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भारत सरकार, गृह मंत्रालय/Government of India, Ministry of Home Affairs

महानिदेशालय/Directorate General

राष्ट्रीय आपदा मोचन बल/National Disaster Response Force

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नई दिल्ली / New Delhi— 110003

Dated, the 16 August, 2017

REQUEST OF EXPRESSION OF INTEREST

It is to inform that National Disaster Response Force (NDRF) intends to procure 'Decontamination Vehicles' on the specification prepared by the detailed BOOs of NDRF having latest technology which is attached as Appendix – "A".

2. All the interested vendors/manufacturers are hereby invited to submit their comments / suggestion on the technical specifications of the Decontamination Vehicle as mentioned in the Appendix – "A" to this HQ within 15 days from the date of issue of this expression of interest for further course of action.

Encl: Appendix – A (5 Leaves)

Copy to:

IT Cell, HQ NDRF for needful action please.

(Munesh Kumar)
Dy. Commandant (Proc.)

HQ DG NDRF
(Procurement)

Directorate General (NDRF)
Ministry of Home Affairs
New Delhi



TECHNICAL SPECIFICATIONS OF DECONTAMINATION VEHICLE
Mobile Mass Decontamination Station

The Mobile Mass Decontamination Station(MMDS) shall be used to decontaminate public at large and equipment exposed to Hazardous chemicals and materials, using water based decontamination solutions. Housed in a 30 feet ISO container, MMDS will be carried onboard a suitable load carrying vehicle (Vehicle to be supplied as a part of the MMDS), must be able to operate in all weather conditions and most difficult terrains including muddy and soft grounds.

The main aim of the MMDS is to provide adequate decontamination facility for the contaminated mass victims at the rate of 150 to 200 people per hour. The decontamination solution should be delivered at correct temperature and pressure. Our calculation for decontaminating 150-200 people per hour is based upon each person taking around 2 minutes to have a shower. Half minute under decontamination solution and one and a half minutes for rinsing. The shower water must be conditioned according to the prevailing climatic/weather conditions i.e. the MMDS must provide for heating of water for decontaminating the victims in cold weather.

The MMDS should also be equipped to decontaminate large swath through its onboard sprinkler system to be attached in front of the vehicle carrying the MMDS. The system should also be capable of delivering water at higher temperature and pressure to decontaminate equipment and surfaces.

MMDS apparatus should be capable of nullifying chemical contamination affected by Chemical Warfare Agents (CWAs), TICs, Biological agents and from radiation fallout. Test Certificates from an independent source will be required to support any claims concerning the effectiveness of the decontamination agents used. Several handheld Chemical Agent Monitors, Radiation Monitors and Bio-tickets will be used to confirm the effectiveness of the decontamination processes. The MMDS should have the capacity to store a minimum of 3000 Liters of fresh water and equal quantity of contaminated water. If required, the fresh water container can be topped up by fire tender.

The MMDS should have minimum 6 separate shower stations each with separate entry and exit. Shower areas should have facility to collect contaminated clothes for later onsite incineration. At least two of the shower station should be modified to accommodate disabled people on wheel chair/stretchers or partially disabled people requiring special assistance. The facility should be made available to decontaminate any incoming casualties on stretchers.

Set of after issue clothing (fresh clothes to be worn by the victims after decontamination) with Storage and semi-automatic delivery for a minimum of 30 people in each shower cubicle should be included in the MMDS. A sack should be suitably placed below or outside connected by duct in each cubicle to collect contaminate clothes which will be emptied regularly.



Two, man portable water purifier with a minimum capacity of 1000 L/hour for onsite neutralization of contaminants should also be provided. Equipment should work from external power supply. Purified water will be stored in expandable water tanks before transferring to main storage water tanks with the aid of pressure pumps.

The MMDS(minus the vehicle should be capable of being lifted and transported by land, air or sea without the need of any additional fixture and fittings except general purpose shackles and ropes.

All equipment's should have minimum working life of around 10 years (operating 80% of the time). Decontamination solutions should have a minimum shelf life of 12 months.

All systems (Vehicle as well as all on board systems in the MMDS) must come with minimum two year onsite warranty and a commitment to provide after sale support (Consumables, spare parts and Repair and updation in software or operating system) for a minimum period of 10 years.

General Requirements

Decontamination of Personnel:-	
Capacity	150-200 people per hour
Type	Chemical, Biological & Radiological decontamination.
Number of people having shower at any one time	6 persons
Water Flow rate	Roughly 500 liters per hour at each shower heads.
Fresh water storage tank capacity	3000 liters on board with universal couplings for topping up from fire tenders.
Waste water collection tank capacity	Minimum 3000 liters on board with universal couplings.
Expandable water tank	2x3000 liters capacity
Water Purifier:	
Capacity	2 Nos. x 1000 liters per hour
Power Supply:	
External	220-240V AC or 24 VDC
Decontamination Solutions	Separate central mixers for mixing decontamination solution with fresh water one for public and the second for general equipment and surface decontamination.
Water heaters	i. To continuously provide 3000 L/h heated water between 36-39 ⁰ C at 3 bars at each shower head. ii. To continuously provide 1000 L/h heated water between 80-90 ⁰ C at 90 bars for equipment decontamination.
Pressure Pump	To deliver minimum 3 bars of pressure at each shower head and 90 bars for equipment decontamination.
Power Generator	7.5 KW low noise diesel generator
Storage	Suitable system to be advised for each station.
Surface decontamination	10,000m ² per hour using liquid decontamination solution.



Equipment decontamination	Through a high pressure hose pipe. 20 Kg/hour of solid waste and hydrocarbons.
Handheld Chemical Agent Monitor	4 Nos.
Handheld Alpha, Beta & Gamma Monitor	4 Nos.
Handheld Gamma & Neutron Monitor	2 Nos.

Hand Held Chemical Agent Monitor

Technical Specifications

Weight	Less than 3 Kg without vehicle mounts
Operation	IMS based Handheld Point Detector
Inlet	Membrane essential to limit excessive false alarms
Temperature Range:	
Operating	-5 ⁰ C to + 50 ⁰ C
Storage	-25 ⁰ C to + 65 ⁰ C
Sensitivity :	
G&V agents	0.05 mg/m ³
H, L & HN	0.5 mg/m ³
AC	2.0 mg/m ³
CG,CK, TIC's & TIM's	10 mg/m ³
Display	Agents type and Concentration/Concentration bar level
Response Time	
G & V Agents	10-90 seconds for concentrations 0.05-1 mg/m ³
H, L & HN	10-90 seconds for concentrations 0.5-10 mg/m ³
AC	10-90 seconds for concentrations 2-10 mg/m ³
CG, CK, TIC's & TIM's	10-90 seconds for concentrations 10-50 mg/m ³
Library	Expandable, separate CWAs and TIC's Library preferred.
Recovery Time	Less than 3 minutes. Back flush preferred
Warm up time	Less than 5 minutes from cold start including any self-test.
Power Supply	Removable and Rechargeable Batteries. Minimum requirement of 4 hours continuous use from fully charged state.
Alarms	Audio, Video, Vibration (optional)
Interface	RS-232, RS422, Ethernet (optional)
Relative Humidity	95% @ 50 ⁰ C, without affecting measurements.
Environmental	MIL, STD or JSS55555 or equivalent.
On Board Spares	Dopant Source, Filters, Batteries.
Mounting	Vehicle Mount/Quick Dismounting facility

Multipurpose Dosimeter for Alpha (α), Beta (β) and Gamma (γ) Detection

Technical Specifications

Weight including probes	3.0 Kg or less
Type	Detachable for use by dismounting troops.



Measurements	α , β , γ and x-rays with telescopic probes
Detector Type	Gas-discharge Geiger-Muller counter, Silicon Beta radiation detector, CsI scintillator
Measurement range of Gamma and X-rays	0.1 μ Sv/h to 10 Sv/h
Measurement range Beta	0 to 13500 Bq/cm ²
Measurement range Alpha	0 to 13500 Bq/cm ²
Data Storage	Minimum 1500 measurement results
Location Coordinates	Built-in GPS receiver
Operating Temperature	-40 ^o C to + 50 ^o C
Power Supply	220V AC to 12 V DC adapter to recharge lithium-ion batteries
Continuous operation	Minimum 100 hours
Data transfer to PC	Infrared Port
Ingress Protection	IP67
Accessories	Head Phones, Carrying case, Telescopic tube, infrared port adapter.

Multipurpose Dosimeter for Gamma (γ) & Neutron (n) Detection

- Should Comply with the ANSI 48.48 standard
- High thermal stability and no microphone effect.
- Powered by built-in lithium polymer batteries that can be charged via USB-cable.
- Real-time identification of spectra.
- Identification of radionuclides with specification of the categories they belong to (in compliance with IAEA requirements).
- Software for detailed laboratory research and spectra processing.
- Threshold alarm system with independent threshold levels.
- Light color alarm (indication) of threshold levels exceeding for gamma and neutron radiations.

Technical Specifications

Type	Handheld Equipment
Measurements	Gamma, X-ray & Neutron radiations
Detector Type	CsI scintillation detectors for Gamma and LiI for neutron radiation with solid state (Silicon) photomultiplier.
Display	Colour display
Neutron radiation sensitivity for: fast neutrons, not less than thermal neutrons, not less than	0.120 \pm 0.012 pulse cm ² /neutron 1.2 \pm 0.12 pulse cm ² /neutron
Measurement range of gamma radiation	0.01 μ Sv/h to 1 Sv/h
Measurement range of neutron radiation	0.01 μ Sv/h to 10 mSv/h
Energy Range of registered gamma radiation	20 KeV to 3 MeV
Energy Range of registered neutron radiation	From thermal neutrons to 14 MeV
Number of amplitude gamma spectrum channels	2048 channels



Date Storage	Minimum 250 measurement results
Location coordinates	Built-in GPS receiver
Operating temperature	-20 ⁰ C to +50 ⁰ C
Power Supply	Built-in lithium-ion batteries
Continuous operation	Minimum 30 hours
Data transfer to PC	USB
Ingress Protection Rating	IP67
Weight	300 g or less
Accessories	Carrying case, USB Charger


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