राजेन्द्र आयुर्विज्ञान संस्थान
(झारखण्ड सरकार का एक स्वयतशासी संस्थान)
राँची–834009 (झारखण्ड)
दुरभाषः 0651–2541533, फैक्सः 0651–2540629,
E-mail: rimsranchi@rediffmail.com

RAJENDRA INSTITUTE OF MEDICAL SCIENCES
(An Autonomous Institute under Govt. of Jharkhand)
Ranchi-834009 (Jharkhand)
Phone: 0651-2541533, Fax: 0651-2540629,
Email : rimsranchi@rediffmail.com

E-Tender notice no. RIMS/Stores/ME(4)/ 8580 Dated 08-12-2017

NOTICE INVITING E-TENDER

FOR PREPARATION OF DPR & INSTALLATION OF BIO-MEDICAL WASTE DISPOSAL SYSTEM ON TURNKEY BASIS UNDER RANCHI MUNICIPAL CORPORATION (RMC) AREA , RANCHI

Due to unavoidable circumstances the previously invited tender notice no. 10748. dated 29.08.2016. for preparation of DPR for Biomedical waste handling & disposal system under Ranchi Municipal Corporation, Ranchi is being cancelled and fresh e-tender for preparation of DPR and installation of complete set of Bio-Medical Waste Disposal System on turnkey basis (i.e. with man, material, system, civil, electrical, mechanical, furnishing, handling works etc) is being invited in two bid system (Technical bid & Price Bid) from the experienced capable agencies or original equipment manufacturer or experienced authorized dealer.

A.	**Important dates for Tenders**	
1	Date of uploading of sample tender document on website.	28.12.2017 (The intending bidder may visit RIMS website: www.rimsranchi.org & also on NIC website : www.jharkhandtenders.gov.in
2.	Pre bid meeting for discussion on various technical issues regarding terms & conditions for providing manpower.	On 19.01.2018 at 12:30 P.M at RIMS. All the intending bidders must attend the pre-bid discussion meeting for clarification of their queries & requirements of RMC. No claims will be considered after pre-bid meeting and finalization of tender documents.
3.	Date of uploading of final tender documents with amendments in sample tender paper, after pre-bid discussion meeting.	02.02.2018 (The intended bidder may download the final amended tender document & they have to submit demand draft for Rs. 5000/- in favour of "**Director, Rajendra Institute of Medical Sciences, Ranchi**" in original at RIMS office as cost of tender document.
4	Date of Start for submission of E-tenders	12.02.2018 from 03:00 P.M
5.	Last date of submission of e-tenders	On 21.02.2018 till 04.30 P.M
6.	Opening of technical bid	On 27.02.2018 at 12:30 P.M. All the bidders must have to confirm the submission of original demand draft for tender documents cost & EMD (as mentioned in tender document) at RIMS, Ranchi. Latest by 04.30 P.M. on or before 26.02.2018. The e-tenders of only those bidders will be opened, whose demand drafts will be submitted on due dates. .

Note : 1. For details of tender terms, conditions & specification please visit RIMS website : **www.rimsranchi.org** **or** www.jharkhandtenders.gov.in from 28.12.2017 for sample tender paper to attend the pre-bid meeting.

2. Before participating the pre bid the bidders may physically visit Ranchi Municipal Corporation (RMC) area and if needed they may discuss with RMC authorities / State Pollution Control Board authority for assessment of the scope and area of work and they may discuss with HOD, PSM RIMS, Ranchi regarding their queries.
3. In case on any of the above last date, if announced government holiday, the tender process will continue on the very next working day on the same time and venue.

Sd/-
Director
Rajendra Institute of Medical Sciences
Ranchi

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Sample Tender paper for preparation of DPR & installation of complete plant on turnkey basis for handling & disposal of Bio-Medical waste generated under Ranchi Municipal Corporation, Ranchi

E-Tender Notice No. RIMS/Store/ME(4) 8580 dated 08.12.2017

Downloaded by

M/s _____

_____

_____

_____

Signature & Seal of Bidder

Invitation of e-tender for preparation of DPR and installation of Common Biomedical waste disposal system for handling Bio-Medical waste generated under Ranchi Municipal Corporation area Ranchi

To,

M/s _____

_____

_____

Dear Sir,

Director, Rajendra Institute of Medical Sciences, Ranchi invites you to tender for preparation of DPR and installation of Common Biomedical waste disposal system for handling Bio-Medical waste generated under Ranchi Municipal Corporation area Ranchi.

If you are eligible, experienced and in a position to quote for the same in accordance with requirements stated in short tender notice & tender form, you must also furnish all the information, called for, along with your tender.

This tender is non transferable.

All legal matter in respect to this tender will be subjected to jurisdiction of Hon'ble Jharkhand High Court, Ranchi.

The last date of submission of online e-tender on Govt. website www.jharkhandtenders.gov.in -- 21.02.2018 (upto 4:30 p.m).

Date for opening technical bid – 27.02.2018 at 12:30 p.m.

Note : The list, specification and work details is enclosed with this tender document.

Yours faithfully

Sd/-
Director
Rajendra Institute of Medical Sciences
Ranchi

राजेन्द्र आयुर्विज्ञान संस्थान
(झारखण्ड सरकार का एक स्वयतशासी संस्थान)
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General Terms & Conditions

The terms and conditions mentioned in e-tender notice no. RIMS/Store/ME(4) 8580 dated 08.12.2017

1. The tender should be submitted online with specification, literature, leaflet along with catalogues etc. leaving no room for back references.
2. Bids are to be submitted in two parts viz. (A) Technical Bid containing complete technical aspects including photocopy of EMD, Affidavit etc., except price bid & (B) Price Bid containing price elements only..
3. For preparation of DPR for handling Bio-Medical waste under Ranchi Municipal Corporation area, the bidders have to give their own Technical bid proforma and details according to their preparation. Accordingly they have to offer their price bids and simultaneously the bidders have to offer the details for supply & installation of complete system for disposal & handling of biomedical waste generated by various medical institutions, clinics, hospitals etc. under Ranchi Municipal Corporation area, Ranchi.

   Full signature of the
   tenderer with seal

   Sd/-
   Director
   Rajendra Institute of Medical Sciences
   Ranchi

   Name
   (in capital letters)

   Designation
4. The tenderer must enclose registration certificate of JGST or If the bidding agency is not registered under Jharkhand Sales tax department then they must give an undertaking through notary affidavit that “They will supply & install the equipment / items at fixed destination after payment of JGST/Jharkhand Sales tax on their own & they will make their own arrangements for customs clearance in case of imported equipments. They shall not demand any document from Director, RIMS for clearance or duty exemption/waiver/relief in this regard.”
5. The tenderer must have to give undertaking that “They shall be responsible for running and functioning of the complete system with man, material & equipment for atleast 10 (Ten) years from the date of installation or as per directives of government authority”.
6. The tender without EMD will be ignored straightway.
7. Incomplete tender will be summarily rejected.
8. The EMD will be refunded in full to the unsuccessful tenderers after finalization of tender and in case of successful tender, the EMD will be refunded only after submission of security money by the bidder.
9. The full EMD shall be forfeited in case of backing out of the offer after acceptance.
10. The successful tenderer have to supply the items and do the job in accordance with the specification / works as finalized and approved by the purchase committee.

In case of late supply of materials or late in completion of whole project works, penalty will be charged on the bidder as per norms mentioned hereunder :-

i. After 07 days (one week) from stipulated date of job completion - @0.5% (point five percent) per week of total contract value upto 04 weeks.
ii. After 04 weeks @1% (One percent) of contract value per week upto 08 weeks.
iii. After 08 weeks @2.0% (Two percent) of contract value per week upto 12 weeks.
iv. After 12 weeks the security money & EMD will be forfeited by RIMS and the bidder will be debarred / black listed for further participations

Above mentioned same penalty will be charged during running period of the project if there will be delay for more than 07 days from the date of breakdown.

Note: For preparation of DPR for Bio-Medical Waste handling system under Ranchi Municipal Corporation, Ranchi the bidder has to prepare the DPR within 90 (Ninety) days from the date of issue of work order. Failing which the above penalty clause shall be implemented on them also.

11. The bidders must have to clearly mention the time frame for installation & functioning of complete project with man, material, transport arrangement, collection arrangement, carriage, safe handling & disposal etc. failing which the same penalty, as above, shall be implemented on the bidder.

Full signature of the tenderer
With seal and date
Designation.

12. Contractor Form 'A'
Telegraph Address :- ……..
Telephone No. : ……..
Telex No. : ……
Fax No. ……

From

_____
_____
(Full name and address of the tenderer)

To

The Director
Rajendra Institute of Medical Sciences,
Ranchi.

Sir,

1. I / We hereby offer to supply and installation of the complete project detailed in the schedule here to such position thereof as you may specify in the work order in the said schedule and agree to hold the order (offer) open till it is opened. I/We shall be bound by communication of acceptance within the prescribed time.
2. I / We have understood the instructions to tenderers and terms conditions of contract for contract concluded by Director, RIMS, Ranchi / SPCB / RMC as contained in schedule & tender notice. We have thoroughly examined the nature of work, surveyed the area, specification, drawing or pattern quoted in the schedule here to and am/are fully aware of the nature of the works required.
3. The following pages have been enclosed to and from part of this tender's technical bid …… ……

Yours faithfully

Signature of tenderer

Address ……
Dated ……
Seal……..

13. All documents duly completed, signed and sealed should be enclosed with your tender offer failing which your quotation will be treated as incomplete.

Technical compliance report duly filled and signed with seal of the bidder.

The bidders must fill all the rows/columns of this compliance report. This report will be inspected & evaluated by purchase committee and accordingly documents will be verified on the concerned page numbers.

Sl. No.	In case of lack of any essential required documents the tenders will be rejected - The list of essential required documents which must be submitted with technical bid of the bidders : Enclosures required	Have you enclosed it? write clearly Yes or No	If yes then on page no. of this bid.
1.	Photocopy of JGST (Sales tax) Registration certificate in Jharkhand State.	Yes or No	Page No. ……
	OR If the bidding agency is not registered under Jharkhand sales tax department, then they must give an undertaking through notary affidavit that "They will supply the equipment/items at RIMS, Ranchi after payment of JGST/Jharkhand Sales tax on their own & they will make their own arrangements for custom clearance in case of imported equipments. They shall not demand any document from RIMS for JGST/custom clearance/duty exemption / waiver/relief in this regard".	Yes or No	Page No. ……
2.	I.T. PAN no. of the bidder.	Yes or No	On Page No. ….
3.	EMD in form of Demand Draft No. ……. dated ….. issued by (name of bank) …… amount Rs. 5,00,000.00 (Five Lakhs) only in favour of Director, RIMS, Ranchi. **(Note :- The bidders also have to submit Rs. 5,000/- for tender papers & Photocopy of the drafts to be attached in technical bid.** **Original DDs to be submitted in RIMS, Ranchi on due dates as mentioned in NIT.**	Yes or No	On Page No. ….
4.	Affidavit through first class magistrate / Notary Public, mentioning that – (a) "Our company has not been black listed or convicted in the past by any Hospital Organization or by any Government / Semi government organization / P.S.Us / C.B.I / C.C.I & free from all kind of litigation/allegations, (b) That the firm has no vigilance case/CBI/FEMA/CCI case pending against him/supplier (Principal)	Yes or No	On Page No. ….

	(c) That the firm is not supplying the same item / doing the similar job at lower rate quoted in this tender to any government / semi government organization or any other institute".		
5.	Technical specifications with catalogue & dimensions of equipment, accessories & details of turnkey works. The bidders have to give their line diagram / Plan chart / Graphical representation & Other technical requirements in their bid as per their projects.	Yes or No	On Page No. ….
6.	I.T. return certificate & balance sheet of the bidders for last three financial years showing at least turnover of Rs. 24 crores in last three financial years with minimum 10 crores in any one year of last three years.	Yes or No	On Page No. ….
7.	Acceptance letter/undertaking that they (the bidding agency) shall wear / undertake all the supply, installation, maintenance, repairing, fuel charges, electric charges, transport charges, manpower charges and all other charges required for running and handling the complete system by their own (i.e. all these charges will be carried / worn by the bidder them self) and they shall charge only on the basis of per bed or per kg.	Yes or No	On Page No. …
8.	The bidders have to give an undertaking that they shall follow all the CPCB norms and guidelines as well as they shall strictly follow the "Bio Medical Waste Management Rules 2016" of Ministry of Environment, Forest and Climate Change, Government of India notification dated 28.03.2016	Yes or No	On Page No. …
9.	Experience certificate of handling and disposal of biomedical waste (not for municipal waste) issued by any government / semi government / private institution with work load of handling not less than 1000 patients beds in last three years. For proof the work order or payment certificate issued by the client be enclosed.	Yes or No	On Page No. …
10.	The tenderer must have to give undertaking that "They shall be responsible for running and functioning of the complete system with man, material & equipment for atleast 10 (Ten) years from the date of installation or as per directives of government authority in case of backing out from the bidders end all the installed system / assets under this project shall be forfeited by the government".	Yes or No	On Page No. …

Note :

1. It will be responsibility of the bidders to arrange JGST form or any other documents related to sales tax / entry tax on their own.
2. If any of the above enclosures are of more than one page then in the page number columns write clearly on page no. ……..….. to page no. ……..
3. Without filling the compliance report the offer will be rejected directly at the time of technical evaluation.
4. If there will be contradiction/Confusion regarding affidavit clauses of the tender, the matter will be finalized by legal procedure through legal opinion.

Certificate of Compliance

I Mr. / Mrs. / Miss ……. on behalf of M/s (Name of firm / company) ……..……. do hereby confirm that I have verified the above

compliance report, it is duly filled. Our technical bid consists of total (No. of pages) ……. (in words ……)

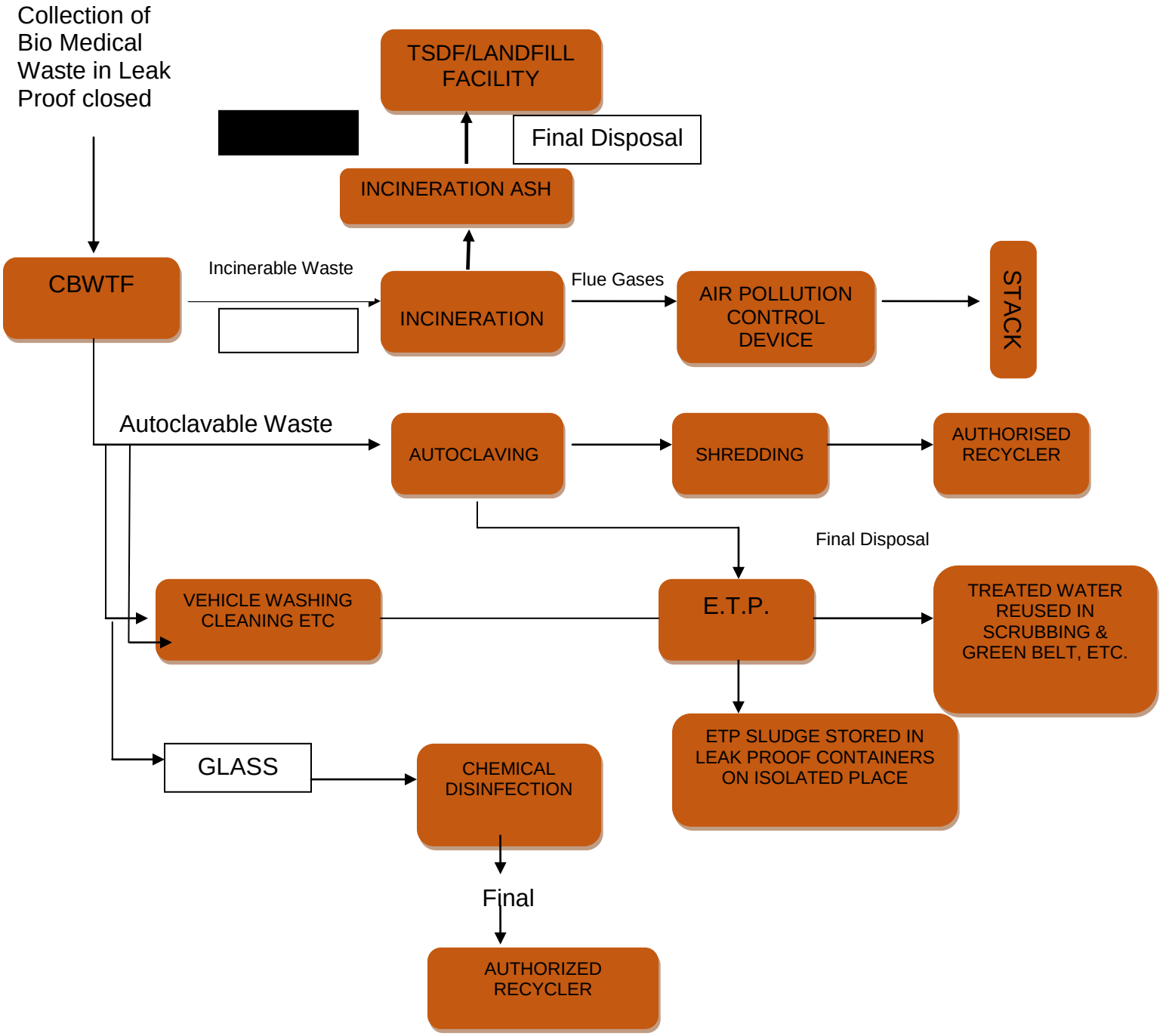
Signature of the Bidder
with date & seal of the firm / company

Price Bid Proforma / Proforma of BOQ : Rates are to be given in Rupees (INR) only.

Sl. No.	Item / Work description	Iem code	Qty	Units	Basic Rate	Excise Duty	GST	Freight charges	Any other taxes	Total amount without tax	Total amount with tax
1	Collection of biomedical waste from waste generating medical labs, clinics, institute, hospital etc., safe transportation upto disposal site, handling and proper disposal of biomedical waste as per guidelines of CPCB / SPCB / RMC authority.										
1.01	For hospitals, institute, nursing homes, clinics etc. on per indoor bed per day basis.			Each bed							
1.02	For OPDs, Labs, Clinics etc. were there is no indoor beds but medical waste generates during treatment procedures. Here the rate will be on per kg per day basis			Per Kg							

Note : All the bidders have to follow the treatment procedures of biomedical waste in the manner as described hereunder in flow chart diagram.

Flow Chart Diagram



14. Please enclose photocopies of your complete registration certificate with DGS&D / NSIC ./ DGQA, (if any) as applicable, which should be valid on the date of tender opening.
15. Price bid of technically acceptable offers would only be opened for which the information will be displayed on website.
16. The following information should be given in the offer by tenderers :-
    a. Complete configuration of the main equipments.
    b. Relevant (must) accessories should be supplied with the equipment, if it is required for running the complete system.
    c. Optional accessories, if any.
17. Liquidated damages shall be levid for delay in supplies as per tender rules.
18. The successful tenderer shall have to submit security deposit equal to 10% of the annual work value or a sum of Rs. 50.00 (Fifty) Lakhs, whichever is maximum, in form of Bank guarantee pledged to Director, RIMS, Ranchi / Ranchi Municipal Corporation, Ranchi as finalized by the tendering authority. The bank guarantee shall be valid for minimum period of 60 months.
19. The tenderers shall give a clear and guaranteed delivery period for completion of supply & installation and functioning of the complete system in their bid and they have to maintain the time frame.
20. Tenderers are required to answer all the question mentioned in the schedule & should return the same duly signed and filled along with form “A”
21. The tendering firms shall note that the supplies and works will be done in accordance with the specification mentioned in the tender.
22. Nevertheless, the purchaser shall be liable for price variation after final approval by purchase committee. The overseas bidders also have to quote their rates in Indian rupees. They shall calculate the exchange rate of foreign currencies in Indian rupees & quote accordingly in Indian rupees.
23. The tenderer has to assure in written about the local availability of consumables in their tender.
24. If the supplier, having been called upon by the purchaser to furnish security deposit (S.D.), failed to furnish the same within the period provided it shall be lawful for the purchaser to forfeit the E.M.D. and to cancel the contract.
25. The purchaser shall be entitled and it shall be lawful on his part to forfeit the amount of security deposit in whole or in part in the event of any default, failure or neglect on the part of the supplier in the fulfillment of performance in all respect of the contract under references or any other contract with the purchaser or any part thereof to the satisfaction of the purchaser.
26. The security deposit shall remain in full force and effect during the period that would be taken for satisfactory performance and fullfilment of in all respects of the contract.
27. After job completion the bidder shall inform the technical committee or the concerned authority in writing for inspection & functioning of the complete system. If the inspecting officer / authority finds that pre-inspection of the consignment is not as required then the consignment is liable for rejection.
28. Contractor / Seller hereby declare that the goods / stores / articles sold / supplied / installed to the purchaser under this contract shall be of the best quality and workmanship and new in all respects and shall be strictly in accordance with the specification & particulars mentioned in the contract and must comply the guidelines of CPCB / SPCB.
    a. Warranty to the effect that they will make available the blue prints of drawings of the spares if & when required in connection with the main equipment.

29. The following clauses are required to be confirmed :-

a. The firms will make available full engineer support package (ESP) including essential maintenance and recommended spares for maintenance of the equipment for further 10 years from the date of installation.

b. The following set of documents in respect of the equipments are also required to be supplied by the firm :-

	Literature	Distributions	Quantity
(i)	Operation instructions	With each equipment	sets each
(ii)	Wiring diagram	Inspecting authority (Concerned authority)	2 sets
(iii)	Maintenance service manual	Inspecting authority	2 sets
(iv)	Spare parts lists indicating cost	(Concerned authority)	2 sets

c. The tenderers should quote the latest models. Quotations for out dated models of equipments will not be entertained.

30. Finalization of Rate

The rates will be finalized on the basis of per bed / per day charges or Per Kg / per day charges.

E-Tender notice no. RIMS/Stores/ME(4) / 8580 dated 08.12.2017

Date & time of opening : 27.02.2018 at 12.30 P.M.

Director
Rajendra Institute of Medical Sciences,
Ranchi

Signature of Tenderer
Name (in block letters) : _____
Capacity in which tenderer is signed : _____

BOQ

(1) For DPR Preparation of Biowaste –

Technical offer of the bidders should be in the proforma / format given below :

Technical Offer Proforma : To be filled after survey by the bidders (no manipulation should be entered). If found fake entry or shortage or missing of the medical centres then penalty will be implemented on the bidders. It may be in the form of monetary deduction of payments or in the worst case the order may get cancelled and EMD will be forfeited.

Proforma

Ward No	Name of Mohalla or Village	Name of Gali or Street	Sl. No	Name and address of Medical Centre	In case of Institute or Hospital or Nursing Homes no of indoor patients bed	Cetegory (As per govt. norms) wise average calculation of approx. Bio Medical waste generated per day in Kg / Ltrs.					Remarks of the Surveyor if any
						Yellow bags cat. 1,2,3 & 6	Red bag cat. 3,6 & 7	Blue bag cat. 4 & 7	Black bag cat. 5,9 & 10	Liquid / Chemicals cat. 8	
e.g. RMC Ward No. 6	e.g. Morabadi Harihar Singh Road	e.g. Jatra Maidan Gali	1	e.g. M/s Krishnan Lab, 1st Fl. No.6 Tripti Mension	e.g. 50 Beds	e.g. 2 Kg	e.g. 5 Kg	e.g. 8 Kg	e.g. 10 Kg	In Ltrs.	e.g. It is a pathological & radiological centre

Note : The bidders have to fill the format as per examples given above.

Full signature of the
tenderer with seal
Designation : ……
Dated : ……

GUIDELINES FOR BIOMEDICAL WASTE MANAGEMENT AS PER "BIO-MEDICAL WASTE MANAGEMENT RULES 2016" to be followed during preparation of DPR :-

Biomedical wastes categories and their segregation, collection, treatment, processing and disposal options

Category	Type of Waste	Type of Bag or Container to be used	Treatment and Disposal options
(1)	(2)	(3)	(4)
`	**(a) Human Anatomical Waste:** Human tissues, organs, body parts and fetus below the	Yellow coloured non-chlorinated plastic bags	Incineration or Plasma Pyrolysis or deep burial

	viability period (as per the Medical Termination of Pregnancy Act 1971, amended from time to time).		
	(b)Animal Anatomical Waste : Experimental animal carcasses, body parts, organs, tissues, including the waste generated from animals used in experiments or testing in veterinary hospitals or colleges or animal houses.		
	(c) Solid Waste : Items contaminated wit6h blood, body fluids like dressing, plaster casts, cotton swabs and bags containing residual or discarded blood and blood components.		Incineration or Plasma Pyrolysis or deep burial* In absence of above facilities, autoclaving or micro-waving/ hydroclaving followed by shredding or mutilation or combination of sterilization and shredding. Treated waste to be sent for energy recovery
	(d) Expired or Discarded Medicines: Pharmaceutical waste like antibiotics, cytotoxic drugs including all items contaminated with cytotoxic drugs along with glass or plastic ampoules, vials etc.	Yellow coloured non-chlorinated plastic bags or con tainers	Expired `cytotoxic drugs and items contaminated with cytotoxic drugs to be returned back to the manufacturer or supplier for incineration at temperature >1200 0C or to common bio-medical waste treatment facility or hazardous waste treatment, storage and disposal facility for incineration at >12000C Or Encapsulation or Plasma Pyrolysis at >12000C. All other discarded medicines shall be either sent back to manufacturer or disposed by incineration.
	(e) Chemical Waste: Chemicals used in production of biological and used or discarded disinfectants.	Yellow coloured containers or non-chlorinated plastic bags	Disposed of by incineration or Plasma Pyrolysis or Encapsulation in hazardous waste treatment, storage and disposal facility.
	(f) Chemical Liquid Waste : Liquid waste generated due to use of chemicals in production of biological and used or discarded disinfectants, Silver X-ray film developing liquid, discarded Formalin, infected secretions, aspirated body fluids**,** liquid from laboratories and floor washings, cleaning, house-keeping and disinfecting activities etc.	Separate collection system leading to effluent treatment system	After resource recovery, the chemical liquid waste shall be pre-treated before mixing with other wastewater. The combined discharge shall conform to the discharge norms given in Schedule-III.
	(g) Discarded linen, mattresses, beddings	Non-chlorinated yellow plastic	Non- chlorinated chemical disinfection

	contaminated with blood or body fluid.	bags or suitable packing material	followed by incineration or Plazma Pyrolysis or for energy recovery. In absence of above facilities, shredding or mutilation or combination of sterilization and shredding. Treated waste to be sent for energy recovery or incineration or Plazma Pyrolysis.
	(h) Microbiology, Biotechnology and other clinical laboratory waste: Blood bags, Laboratory cultures, stocks or specimens of microorganisms, live or attenuated vaccines, human and animal cell cultures used in research, industrial laboratories, production of biological, residual toxins, dishes and devices used for cultures.	Autoclave safe plastic bags or containers	Pre-treat to sterilize with nonchlorinated chemicals on-site as per National AIDS Control Organisation or World Health Organisation guidelines thereafter for Incineration.
Red	**Contaminated Waste (Recyclable)** (a) Wastes generated from disposable items such as tubing, bottles, intravenous tubes and sets, catheters, urine bags, syringes (without needles and *fixed needle syringes*) and vaccutainers with their needles cut) and gloves.	Red coloured non-chlorinated plastic bags or containers	Autoclaving or micro-waving/ hydroclaving followed by shredding or mutilation or combination of sterilization and shredding. Treated waste to be sent to registered or authorized recyclers or for energy recovery or plastics to diesel or fuel oil or for road making, whichever is possible. Plastic waste should not be sent to landfill sites.
White (Translucent	**Waste sharps including Metals:** Needles, syringes with fixed needles, needles from needle tip cutter or burner, scalpels, blades, or any other contaminated sharp object that may cause puncture and cuts. This includes both used, discarded and contaminated metal sharps	Puncture proof, Leak proof, tamper proof containers	Autoclaving or Dry Heat Sterilization followed by shredding or mutilation or encapsulation in metal container or cement concrete; combination of shredding cum autoclaving; and sent for final disposal to iron foundries (having consent to operate from the State Pollution Control Boards or Pollution Control Committees) or sanitary landfill or designated concrete waste

			sharp pit.
Blue	**(a) Glassware:** Broken or discarded and contaminated glass including medicine vials and ampoules except those contaminated with cytotoxic wastes.	Cardboard boxes with blue colored marking	Disinfection (by soaking the washed glass waste after cleaning with detergent and Sodium Hypochlorite treatment) or through autoclaving or microwaving or hydroclaving and then sent for recycling.
	(b) Metallic Body Implants	Cardboard boxes with blue colored marking	

*__Disposal by deep burial is permitted only in rural or remote areas where there is no access to common bio-medical waste treatment facility. This will be carried out with prior approval from the prescribed authority and as per the Standards specified in Schedule-III. The deep burial facility shall be located as per the provisions and guidelines issued by Central Pollution Control Board from time to time.__

Part -2

(1) All plastic bags shall be as per BIS standards as and when published, till then the prevailing Plastic Waste Management Rules shall be applicable.

(2) Chemical treatment using at least 10% Sodium Hypochlorite having 30% residual chlorine for twenty minutesor any other equivalent chemical reagent that should demonstrate $Log_{10}4$ reduction efficiency for microorganisms as given in Schedule- III.

(3) Mutilation or shredding must be to an extent to prevent unauthorized reuse.

(4) There will be no chemical pretreatment before incineration, except for microbiological, lab and highly infectious waste.

(5) Incineration ash (ash from incineration of any bio-medical waste) shall be disposed through hazardous waste treatment, storage and disposal facility, if toxic or hazardous constituents are present beyond the prescribed limits as given in the Hazardous Waste (Management, Handling and Transboundary Movement) Rules, 2008 or as revised from time to time.

(6) Dead Fetus below the viability period (as per the Medical Termination of Pregnancy Act 1971, amended from time to time) can be considered as human anatomical waste. Such waste should be handed over to the operator of common bio-medical waste treatment and disposal facility in yellow bag with a copy of the official Medical Termination of Pregnancy certificate from the Obstetrician or the Medical Superintendent of hospital or healthcare establishment.

(7) Cytotoxic drug vials shall not be handed over to unauthorised person under any circumstances. These shall be sent back to the manufactures for necessary disposal at a single point. As a second option, these may be sent for incineration at common bio-medical waste treatment and disposal facility or TSDFs or plasma pyrolys is at temperature >1200 ^{0}C.

(8) Residual or discarded chemical wastes, used or discarded disinfectants and chemical sludge can be disposed at hazardous waste treatment, storage and disposal facility. In such case, the waste should be sent to hazardous waste treatment, storage and disposal facility through operator of common bio-medical waste treatment and disposal facility only.

(9) On-site pre-treatment of laboratory waste, microbiological waste, blood samples, blood bags should be disinfected or sterilized as per the Guidelines of World Health Organisation or National AIDS Control Organisation and then given to the common bio-medical waste treatment and disposal facility.

(10) Installation of in-house incinerator is not allowed. However in case there is no common biomedical facility nearby, the same may be installed by the occupier after taking authorisation from the State Pollution Control Board.

(11) Syringes should be either mutilated or needles should be cut and or stored in tamper proof, leak proof and puncture proof containers for sharps storage. Wherever the occupier is not linked to a disposal facility it shall be the responsibility of the occupier to sterilize and dispose in the manner prescribed.

(12) Bio-medical waste generated in households during healthcare activities shall be segregated as per these rules and handed over in separate bags or containers to municipal waste collectors. Urban Local Bodies shall have tie up with the common bio-medical waste treatment and disposal facility to pickup this waste from the Material Recovery Facility (MRF) or from the house hold directly, for final disposal in the manner as prescribed in this Schedule.

SCHEDULE II
[See rule 4(t), 7(1) and 7(6)]
STANDARDS FOR TREATMENT AND DISPOSAL OF BIO-MEDICALWASTES

1. STANDARDS FOR INCINERATION.-

All incinerators shall meet the following operating and emission standards-

A. Operating Standards

1). Combustion efficiency (CE) shall be at least 99.00%.

2). The Combustion efficiency is computed as follows:

$$C.E. = \frac{\%C0_2}{\%C0_2 + \%\ CO} \times 100$$

3). The temperature of the primary chamber shall be a minimum of 800 ^{0}C and the secondary chamber shall be minimum of 1050^{0}C + or - 50^{0}C.

4). The secondary chamber gas residence time shall be at least two seconds.

B. Emission Standards

Sl. No.	Parameters	Standard	
1	2	3	4
		Limiting concentration in mg Nm^3 unless stated	**Sampling Duration in minutes, unless stated**
1	Particulate matter	50	30 or 1NM^3 of sample volume, whichever is more
2	Nitrogen Oxides NO and NO_2 expressed asNO_2	400	30 for online sampling or grab sample
3	HCl	50	30 or 1NM^3 of sample volume, whichever is more
4	Total Dioxins and Furans	0.1 ng TEQ/Nm^3 (at 11% O2)	8 hours or 5NM^3 of sample volume, whichever is more
5	Hg and its compounds	0.05	2 hours or 1NM^3 of sample volume, whichever is more

C. Stack Height: Minimum stack height shall be 30 meters above the ground and shall be attached with the necessary monitoring facilities as per requirement of monitoring of 'general parameters' as notified under the Environment (Protection) Act, 1986 and in accordance with the Central Pollution Control Board Guidelines of Emission Regulation Part-III.

Note:(a) The existing incinerators shall comply with the above within a period of two years from the date of the notification.

(b) The existing incinerators shall comply with the standards for Dioxins and Furans of 0.1ngTEQ/Nm^3, as given below within two years from the date of commencement of these rules.
(c) All upcoming common bio-medical waste treatment facilities having incineration facility or captive incinerator shall comply with standards for Dioxins and Furans.
(d) The existing secondary combustion chambers of the incinerator and the pollution control devices shall be suitably retrofitted, if necessary, to achieve the emission limits.
(e) Wastes to be incinerator.
(h) The occupier or operator of a common bio-medical waste treatment facility shall monitor the stack gaseous emissions (under optimum capacity of the incinerator) once in three months through a laboratory approved under the Environment (Protection) Act, 1986 and record of such analysis results shall be maintained and submitted to the prescribed authority. In case of dioxins and furans, monitoring should be done once in a year.
(i) The occupier or operator of the common bio-medical waste treatment facility shall install continuous emission monitoring system for the parameters as stipulated by State Pollution Control Board or Pollution Control Committees in authorisation and transmit the data real time to the servers at State Pollution Control Board or Pollution Control Committees and Central Pollution Control Board.
(j) All monitored values shall be corrected to 11% Oxygen on dry basis.
(k) Incinerators (combustion chambers) shall be operated with such temperature, retention time and turbulence, as to achieve Total Organic Carbon content in the slag and bottom ashes less than 3% or their loss on ignition shall be less than 5% of the dry weight.
(l) The occupier or operator of a common bio-medical waste incinerator shall use combustion gas analyzer to measure CO_2, CO and O_2.

2. **Operating and Emission Standards for Disposal by Plasma Pyrolysis or Gasification:**

A. Operating Standards:

All the operators of the Plasma Pyrolysis or Gasification **s**hall meet the following operating and emission standards:
1) Combustion Efficiency (CE) shall be at least 99.99%.
2) The Combustion Efficiency is computed as follows.

$$C.E = \frac{\%\ CO_2}{(\%\ CO_2 + \%\ CO)} \times 100$$

3) The temperature of the combustion chamber after plasma gasification shall be $1050 \pm 50\ ^{o}C$ with gas residence time of at least 2(two) second, with minimum 3 % Oxygen in the stack gas.
4) The Stack height should be minimum of 30 m above ground level and shall be attached with the necessary monitoring facilities as per requirement of monitoring of 'general parameters' as notified under the Environment (Protection) Act, 1986 and in accordance with the CPCB Guidelines of Emission Regulation Part-III.

B. Air Emission Standards and Air Pollution Control Measures

(i) Emission standards for incinerator, notified at Sl No.1 above in this Schedule, and revised from time to time, shall be applicable for the Plasma Pyrolysis or Gasification also.
(ii) Suitably designed air pollution control devices shall be installed or retrofitted with the 'Plasma Pyrolysis or Gasification to achieve the above emission limits, if necessary.
(iii) Wastes to be treated using Plasma Pyrolysis or Gasification shall not be chemically treated with any chlorinated disinfectants and chlorinated plastics shall not be treated in the system.

C. Disposal of Ash Vitrified Material: The ash or vitrified material generated from the 'Plasma Pyrolysis or Gasification shall be disposed off in accordance with the Hazardous Waste (Management, Handling and Transboundary Movement) Rules 2008 and revisions made thereafter in case the constituents exceed the limits prescribed under Schedule II of the said Rules or else in accordance with the provisions of the Environment (Protection) Act, 1986, whichever is applicable.

3. STANDARDS FOR AUTOCLAVING OF BIO-MEDICAL WASTE.-

The autoclave should be dedicated for the purposes of disinfecting and treating bio-medical waste.
(1) When operating a gravity flow autoclave, medical waste shall be subjected to:

(i) a temperature of not less than 121° C and pressure of 15 pounds per square inch (psi) for an autoclave residence time of not less than 60 minutes; or
(ii) a temperature of not less than 135° C and a pressure of 31 psi for an autoclave residence time of not less than 45 minutes; or
(iii) a temperature of not less than 149° C and a pressure of 52 psi for an autoclave residence time of not less than 30 minutes.
(2) When operating a vacuum autoclave, medical waste shall be subjected to a minimum of three pre-vacuum pulse to purge the autoclave of all air. The air removed during the pre-vacuum, cycle should be decontaminated by means of HEPA and activated carbon filtration, steam treatment, or any other method to prevent release of pathogen. The waste shall be subjected to the following:
(i) a temperature of not less than 121°C and pressure of 15 psi per an autoclave residence time of not less than 45 minutes; or
(ii) a temperature of not less than 135°C and a pressure of 31 psi for an autoclave residence time of not less than 30 minutes;
(3) Medical waste shall not be considered as properly treated unless the time, temperature and pressure indicators indicate that the required time, temperature and pressure were reached during the autoclave process. If for any reasons, time temperature or pressure indicator indicates that the required temperature, pressure or residence time was not reached, the entire load of medical waste must be autoclaved again until the proper temperature, pressure and residence time were achieved.
(4) **Recording of operational parameters:** Each autoclave shall have graphic or computer recording devices which will automatically and continuously monitor and record dates, time of day, load identification number and operating parameters throughout the entire length of the autoclave cycle.
(5) **Validation test for autoclave:** The validation test shall use four biological indicator strips, one shall be used as a control and left at room temperature, and three shall be placed in the approximate center of three containers with the waste. Personal protective equipment (gloves, face mask and coveralls) shall be used when opening containers for the purpose of placing the biological indicators. At least one of the containers with a biological indicator should be placed in the most difficult location for steam to penetrate, generally the bottom center of the waste pile. The occupier or operator shall conduct this test three consecutive times to define the minimum operating conditions. The temperature, pressure and residence time at which all biological indicator vials or strips for three consecutive tests show complete inactivation of the spores shall define the minimum operating conditions for the autoclave. After determining the minimum temperature, pressure and residence time, the occupier or operator of a common biomedical waste treatment facility shall conduct this test once in three months and records in this regard shall be maintained.
(6) **Routine Test:** A chemical indicator strip or tape that changes colour when a certain temperature is reached can be used to verify that a specific temperature has been achieved. It may be necessary to use more than one strip over the waste package at different locations to ensure that the inner content of the package has been adequately autoclaved. The occupier or operator of a common bio medical waste treatment facility shall conduct this test during autoclaving of each batch and records in this regard shall be maintained.
(7) Spore testing: The autoclave should completely and consistently kill the approved biological indicator at the maximum design capacity of each autoclave unit. Biological indicator for autoclave shall be Geobacillusstearothermophilus spores using vials or spore Strips; with at least $1X10_6$ spores. Under no circumstances will an autoclave have minimum operating parameters less than a residence time of 30 minutes, a temperature less than 121_o C or a pressure less than 15 psi. The occupier or operator of a common bio medical waste treatment and disposal facility shall conduct this test at least once in every week and records in this regard shall be maintained.
4. **STANDARDS OF MICROWAVING.-**
(1) Microwave treatment shall not be used for cytotoxic, hazardous or radioactive wastes, contaminated animal carcasses, body parts and large metal items.
(2) The microwave system shall comply with the efficacy test or routine tests and a performance guarantee may be provided by the supplier before operation of the limit.
(3) The microwave should completely and consistently kill the bacteria and other pathogenic organisms that are ensured by approved biological indicator at the maximum design capacity of each

microwave unit. Biological indicators for microwave shall be Bacillus atrophaeusspores using vials or spore strips with at least 1 x 10^4sporesper detachable strip. The biological indicator shall be placed with waste and exposed to same conditions as the waste during a normal treatment cycle.

5. **STANDARDS FOR DEEP BURIAL.-** (1) A pit or trench should be dug about two meters deep. It should be half filled with waste, then covered with lime within 50 cm of the surface, before filling the rest of the pit with soil.

(2) It must be ensured that animals do not have any access to burial sites. Covers of galvanised iron or wire meshes may be used.

(3) On each occasion, when wastes are added to the pit, a layer of 10 cm of soil shall be added to cover the wastes.

(4) Burial must be performed under close and dedicated supervision.

(5) The deep burial site should be relatively impermeable and no shallow well should be close to the site.

(6) The pits should be distant from habitation, and located so as to ensure that no contamination occurs to surface water or ground water. The area should not be prone to flooding or erosion.

(7) The location of the deep burial site shall be authorised by the prescribed authority.

(8) The institution shall maintain a record of all pits used for deep burial.

(9) The ground water table level should be a minimum of six meters below the lower level of deep burial pit.

6. STANDARDS FOR EFFICACY OF CHEMICAL DISINFECTION

Microbial inactivation efficacy is equated to "Log10 kill" which is defined as the difference between the logarithms of number of test microorganisms before and after chemical treatment. Chemical disinfection methods shall demonstrate a 4 Log10 reduction or greater for Bacillus Subtilis (ATCC 19659) in chemical treatment systems.

7. STANDARDS FOR DRY HEAT STERILIZATION

Waste sharps can be treated by dry heat sterilization at a temperature not less than 185^0C, at least for a residence period of 150 minutes in each cycle, which sterilization period of 90 minutes. There should be automatic recording system to monitor operating parameters.

(i) Validation test for Shaprs sterilization unit

Waste shaprs sterilization unit should completely and consistently kill the biological indicator GeobacillusStearothermophillus or Bacillus Atropheausspoers using vials with at least $\log_{10}$ 6 spores per ml. The test shall be carried out once in three months

(ii) Routine test

A chemical indicator strip or tape that changes colour when a certain temperature is reached can be used to verify that a specific temperature has been achieved. It may be necessary to use more than one strip over the waste to ensure that the inner content of the sharps has been adequately disinfected. This test shall be performed once in week and records in this regard shall be maintained.

8. **STANDARDS FOR LIQUID WASTE.-**

(1) The effluent generated or treated from the premises of occupier or operator of a common bio medical waste treatment and disposal facility, before discharge into the sewer should conform to the following limits-

PARAMETERS	**PERMISSIBLE LIMITS**
pH	6.5-9.0
Suspended solids	100 mg/l
Oil and grease	10 mg/l
BOD	30 mg/l
COD	250 mg/l
Bio-assay test	90% survival of fish after 96 hours in 100% effluent.

(2) Sludge from Effluent Treatment Plant shall be given to common bio-medical waste treatment facility for incineration or to hazardous waste treatment, storage and disposal facility for disposal.

6. The full EMD shall be forfeited in case of backing out of the offer after acceptance.

7. The bidders have to provide Ward wise, Mohalla wise and Street wise (Gali wise) list of all the private & government dispensaries, clinics, hospitals, Medical Laboratories, Blood Bank, Health Centres, Nursing Homes, Medical Institute etc.

8. As proof of the actual survey done for submitting the bids, the bidders have to enclose or submit soft copy in which the photographs of the situated medical centres (as mentioned in para(i) must be present with their name so that it may be uploaded on the government website for public information

9. The name and address of the centres under surveyed works must be written firstly gali wise (i.e. all the centres situated in the particular gali or street must be at one place), then all the street or galies of a particular mohalla must be shown at one place in such a manner that if any one wants to click a particular medical shop or centre in a particular gali of mohalla or ward, it must be present in the list of that very areas report in one click.

10. After survey for calculation of waste generation, the bidders also have to calculate the means & mode of on spot segregation, medical waste collection and safe transportation from site to the disposal plant yard.

11. Simultaneously they have to calculate the average number & models of vehicle (such as covered three wheelers or four wheelers or heavy vehicles) in a sequence so that the medical waste may be transported from narrow streets to the disposal yard at Jhiri, Ranchi.

12. The bidders also have to calculate or provide the names, specification, number, capacity etc. of equipment (such as Diesel incinerators, Shredders, heavy duty autoclaves, covered trolley etc.) required for disposal of the whole generated medical wastes. During calculation & estimation of the required equipments, it must be considered that if incase there occurs any break down in any of the required listed equipment then an alternate arrangement for disposal of the medical wastes must be there. The assessment of equipments must be as per need of pollution Control Board norms. Simultaneously they have to provide the average / approximate estimates of each of the equipment.

13. They also have to assess or estimate the approximate annual running cost required (such as fuel, manpower, consumables like - carry bags, dust bins, collection bins, gloves shoes etc. for labourers, other handling small equipments for the working etc.) for the complete job.

14. The bidders also have to provider or suggest the line of action plan for successful implementation of the complete disposal process.

15. The bidders have to collect the documents related to ward wise area from Ranchi Municipal Corporation office by their own or they may download it from government web site.

16. The minimum required specification, capacity of the items to be supplied and installed by the bidders to meet the requirements for handling the generated biomedical waste under Ranchi Municipal Corporation, Ranchi –

Sl. No.	Item Description (Minimum requirement to meet the complete handling system)	Remarks
1.	Dual Chamber incinerator Primary or Main combustion chamber & Secondary or post combustion chamber. Should have capacity minimum 500 Kg per hour with Rotary Kiln. Should have refractory bricks, refractory cement for hot insulation. Operating temp. should be minimum 1000^0 C. there should be facility of hydraulic ram feeder and conveyer for feeding of solids. Should have sludge feeding pump for sludge feeding & liquid feeding pump facilities for liquid feeding. Should be	One No. of 500 Kg per hour capacity incinerator is must for uninterrupted functioning of the system. The bidders must have alternate arrangement of lower capacity to overcome breakdowns of main

	equipped with ash conveyer for removal of ash.	incinerator.
2.	Steam Based Autoclave 5000 Ltrs / per batch i.e. 500 Kg per batch type Horizontal and capable to sterilize medical waste, chamber thickness should not be less than 5mm, operating pressure 2.0 Kg per cm2 to 2.2 Kg per cm2, temperature range 120 to 150^0 C, vaccum pump water based	One No. of 500 Kg per hour capacity Autoclave is must for uninterrupted functioning of the system. The bidders must have alternate arrangement of lower capacity to overcome breakdowns of main autoclave.
3.	Shredder 250 Kg / hr. be properly design and cover to avoid spillage and dust generation, blades should be highly resistant and be able to shred waste sharps, syringes, scalpels, glass wiles, blades, catheters, IV sets, bottles, blood bags, gloves, bandages etc. should be able to handle / shred wet waste especially after microwaving / autoclaving / Hydroclaving. The shredder should have mechanism of reverse motion of shafts to avoid accident in case of overloading or jamming. For ensuring better griping and cutting of the biomedical waste the shredder should have low rotational speed i.e. maximum 50 to 60 rpm.	
4.	Boiler Minimum Capacity – 2 Ton per hr.	
5.	DG Sets Atleast 100 KVA	
6.	ETP with chemical treatment system Capacity – Minimum 5 KLD	
7.	Air Pollution Control Device Should be capable to control emission from incinerator of 500 Kg / hr. should have Lime scrubber, Air Cyclone, Water Cooler, gas Cooler, Dioxine and Furan absorption unit (Dry Injector), Bag filter with Ceramic filters should be provided followed by Emergency packed bed scrubber with Mist eliminator. Chimney should be minimum 30 mtrs. Above ground level	
8.	The Plant site must have sufficient water storage tanks, bore wells with motor pump for ease in handling the plant procedures.	
9.	All the required infrastructure civil, electrical, mechanical, plumbing works, furnishing etc. works to make the system functional should be responsibility of the bidder. The size of the storage room should be adequate to store all	

	wastes. The floor and interior finishing of the rooms should be such that chances of sticking/ harbouring of microorganisms is minimized. Smooth and fine flooring and tiles walls should be provided to a height of 2 meter from the floor. The liquid waste generated during handling of waste and washing should be diverted to the inlet of ETP. Following separate treatment rooms should be provided. 1. Incinerator Room 2. Autoclave Room 3. Shredder Room	
10.	For Proper transportation adequate number of covered vehicles with man power should be provided by the bidder minimum 20 fully covered vehicles to be provided. The base of the waste cabin will be leak proof and will be easy to wash and disinfect. Vehicles should be equipped with communication equipment and safety gadgets and GPS system.	

NOTES : The bidders have to collect the segregated waste from end point of health care units on daily basis by Vulcan staff. The collected waste to be kept in colour coded bags / containers, sharps to be collected in puncture proof containers. The collection staffs will be equipped with protective gears for handling bio-medical waste. The bidder as well as the health care units must have to keep record books of day to day collections.

Sd/-
Director
Rajendra Institute of Medical Sciences,
Ranchi