two times the maximum working pressure.

5. ENGINE:

5.1 The engine should be provided with cooling system to permit its continuous stationary running without overheating. Indirect cooling system should also be incorporated,

which should be of the open circuit type discharging water to waste. The operating temperature of the engine cooling water should preferably be thermostatically controlled.

5.2 The oil in the oil pump shall be prevented from over-heating.

5.3 Suitable gauge for cooling water and glow lamp for lubricating system shall be provided in the driver's cab and on the pump panel. This shall be marked with operating temperature.

6. POWER TAKE-OFF:

6.1 A full torque transmission inline power take off indigenous make Master Harper design full capable of transmitting 30m KG at 1800, 2000 RPM and having a stop up gear ration min. of 1:1:42 for driving the Fire pump shall be used. The power take off shall be brand new and approved quality with arrangements for cooling of oil in PTO casing from fire pump when pump is in operation so that the temperature of oil does not exceed the specified limits. The operating lever of the PTO shall be located in the drivers cab with arrangement for locking it in positions for operation the vehicle on road.

6.2 The power take-off shall be study, robust and mounted in a manner to achieve rated road performance without any undue dure as on engine or other systems and the arrangements for it's mounting coupling of shafts shall be in conformity with design and system of the vehicle.

6.3 The drive assembly components (shaft, coupling etc.) should be dynamically balanced. Necessary support for PTO units, propeller shaft coupling, universal joints etc. for power input to and output for PTO unit should be provided.

7. PUMP: It will be double stage centrifugal pump of 4000 LPM capacity. The pump casing and other parts shall be of gun metal but with stainless steel shaft and suitable for use with brackish water and also compatible with any type of foam compound. The pump shall have an inlet of suitable size not less than 100mm. (round threaded) and four delivers of 63mm which shall deliver not less than 4000 ltr/Minute of water at a pressure not less than 8.5 kgf/sq. cm with normal suction lift of 03 mtrs. The pump mounting is to be so arranged in the rear in such a way that day to day maintenance, repairs and periodical inspection can be carried out easily without much difficulties. The pump should have required blank caps of gun metal. Plumbing if any fro deliveries and the monitor shall be adequate in dimension to ensure that it shall deal adequately the foam producing mixture at its maximum rates of output.

8. PRIMER:

8.1 The primer shall be reciprocating piston type and exhaust ejector type. It shall disengage automatically as soon as the pump is primed. It shall be capable of lifting water at least from seven meters depth within 24 seconds. The fabricator of foam tender shall furnish the complete details of priming system withdrawing clarifying the details of metal components. The priming system shall be installed in such a way that

periodical maintenance and repairs of the same can be carried out without much difficulty.

9. WATER TANK:

9.1 A water tank of 8000 Ltrs. Capacity shall be mounted on the chassis. It shall be fabricated out of stainless steel SS-304. The thickness of the sheet at the bottom should not be less than 5mm & thickness at the top, side & baffle plates not less than 4mm and shall be suitably baffled in both the directions to prevent surge while the vehicle is accelerating, cornering and braking.

If any parts are liable to corrode, it shall be treated for anticorrosion with epoxy paint consisting of one coat of primer and two coats of finish after sand blasting of inside surface. The baffles shall be arranged in a manner facilitate the passage of a man throughout the tank for cleaning purposes. It shall be mounted on the chassis in a manner keeping in view the proper load distribution on the axles and shall be so designed as to bring the center of gravity as low as possible in the chassis. It shall be rectangular in shape and the mounting of the tank shall be flexible type to prevent the tank distortion due to chassis flexion. The mounting shall permit full contents of the tank with the fitments of withstand hydrostatics pressure of 0.3 bar.

9.2 Suitable lifting eyes shall be provided on the shell of the tank to enable the tank to be lifted off the vehicle for repairs or replacement as necessary.

9.3 The tank shall be fitted with two filling orifices, drain cock, a manhole and cleaning hole. The filling orifice shall be of not less than 450mm diameter and shall be fitted with a manhole cover of 45cm. Dia minimum and filter cap clearly marked "water" preferably cast in metal. In addition, two 63mm instantaneous hydrant connection, incorporating a strainer, shall be provided close to the pump panel control for filling the tank through 75mm diameter pipe or feeding the hose reel equipment. An 100mm dia pipe line shall be taken from the tank to the suction spherical type valve. Separate valve for performing different functions shall be provided to control the flow of water. Drain plug or cocks shall be provided wherever necessary. A cleaning hole of not less than 25 cm. Diameter shall be provided at the bottom of the tank and it shall be fitted with bolted cover.

9.4 The tank shall be fitted with a 50mm diameter overflow pipe. The discharge ends of the overflow pipes shall be taken down to point well below the chassis without reducing the effective ground clearance when fully loaded and shall discharge away from the wheels.

9.5 Dial Gauge water level indicator for the tank shall be provided preferably in the driver's cap or a visual level gauge of toughened glass tube shall be provided at the control panel calibrated $\frac{1}{2}$, $\frac{3}{4}$ and full (preferably calibrated in liters).

9.6 The tank shall be connected to the pump and hose reel in such a manner that pressurization of water tank or water tank pump connection is not possible when pumping water from an outside source of supply.

9.7 The plumbing between the pump and the hose reel shall have a clear and unobstructed water way of not less than 25mm throughout without any obstruction.

10. FOAM COMPUND TANK:

10.1 The foam compound tank shall be stainless steel welded construction. However, selected thickness of the tank shall be suitable for required strength & durability of fire tender. A foam compound tank of about 800 ltrs. Capacity shall be mounted on the chassis in such a way that under no circumstances the balancing of the vehicle gets disturbed due to overweight or underweight. The S.S. 304 should be used for fabrication of tank. The thickness of the sheet at bottom should not be less than 5mm and the other plates 4mm including the baffle plates. It shall withstand hydraulic pressure of 03 kg/Sq.cm.

10.2 The tank shall have filling orifice of not less than 150mm diameter with a removable strainer fitted to it. A suitable man hole of not less than 450mm shall also be provided.

The strainer shall be of material which shall not be affected by constant contact with foam compound and its total staining area shall be adequate to permit quick filling of foam compound into the tank. The filler cap shall clearly marked "FOAM" preferably by die pressing, casting.

10.3 The foam compound draw-off tube shall be positioned in the center of the pump in such a manner that foreign matter or sludge shall not pass into the compound line. The draw off tube shall be fitted with a gauge strainer of suitable material mesh, size and adequate straining area. The tank top joint between the top and the body of the tank to be leak proof.

10.4 Means shall be provided for automatic venting of the foams compound tank when the foam is being produced or the tank is being filled. This shall not be incorporated with the cap. The device employed shall be as simple as possible and shall not get clogged easily during normal use of the appliance.

10.5 Filling pipe of diameter 63mm shall be fitted to foam tank, with male instantaneous coupling, strainer and isolation valve to facilitate filling of foam tank either though foam nurser, pump or barrel pump.

The draw-off tube shall be connected to the foam compound proportionator inductor and pump, as necessary and automatic flow control valve shall be incorporated in it so as to maintain a constant inducting rate of not more than 6 percent with varying foam output. The plumbing for this purpose shall have clear and unobstructed passage of not less than 50mm throughout and shall:-

- (a) Be as short is possible.
- (b) Be capable of being easily dismantled for internal cleaning.
- (c) Be provided with means of through flushing after use and
- (d) Not foam "U" bend or abrupt angle at any portion and capable of being drained easily without dismantling.

10.6 Provision shall also be made for drawing foam compound into the foam producing system from an external source through a pick-up tube while producing foam.

11. FOAM COMPOUND INDUCTOR AND FLOW SELECTOR VALVE:

11.1 A foam compound inductor shall be fixed between the foam compound tank and the pump. It shall be designed for operation by water under pressure passed

through it from the pump valve and shall have capacity of induction sufficient foam compound to feed the monitor and the side lines worked simultaneously. The inductor shall be so installed that it shall not be liable to mechanical damage. Foam compound inductor shall be of round the pump ventury type proportioner with selector valve having 0.1.2.3.4 positions setting and marked on panel and be capable of feeding sufficient percentage of a foam compound to feed monitor of not less 7300 ltr/m capacity and also tow side line of 3600 ltrs/m minimum each foam production capacity.

12. MONITOR:

12.1 A long range multipurpose water cum foam monitor shall be mounted on the top of the appliance in such a manner that it can be manually operated by a member of the crew. The monitor shall be capable of traversing through 360 degree C in a horizontal plane, elevating from horizontal to 90 degree [(+)75, (-) 15] and depressing from horizontal to not less than 15 and fully rotating in both directions.

12.2 The aggregate foam discharge shall be not less than 16000 ltrs/min through a combination of monitor and two side lines.

12.3 The monitor shall be capable of projecting the foam discharge to an effective distance of not less than 55 mtrs. In still air when operated at the designed pressure in a straight jet pattern without dripping. The monitor shall be capable of discharging foam @ 11000 LPM to a distance of 55 mtrs. alone. The design of the monitor should be such that all the extinguishing agents i.e. water, foam, CDP Center discharged together or individually from the said nozzle of the monitor should be no aspirating type.

12.4 HAND LINES:

12.4.1 Two hand lines with ball valve control one on either side of appliance at the rear shall be provided in suitable lockers and kept in flaked condition. These shall terminate in foam making branch pipes fitted with spray/jet attachments, with hand control. Each foam making branch pipe shall be capable of delivering not less than 450Lpm of water foam solution at pressure of 7kg/Sq. cm with an expansion ratio of not less 8 times and minimum effective throw of 20m, when both are used simultaneously.

12.4.2 The hoses for hand lines shall have an internal diameter of 63mm. these shall be reinforced rubber lined type and be in length of 30m each and ISI Marked, IS-636 Type B.

12.4.3 The control for the hand lines outlet shall be of ball valve type with standard hose connections situated in the respective lockers.

13. HOSE REEL:

13.1 One no. of sturdy hose reel of 60m length of 20mm bore hose is required to be mounted on the foam tender.

14. CARBON DIOXIDE EQUIPMENT :

The Carbon Dioxide extinguishing system shall comprise of 6 nos. of high pressure carbon dioxide cylinders (3 nos. at each side). The specification of the system shall be here under:

- (i) Standard of the extinguisher: Conforming to IS: 2878.
- (ii) Standard of the Cylinder – Mild steel ISI marked conforming to IS: 7285.
- (iii) Discharge valve: (Disc - Spindle types) – Conforming to IS: 3224.
- (iv) Safety Device – Conforming to IS: 5903. A pressure relief valve or safety bursting disc shall be incorporated in the manifold.
- (v) Siphon Tube & manifold plumbing – Brass - Alloy No.2 of IS: 407. Tested to pressure of not less than 220kg/sq. cm.
- (vi) Non return valves: Conforming to FLB-IS: 6912 fitted in the manifold to prevent back-flow of gas in the other cylinders.
- (vii) Hoses: Both sides 30m in length, shall be IS-marked with bursting pressure of 275 kg F/cm² is a controlled discharge.
- (viii) Discharge Horn: Material - polythene, discharge rate – more than 45kg/minute, replaceable by well design extension applicators.
Discharge horn/ extension applicators shall be provided with a shut off valve.
- (ix) Extinguishing medium: Co2 gas as per IS: 15222.

It shall be possible to operate each cylinders individually and at least three of the cylinders collectively bot from the driving compartment and the cylinder position. The carbon dioxide hose reels shall be fitted with friction brakes. Swiveling guide rollers shall be fitted. The Co2 hose reel should be accessible from both side of the appliance.

15. PROVISION OF DRY POWDER AS A FOURTH EXTINGUISHING MEDIA:-

15.1 The details of provision of dry chemical powder as this extinguishing media is at Appendix A.

16. EXTENSION LADDER:

16.1 One aluminum extension ladder of about eleven meters length (i.e. 35 feet) is required to be provided on the foam tender. The ladder shall be of standard make. Means shall also be provided for locking the ladder when stowed.

17. CONTROL PANEL:

17.1 The control panel shall be of a standard design which gives operating efficiency to the operator of foam tender. It is also desirable that all the greasing nipple shall be provided at easily accessible location.

17.2 Instrument & Control :- As per the following :-

Adequately illuminated control panel shall be provided near the dump.

The control panel (s) shall include the following:

- a) Throttle control for engine;
- b) Pressure gauge – 0 to 17.5kgf/cm²;for low pressure (glycerin filled)
Pressure gauge – 0 to 50 kgf/cm²; for high pressure (glycerin filled)
- c) Compound gauge (glycerin filled) calibrated as under;
Vacuum – 0 to 75 cm Hg, preferably in black.
Pressure – 0 to 15 kgf/cm², preferably in black;
- d) Primer control for exhaust primer
- e) Temperature gauge and glow lamp for lubrication system.

- f) Cooling water circuit control.
- g) Water tank valve
- h) Foam tank valve
- i) Foam proportioning valve
- j) Auxiliary foam connection with valve.
- k) Monitor valve
- l) Delivery valves
- m) Suction inlet.
- n) Hose reel valves
- o) Water level indicator
- p) Foam level indicator.

18. COMMUNICATION SYSTEM:

18.1 When the foam tender is in motion and to alert the other street-users, fire bell, typical of siren or horn is required to be provided. Arrangement for mounting public address system with amplified, all its equipment shall be done in such a way that this will provide maximum utility. It shall be operated through chassis battery as well as direct alternated arrangement of spill proof batteries.

19. BODY WORK AND STOWAGE:

19.1 Enclosed accommodation with double compartment for driver and leader in the front seat and crew of five in the rear seat shall be provided. The design of the cab shall be such that it shall afford maximum possible vision for the crew and shall ensure adequate ventilation. Two hinged doors shall be provided on both sides of the appliance giving ready access to driver and crew. The doors should open outward, these shall hand forward and have locks with double catch plastic shall be provided to assist the driver and crew to get in and out. All the seats should be fitted with 100mm thick foam cushions. Driver's seat should be of adjustable type. All glasses fitted to the door windows shall have winding type regulator and shall be of splinter proof safety type. Two Nos. sun visors one on each side should be provided. The construction of the cab shall be such that the roof shall support the weight of two men without damage. Provision should be made to accommodate 2 nos. of B.A. Sets 45 Minutes duration complete in at the back rest of crew cabin with suitable curvature.

19.2 Lockers shall be provided for secure stowage of all equipment given in Appendix B. The height of the lockers from the bottom to the top or the opening should be not less than 600mm and the depth not less than 450mm.

19.3 All lockers shall be provided with internal automatic lighting arrangement with the master switch in the cab. The doors of the side lockers shall not be hinged at the bottom.

19.4 Arrangement on roof shall be provided to carry four 2.5mm lengths of suction hoses in convenient location.

19.5 The exposal surface portion of the foam tender shall be fitted with good quality of aluminum chequered plate. The entire body work shall be done with MS pressed channel and other steel members. The external paneling is required to be done with aluminum sheets.

All other exposed parts of the foam tender shall be covered by aluminum chequered plate (minimum 12 gauge thick) including that of store /lockers flooring. Similar flooring is required to be provided in drivers cabin also. Grab rails, non-slip steps, handles etc. shall be provided at the required locations.

20. STOWAGE LOCKERS:

20.1 All equipments as specified in Appendix B shall have the arrangement of stowage/lockers in such a way that all the equipment are carried on the foam tender in a very systematic order. Where required suitable stand holder clips, belts etc. should be provided. Beside the equipment mentioned in Appendix-B suitable stowage arrangement shall be provided on the foam tender for carrying 2 nos. of BA sets in boxes and 2 nos. of protective suits in boxes.

20.2 An electrical bell to send signals from rear pump control panel to driver's cabin shall be provided on the pump panel.

21. WORKMANSHIP AND FINISH:

21.1 The standard of workmanship and finish of all mechanical parts shall be such that the parts normally required to be replaced can be supplied and that they shall fit in correctly without causing difficulty. The entire appliance metal surface except chrome plated or stainless steel shall be thoroughly cleaned, prepared and painted in "Fire Red" paint of shade no. 536 of IS 5-1978 and thickness of 0.12 to 0.2mm using double coat spray painting of the outside. The paint shall conform IS:2932. The driver's compartment shall be illuminated and the inside of lockers shall be painted cream.

21.2 ELECTRICAL SYSTEM:

21.3 A trickle type battery charger shall be provided for recharging the battery in side. A red pilot lamp, indicating when the battery is being charged from an external supply shall be provided.

21.4 All important electrical circuits shall have separate fuses suitable indicated and shall be grouped into a common fuse box located in an accessible position in drivers cab and fitted with means for carrying spare fuses. The wiring shall be single pole and shall not be exposed to the atmosphere. Conduits shall be used whenever necessary.

21.5 Appliances and accessories as noted in Appendix-D shall be fitted with the tender.

22. DRAGHOOK TOWING HOOK:

22.1 Drag hooks or eyes and towing hook of adequate strength will be fitted the chassis in the front and rear at appropriate location.

22.2 OVER ALL DIMENSIONS:

22.3 Fabrication of foam tender shall conform to all rules and regulations of regional transport officer (RTO) in respect of length, breadth and load capacity.

23. OPERATIONAL MANUALS AND TECHNICAL LITERATURES:

23.1 Three (3) sets of operational manual shall be supplied along with foam tender in which details instruction regarding operation, care and maintenance of pump, primer, PTO, CO2 & DCP system, foam and foam compound tank and all other accessories fitted on the foam tender shall be described. The operation manual shall also cover details regarding spare parts numbers etc. with sketches where necessary.

- 23.2 The contractor shall also submit the following literatures:
- (i) Identification part list with part no., price & giving other details like materials, dimensions etc.
 - (ii) Repair and maintenance manual.
 - (iii) Spare parts catalogue shall be provided to ensure availability of spares as and when required.

Two sets of literatures mentioned above should be provided and supplied with each equipment.

24. ACCEPTANCE TEST:

- 24.1 the appliance shall be subject to the tests given below: These tests may be made at the manufacturers works or elsewhere as may be agreed between the purchaser and the supplier. The pump test and primer test shall be at NTP conditions. Due allowance shall be given for altitude humidity and temperature.

25. PUMP SET:

- 25.1 In addition to the test to check that the pump fulfills the requirements laid down in Para 6 and the pump shall run for four hours continuously and meet the duty points.

- 25.2 Accordingly, during the test, the water in the engine cooling system shall not require replacement, the temperature of the engine lubricating oil shall not exceed the maximum temperature recommended by manufacturer and the engine shall show no signs of distress.

26. HYDRAULIC TEST PUMP:

- 26.1 Pump shall be hydraulically tested at 21kg./Sq. cm for 5 minutes and during test no crack or leakage should be developed.

27. PRIMER TEST:

The primer test shall be carried out with a vertical lift of measured from the water level to the center of the suction eye of the pump in order to check the fulfillment of the requirement laid down in Para 8.1.

28. FOAM EQUIPMENT TEST:

The foam hand lines inductor, selector valve and the foam monitors will be tested to satisfy the performance requirements specified vide Para 10.1, 12.2 and 12.3.

29. ROAD TESTS:

- 29.1 Though the performance of the appliance in road test will mainly depend on the engine and chassis, the following performance in the road test will be desirable.

- i) A road speed of 72 km/h on level ground shall be readily obtainable with the appliance fully laden without trailer.
- ii) The acceleration shall be such that with a warm running engine the fully laden appliance shall attain a speed of 80 km/h from standing start through the gears in a maximum time of 40 seconds on a smooth road in the case of diesel engine driven vehicles.
- iii) The service (foot operated) braking system shall be such as to stop the fully laden appliance within 9m from the point at which the brake is applied when traveling at 32 km/h along a level dry road. The hand brake system shall be

capable of holding the fully laden appliance stationary on a dry surface gradient of 1 to 4 when in neutral gear.

30. STABILITY:

30.1 The stability of the appliance will gain depend both on the chassis and fabrication of the body. The fabricator must take good care to actual distribution of the load and keep the center gravity as low as possible. The stability of the appliance shall be such that under fully equipped and loaded condition (including crew) if the surface on which the appliance stands is tilted to either side, the point at which over turning occurs is beyond the angle of 30 degree from the horizontal.

NOTE: The fabricator of the appliance should provide suitable facilities for carrying out all the test specified above.

31. STAGE AND FINAL INSPECTION:

31.1 Representative of the purchasing organization or their authorized representative shall carry out stage inspection and final inspection at the fabricator works and suggestions and modifications suggested will have to be incorporated to achieve better performance and efficiency of the foam tender.

31.2 Inspection procedure for Self Propelled Multipurpose Foam cum DCP Fire Tender:

Inspection shall be carried out in stage in conformity with the specifications, approved drawing and standard specified in the specification.

STAGE – 1

After completion of under structure:

- i) Check Material Test Certificates (MTC), components/sub-assemblies identification before fabrication.
- ii) Check dimensions of understructure on chasses, fabricated components as per specifications & approved drawings.
- iii) Check all document including documents of imported items like original bill of lading for imported items.
- iv) Check welding procedure, welder qualifications as per relevant ASME codes/standard.

STAGE – 2

After completion of paneling –

- i) Check overall dimensions, body work, cab interior fittings.
- ii) Check NDT/NDT records of welded joints as per ASME Sec. V, extent NDT as per specifications.
- iii) Check construction details of Water Tank and Foam Tank and carry out hydro test at 0.3 Kg/ Cm². Check sheet thickness, check chemical composition of metal for SS 304. Check capacity of both the tanks check all piping/fittings, internals, bolts & nuts of the tanks for SS 304. Leakage test for both the Tanks

for 24 hours. Check all piping hydraulic test pressure of 18 Kg/Cm² for a minimum 30 minutes.

- iv) Check location/placement of control panel, Instruments, controls, other equipment & accessories etc.
- v) Test power take off unit (PTO)
- vi) Test the foam inducting & foam compound proportionat or system.
- vii) Verify monitor position and its movements.
- viii) Carry out hydrostatic test of pump (centrifugal) as per specification.
- ix) Radiography of the water tank, foam tank and DCP vessel.

STAGE – 3

After completion of fitment & painting.

- i) Check stability of the unit after mounting all equipment and accessories. It should be free from undue rattling and vibration.
- ii) Each appliance shall be clearly and permanently marked.
- iii) Check proper functioning of all types of signal lights, alarms, Bell etc.
- iv) Check quality of workmanship.
- v) Painting of exterior/Interior of Foam Tender, Fire Service Insignia conforming to IS.
- vi) Check completeness of equipment for any deficiency in quantity to standard quality or non-conformation to specification should be rechecked.
- vii) Check calibration of instruments, gauges, tools, accessories etc.
- viii) Check operation of various levers, locks, caps, fitment of tanks, linkages, marking and plumbing work.
- ix) Check storage space for adequacy.

32. MARKING:

32.1 Each appliance shall be clearly and permanently marked with the following information:-

- a) Manufacturer's name, or trade mark, if any engine & chassis number.
- b) Capacity of the pump in liters/minutes, capacity to the water tank and foam tank in liters and
- c) Year of manufacture.
- d) A word "FIRE" shall be painted on the front side and NAME OF THE FIRE SERVICE as FIRE STATION CISF FIRE WING NCL BINA, FIRE STATION NCL Amlohri and FIRE STATION NCL Khadia as the case may be shall be painted on both sides panels with appropriate size of lettering.
- e) NCL emblem shall be painted on both sides.
- f) All switches controls gauges valves, water lines, foam lines and man holds shall be marked/embossed /engraved with name plates.

33. DETAILS OF DRY CHEMICAL POWDER TYPE EXTINGUISHERS.

33.1 The total quantity of supplementary agent shall be not less than 150 kg. of ABC dry powder i.e. 90% Ammonium Phosphate and shall conform to IS:4308-1982.

33.2 The dry powder system shall comply with the following minimum requirements.

- 33.3 The dry powder system comprise of two self-contained units each having a capacity of 75 kg of 90% Map dry powder
- 33.4 The expellant employed for the dry powder units shall be nitrogen. The capacity of the nitrogen cylinder employed for this purpose shall be adequate to ensure complete discharge of the dry powder contents at a rate of not less than 2.25kgs/ Sec from each units. A well designed pressure control system shall be provided to regulate the pressure of nitrogen gas and maintain a constant powder discharge pressure throughout the operation of the unit. If CO₂ is to be used as expellant, the manufacturer of foam tender shall specify about the same.
- 33.5 The dry powder unit shall have a discharge outlet fitted with not less than 22m of minimum 25mm bore hose terminating in a trigger control shout off nozzle, capable of producing either a straight get or gun spray pattern of discharge. The range of jet shall be not less than 12m. Details about make of hose and specification to which it confirms shall be specified.
- 33.6 The hose and nozzle shall be stowed suitable in lockers on either side of the appliance to facilitate speedy run out on arrival at an accident.
- 33.7 It will be appreciated that the container of such media are kept movable so that same can be taken out and moved closer to the fire for effective extinguishments.
- 33.8 Necessary flushing facility shall be provided to flush out the residual powder in the discharge hoses after the use.
- 33.9 All the component of the extinguishers shall conform to relevant BIS Standard.

34. DOCUMENTATION:

- I) Certification that the fire Tender has been designed, manufactured and tested to meet the specified requirement.
- II) Test certificate of OEM for pump and PTO unit.
- III) Performance test certificate.
- IV) Certificate for roadworthiness of Fire Tender.
- V) Warranty/Guarantee Certificate.

A-1 DETAILS OF DRY CHEMICAL POWDER TYPES EXTINGUISHING SYSTEM

- A.1.1 The total quantity of supplementary agent shall be not less than 150 kg. of ABC dry powder i.e. 40% Mono Ammonium Phosphide and shall conform to IS; 4308-1982.
- A.1.2 the Dry powder system shall comply with the following minimum requirements.
 - A.1.2.1 The dry powder system shall comprise of two self-contained units each having a capacity of 75 kg. of ABC MAP 40% dry powder.
 - A.1.2.2 The expellant employed for the dry powder units shall be nitrogen. The capacity of the nitrogen cylinders employed for this purpose shall be adequate to ensure complete discharge of the dry powder contents at a rate of not less than 2.25 kgs/Sec from each units. A well designed pressure control system shall be provided to regulate the pressure of nitrogen gas and maintain a constant powder discharge pressure throughout the operation of the unit. If CO₂ is to be used as expellant, the manufacturer of foam tender shall specify about the same.
 - A.1.2.3 The dry powder unit shall have a discharge outlet fitted with not less than 22mm of minimum 25mm bore hose terminating in a trigger control shut off nozzle, capable of producing either a straight jet or gun spray pattern of discharge. The range of jet shall be not less than 12m.
 - A.1.2.4 The hose and nozzle shall be stowed suitably in lockers on either side of the appliance to facilitate speedy run out on arrival at an accident.
 - A.1.2.5 It will be appreciated that the container of such media are kept movable so that same can be taken out and moved closer to the fire for effective extinguishments.
 - A.1.2.6 Necessary flushing facility shall be provided to flush out the residual powder in the discharge hoses after the use.
 - A.1.2.7 All the component of the extinguishing system shall conform to relevant BIS standard.

APPENDIX-B

Schedule of equipment to be supplied with each appliance (Fire Tenders).

Sl No.	Items	Quantity
1	Extension ladder – 10.5M (35F) Al.	1 No.
2	Armoured suction hose complete with round thread couplings to suit the pump, inlet 2.5m long	4 Nos.
3	RRL delivery hose, 63mm in 30 meters length marked with IS:636.	15 Nos.
4	Suction strainer for item-2	1 No.
5	Basket strainer for item-2	1 No.
6	Dividing breaching made of light alloy	2 Nos.
7	Collecting breaching made out of light alloy	2 Nos.
8	Suction wrenches	1 Pair
9	Long line, 50mm circumference 30M long	2 Lengths
10	Short line, 50mm circumference 15M long	2 Lengths
11	Hose bandages, rubberized	12 Nos.
12	Hose Clamps	6 Nos.
13	Hydrant Valve key and bar	1 Set.
14	Fog nozzle with extension applicator with fog head	1 No.
15	Hand controlled branch for 63mm size hose coupling	1 No.
16	Branch pipe, universal	1 No.
17	Branch with revolving head	1 No.
18	Fast action nozzle branch	4 Nos.
19	Nozzle of sizes of 12mm, 16mm, 20mm and 32mm (two each). Adaptor for 100mm suction female screw Adaptor double female instantaneous pattern 63mm Adaptor double male instantaneous pattern 63mm	8 Nos. 2 Nos. 2 Nos. 2 Nos.
20	Nozzle spanner	2 Nos.
21	Dragon light/search light having 160mm diax360mm length, fitted with specially designed deep parabola reflector having 55 watts halogen lamp, 12 volts 7AH maintenance free battery (Rechargeable), Dazzling light with a range of 1000 m.	2 Nos.
22	Hand lamp torch (5 cell)	2 Nos.
23	First aid box for 10 persons	1 No.
24	Rubber gloves	1 Pair
25	Asbestos gloves	1 Pair
26	Axe large	1 No.
27	Spade	1 No.
28	Pick axe	1 No.
29	Crow bar	1 No.

30	Sledge hammer 6.5 kg.	1 No.
31	Carpenters saw 60 cm	1 No.
32	Fire hook	4 Nos.
33	Tool kit	1 No.
34	Foam Making Branch 10x	2 No.
35	Triple purpose branch 63mm	2 No.
36	Lowering Line 16mmx30 m long IS 1084-1969 (GD II)	2 Nos.
37	DH 38mm, RRL in 30m length complete with instantaneous coupling long branch	4 Nos.
38	Triple purpose branch pipe 38 mm size	2 Nos.
39	Soft suction (63mm), RRL hose fitted with instantaneous coupling 5m length	1 No.
40	Fire beater	1 No.
41	B.A. Sets with carrying case	2 Nos.
42	Inspection Lamp with brackets	1 No.
43	Suction Collecting head 3 way suitable size to suction hose, gum metal IS904-1983	2 No.
44	Flame Proof Lamps approved by CCE, Nagpur	3 Nos.
45	Hose Sling	2 Nos.
46	Shovels GS 200mmx240	1 No.
47	Door Breaker	1 No.
48	Tripod Stand for search light	2 Nos.
49	Quick release Knife IS:5486-1985	1 No.
50	Stretcher as per relevant IS & manufactured with good quality fiber to carry a 90 KG person.	2 Nos.
51	Hose ramp 30 ton capacity marked as per relevant IS.	1 No.
52	Foot valve suction hose.	1 No.

Note: All CO2 cylinders shall be duly certified by Chief controller Explosive and hydraulically tested. The certificates shall be supplied by the fabricator along with supply.

APPENDIX-C

BIS APPLICABLE FOR DIFFERENT COMPONENTS OF FIRE TENDER TO BE ADHERED FOR FIRE TENDER:

BIS NO.	Description of item.
951	Specification for functional requirement for crash fire tender for Air Field.
318	Leaded Tin Bronze ingots & castings.
44	General purpose rubber water hose.
636	Synthetic type-B, Reinforced rubber lined delivery hose (Type-A).
704	Crowbars & claw bars.
901	Specification for couplings.
902	Suction hose coupling
903	Fire hose delivery
904	2 ways & 3 ways suction collecting head
905	Delivery breaching, dividing & collecting instantaneous pattern.
910	Combined key for hydrant,
927	Fire hooks
952	Fog Nozzle for fine brigade use.
1084	Manila Ropes
2871	Branch Pipes, Universal for fire fighting purpose
3585	Water strainers
4770	Rubber gloves for electrical purpose
5131	Dividing breaching with control for fire brigade use
6603	S.S. Bars and flats
7794	Manual portable grease guns.

The following accessories shall be provided along with the fire tender :

- a) Fire Bell: A252mm diameter (Natural Tone Carillon) Fire Bell shall be mounted externally and shall be capable of being operated from within the driving compartment. The bell shall be hand operated type.
- b) Siren: Electrically operated siren of 2 km range shall be provided on the driver's cabin roof.
- c) For lamps two: Low mounted and of approved design.
- d) Reversing Light Two: Suitably situated to assist reversing.
- e) Twin Amber Blinker Light: Situated on the head of the driving compartment.
- f) Trafficator: 1 Set: Illuminated with indicating light on instrument panel or in any other prominent position in driving compartment.
- g) Search Light One: Adjustable to give flood or beam light, mounted in a convenient position but capable of being readily disconnected and mounted on a tripod away from the appliance, complete with tripod and with not less than 30m of TRS cable on a reel mounted on the appliance.
- h) Inspection Lamp with bracket one: Protected type of wonder lead type with plug. A socket shall be provided with control panel and in the driver's cab for plugging in lamp.
- i) Connection for Tail Light of Trailer: An efficient twin wire socket and plug of connection the cable for the tail light of a trailer.
- j) Trickle type battery charger mounted on the vehicle under crew seat with quick release plug and socked arrangement.
- k) Cab, instrument panel and locker, lights besides head lights
- l) Electrically operated barred pump of capacity 75 lpm.
Approximately, head 3m, body and impellor of stainless steel and having 5 meter flexible hose, detachable type with 63mm female instantaneous coupling – 01 number.

Chief Manager (MM)

Chief Manager (MM)

Annexure-II**FORMAT OF BANK GUARANTEE FOR SECURITY**

In consideration of M/s. Northern Coalfields Limited (a subsidiary of Coal India Limited) Singrauli PO- Singrauli Colliery , Dist.- Singrauli (MP) (hereinafter called the Company) having agreed to exempt M/s. _____ from the demand, under terms and conditions of an agreement/order No. _____ date _____ made between the company and the said contractor(s) for _____ (Hereinafter called “ the said description of the agreement/order”) of security deposit for the due fulfilment by the said contractor(s) of the terms and conditions contained in the said agreement , on production of a Bank Guarantee for Rs. (Rupees..... Only).

1. We _____ (indicate the name of the Bank with address) (Hereinafter referred to as “ the Bank”) at the request of the contractor(s) do hereby undertake to pay to the company an amount not exceeding Rs. _____ against any loss or damage caused to or would be caused to or suffered by the company by reason of any breach by the said contractor(s) of any of the terms or conditions contained in the said agreement.
2. We _____ (indicate the name of the Bank) do hereby undertake to pay the amounts due and payable under this guarantee without any demur, merely on a demand from the Company stating that the amount claimed is due by way of loss or damage caused to or would be caused to or suffered by the company , by reason of breach by the said contractor (of any of the terms and conditions contained in the said agreement or by reason of the said contractor (s) failure to perform the said agreement . Any such demand made on the Bank shall be conclusive as regards the amount due and payable by the Bank under this guarantee. However, our liability under this guarantee shall be restricted to an amount not exceeding Rs _____
3. We undertake to pay to the company any money so demanded notwithstanding any dispute or disputes raised by the said contractor (s) in any suit or proceeding pending before any court or Tribunal relating there to our liability under this present being absolute and unequivocal. The payment so made by us under this bond shall be a valid discharge of our liability for payment there under and the said contractor (s) shall have no claim against us for making such payment.
4. We _____ (indicate the name of the Bank) further agree that the Guarantee herein contained shall remain in full force and effect during the period that would be taken for the performance of the said agreement and that it shall continued to be enforceable till all the dues of the company under or by virtue of the said agreement have been fully paid and its claim satisfied or discharged or till the company certifies that the terms and conditions of the said agreement have been fully and properly carried out by the said contractor (s) and accordingly discharges this guarantee. Unless a demand or claim under this Guarantee is made on us in writing on or before the _____ (Date).we shall be discharged from all liability under this Guarantee thereafter.

5. We _____ (indicate the name of the Bank) further agree with the company _____ o the company shall have the fullest liberty without our consent and without affecting in any manner our obligations hereunder to vary any of the terms and conditions of the said agreement or to extend time of performance by the said contractor (s) from time to time or to postpone for any time or from time to time any of the powers exercisable by the company against the said contractor (s) and to forbear on enforce any of the terms and conditions relating to the said agreement and we shall not be relieved from our liability by reason of any such variation , or extension being granted to the said contractor (s) or for any forbearance, act or omission on the part of the company or any indulgence by the company to the said contractor (s) or by any such matter or thing whatsoever which under the law relating to sureties would, but for would , but for this provision have effect of so relieving us all . The Bank further agrees that in case this guarantee is required for a longer period and it is not extended by the Bank beyond the period specified above, the bank shall pay to the company the said sum of Rs. _____ or such lesser sum as may then due to the company and the company may demand.
6. This Guarantee will not be discharged due to the change in the constitution of the Bank or the said contractor (s).
7. The Bank has under its constitution power to give this guarantee and Mr. _____ who has signed it on behalf of the Bank have authority to do so.
8. We, _____ lastly undertake not to revoke this guarantee during its currency except with the previous consent of the company in writing.

Dated theday of

Signature of the authorized person
for and on behalf of the Bank
SEAL of the BANK

ANNEXURE – III

PERFORMANCE BANK GUARANTEE FORMAT

M/s. _____, a company having its office at _____ (hereinafter, called the seller) has entered into a contract No. _____ dated. _____ (hereinafter called the said contract) with Northern Coalfields Limited (hereinafter called the purchaser) to supply stores/materials on the term and conditions contained in the said Contract.

1. It has been agreed that hundred percent (100%) payment of the value of the order will be made to the Sellers in terms of the said contract on the Seller furnishing to the purchaser a Bank Guarantee for the sum of Rs. _____ equivalent to 10% value of the stores/materials supplied by the seller as security for the due and faithful performance of the terms of the said contract and against any loss or damage caused to or would be caused to or suffered by Purchaser by reason of any breach by the said seller of any of the terms and conditions contained in the said contract.
The _____ Bank having its office at _____ has at the request of Seller agreed to give the guarantee hereinafter contained.
2. We _____ Bank Ltd., do hereby undertake to pay the amounts due and payable under this guarantee without any demur, merely on a demand from the purchaser stating that the amount claimed is due by way of loss or damage caused to or would be caused to or suffered by the Purchaser by reason of any breach by the said Seller of any of the terms and conditions contained in the said contract or by reason of the Seller's failure to perform the said contract. Any such demand made on the Bank shall be conclusive as regards the amount due and payable by the Bank under this guarantee. We shall not withhold the payment on the ground that the Seller has disputed its liability to pay or has disputed the quantum of the amount or that any arbitration proceeding or legal proceeding is pending between the Purchaser and the Seller regarding the claim. However, our liability under this guarantee shall be restricted to an amount not exceeding _____.
3. We, _____ Bank Ltd., further agree that the guarantee herein contained shall come into force from the date hereof and shall remain in full force and effect, during the period that would be taken for the performance of the said contract and it shall continue to be enforceable till all the dues of the purchaser under or by virtue of the said contract have been fully paid and its claims satisfied or purchaser certifies that the terms and conditions of the said contract have been fully and properly carried out by the said seller and accordingly discharges the guarantee. Unless a demand or claim under this guarantee is made on us in writing on or before the _____ (date to be given) _____ and unless the guarantee is renewed or a claim is preferred against the Bank within _____ (months from the date of the Bank Guarantee) we shall be discharged from all liability under this guarantee thereafter.
4. We, _____ Bank Limited, further agree with the purchaser, that the purchaser, shall have the fullest _____ liberty, without our consent and without affecting in any manner our obligations hereunder to vary any of the terms and conditions of the said contract or to extend the time of performance of the said contract from time to time or to postpone for any time or from time to time any of the powers exercisable by the purchaser against the seller and to forbear on enforce any of the terms and conditions relating to the said contract and we shall not be relieved from our liability by reason of any such variation or extension being granted to the said seller or for any forbearance, act or omission on the part of the purchaser, or any forbearance, act or

omission on the part of the purchaser, or any indulgence by the purchaser, to the seller or by any such matter or thing whatsoever which under the law relating to sureties would but for this provision have effect of so relieving us.

The Bank further agrees that in case this guarantee is required for a longer period and it is not extended by the Bank beyond then period specified above, the Bank shall pay to the purchaser the said sum of Rs. _____ (specify the amount) or such lesser sum as may then be due to the purchaser and as the purchaser may demand.

5. We, _____ Bank Limited, lastly undertake not to revoke this guarantee during its currency except with the previous consent of the purchaser, in writing.
6. The bank has under its constitution, power to give this guarantee and Mr. _____ Manager, who has signed it on behalf of the Bank has authority to do so.

This Bank Guarantee will not be discharged due to the change in the constitution of the Bank or the contractor.

Dated _____ day of _____ for

_____ Bank Limited

Signature of the authorized person
For and on behalf of the Bank.
SEAL of the BANK