CONTENT OF THE BIDDER’S PROPOSAL

In addition to the requirements stated in the Instructions to Bidders, the Contractor is required to prepare the Technical and Commercial part of its Proposal according to the present document and for every item requested below. If data are not available or if the information requested is not relevant or applicable to the proposed technology, the bidder should state so and provide an explanation. The submission of marketing brochures that do not provide relevant technical information is not encouraged. The bidder must state categorically whether or not their offer complies fully with the tender specifications and if not, the bidder should indicate any deviations.

1. **CONTENT OF THE BIDDER’s TECHNICAL PROPOSAL (to be submitted in a separate sealed envelope without price information)**

In the technical part of the proposal, the bidder shall provide all relevant technical details of the technology and process. The data should include the following:

* 1. General descriptions
	2. Description of the technology and destruction process, including relevant chemical reactions, overall process flow, by-products and output products from the process of PCB destruction, the name and category of the waste according to the Russian national regulation (quantity, quality, reprocessing, disposal, etc.) and the ways of produced wastes processing.
	3. Description of the feedstock pre-treatment unit, including processes occurring, changes in the raw material characteristics, operating parameters etc.;
	4. Description of the exhausted gases treatment process, including types of equipment used, chemical and physical processes, overall process flow, composition of exhausted gases confirmed with the protocols of chemical analysis, list of techniques applicable for exhausted gases composition control;
	5. Description of Automated Control System, including its overall scheme, list of controlled parameters;
	6. Description of conditions (climatic and technological) for the system placement;
	7. Description of the space requirements for the system placement and operation.
	8. Descriptions of how the offered system fulfills the provisions of the Stockholm Convention on POPs and the Basel Convention provision with regard to PCB standards for equipment, PCB oil and PCB wastes and unintentional production of POPs (Annex C of the Stockholm Convention). At the same time, the offered system should fulfill relevant Russian national legislation and standards.
	9. System specifications including:
	10. **For the main disposal unit and feedstock pre-treatment unit:**
		1. Processing capacity of the system and processing capacities for each mode of technology (kg/day). The processing capacity for the destruction unit and waste pre-treatment unit requested in the current RFP is 400 metric tons per year (1,2 metric tons per day) for treatment of pure PCBs or PCB-contaminated mineral oil over 5000 ppm.
		2. Range of PCB concentrations and matrices that the system is capable of processing; provide a summary of treatability studies for PCB concentrations and matrices similar to those of the project stockpile;
		3. Typical operating parameters (e.g., temperatures, pressures, concentrations, etc.) of each mode of concern;
		4. Total destruction and removal efficiencies (DRE) for pure PCB and PCB-contaminated mineral oil (separately) or any other kind of wastes, if applicable, based on the desired DRE value over 99,9999%;
		5. Required utilities, including electrical power demand (kW), electrical energy consumption (kWh per ton of PCB contaminated wastes), water consumption (liters of water per ton on PCB-contaminated wastes processed) and other utilities as it may be needed (kg per ton of PCB waste processed), assuming that the processed feedstock contains 100% PCB;
		6. Required chemicals and other consumables (kg per ton of PCB waste processed) for each mode of the system, assuming that the processed feedstock contains 100% PCB;
		7. Amount of wastes (solid residue, wastewater, air emissions etc.) generated per ton of waste treated assuming that the processed feedstock contains 100% PCB;
		8. Requirements for after destruction treatment of waste waters, any gaseous, liquid and solid wastes, etc.;
		9. Total physical size (dimensions) and weight of the system for all units and supporting engineering systems.
		10. Requirements for safety measures.
	11. **For exhausted gases treatment unit:**
		1. Description and specifications of all major equipment groups comprising the exhausted gas treatment unit [provide functional specifications (what the equipment does), performance specifications (performance required from the equipment) and design specifications (dimensions, materials of construction, other key characteristics)];
		2. Processing capacity of the gas treatment unit expressed in m3 per hour;
		3. Typical operating parameters (e.g., temperatures, pressures, concentrations, etc.) of the each mode of exhausted gas treatment system;
		4. Chemicals and other materials needed for the operation of the unit and its quantity;
		5. Required utilities, including electrical power demand (kW), electrical energy consumption, water consumption and other utilities as it may be needed;
		6. Representative drawing(s) showing the overall layout and general configuration(s) of the major equipment groups;
		7. Requirements for location/premise (workshop), access roads, etc.;
		8. Requirements for safety measures.
	12. Component specifications and overall layout:
		1. Description and specifications of all major equipment groups comprising the PCBs disposal system [provide functional specifications (what the equipment does), performance specifications (performance required from the equipment) and design specifications (dimensions, materials of construction, other key characteristics)];
		2. Representative drawing(s) showing the overall layout and general configuration(s) of the major equipment groups;
		3. Description of process control and details of instrumentation;
		4. General facility specifications for on-site, off-site and on-load treatment operations;
		5. Requirements for location/premise (workshop), access roads, demands on transport media, etc.
	13. Standard operating procedures and general maintenance requirements related to the use of the technology

The full set of documentations, operational guidelines and manuals have to be prepared in English and Russian.

* 1. Description of the operation and general management procedures.

 The same as the above para 4.

* 1. Additional technical information:
	2. Results of the characterization and chemical analyses of process residues, including all solid, liquid and gaseous stream residues. The data should be based on the commercial operation of the same technology and should include information on the input, detection limits and qualifications of the testing laboratory.
	3. Fate of hazardous chemical constituents and other contaminants found in PCBs and POPs wastes, e.g. description of fate of the chlorine content in PCBs, chlorinated aromatic and poly-molecular aromatic compounds such as polychlorinated benzenes and naphthalene and heavy metals such as lead, arsenic and mercury.
	4. Description of process control and details of instrumentation.
	5. Applicability to other POPs (Can the technology be used to destroy other POPs? If so, which other POPs and what DRE’s could be achieved? Provide supporting documentation).
	6. Description of training program, including the topics to be covered, the target personnel, training method and the length of training programme for proper operation and maintenance of PCB disposal system.
	7. Description of on-site and off-site technical support to be offered, if needed.
	8. Description of unique consumables and spare parts which are the part of technology, and list of producers of such items.
	9. Structural drawing(s), drawing(s) of mechanical and electrical parts of the system and others if applicable, required for the technology siting.
	10. Bidder's qualifications, including company history, years in business including financial standing of vendors, scientific and engineering expertise, operational experience, laboratory capacity and other technical qualifications.
	11. List of independent and accredited laboratories previously used for certifying the processing results of PCB disposal technology including their addresses, history, and years in business and contact persons.
	12. Additional supporting documentation in relation to the criteria:
	13. Results of chemical analyses (including data on the input, sampling time, detection limits and qualifications of the testing laboratory) specific to PCDDs, PCDFs and other hazardous chemicals in the output streams.
	14. Supporting documentation of the closed system to be used including:
		1. Explanation of how the overall technology, including pre-treatment unit, operates as a closed system;
		2. Detailed description of how the system verifies reaction completion, how emissions and output residues are captured and sampled for assay (including emissions from relief valves if applicable), and how they can be reprocessed if the minimum destruction and removal efficiencies have not been achieved;
		3. Data on when and how frequent "upset" conditions have occurred (that is, conditions when facility operations deviated from the parameters of normal operating conditions), and data on possible releases that may have occurred during those "upset" conditions;
		4. Results of chemical analyses of PCBs in all solid, liquid and gaseous streams (including information on the input, number of samples tested, the phase of the operation during which samples were obtained, detection limits, and qualifications of the testing laboratory);
		5. Mass balances and other calculations to obtain total destruction and removal efficiencies of PCBs and other toxic pollutants of concern;
	15. Information on the commercial operating history of the technology including:
		1. List of past and current commercial installations, including their addresses and contact information;
		2. The period of time the commercial facilities were or have been in operation, at least 5 year operation experience is required;
		3. The total amounts of PCBs and/or other POPs that have been processed in the commercial facilities;
		4. Description of positive and negative experiences in the treatment processes;
		5. Official approvals, certificates and permits issued by governmental agencies and/or institutions documenting approval for installation and performance;
	16. Supporting documentation on the safety of the technology including:
		1. Identification and analysis of potential risks and hazards;
		2. Description of all safety design features, safety and emergency procedures, contingency plans, and other approaches for minimizing risks and mitigating hazards;
		3. Occupational safety and health records or other supporting documentation to demonstrate the safety of the technology during commercial operation;
	17. Information on the duration of the warranty period (no less than 12 months) and service support to be provided
	18. Templates

The tables below are templates for technical data and specifications required of the bidder for their technical offer. If there is not enough space, information could be attached in one or more separate sheets. If certain data are not available or applicable to the technology, the bidder should include an explanation. Do not attach marketing literature unless it directly relates to a question.

**Templates for the submission of technical data and specifications**

Table 1

|  |
| --- |
| General Description *(Use separate sheet for each technology)* |
| Description of the PCBs disposal system and process, including relevant chemical reactions, overall process flow, and the by-products from the process of PCB destruction, the name and category of the waste according to the Russian regulations, management of it (quantity, quality, reprocessing, disposal, etc.) |  |
| Descriptions of how the offered system fulfills the provisions of the Stockholm Convention on POPs and the Basel Convention provision with regard to PCB standards for equipment, PCB oil and PCB wastes and unintentional production of POPs (Annex C of the Stockholm Convention).  |  |
| Description of the feedstock pre-treatment unit, including processes occurring, changes in the raw material characteristics, operating parameters etc. |  |
| Description of the exhausted gases treatment process, including types of equipment used, chemical and physical processes, overall process flow, composition of exhausted gases confirmed with the protocols of chemical analysis, list of techniques applicable for exhausted gases composition control. |  |
| Description of Automated Control System, including its overall scheme, list of controlled parameters. |  |
| Description of climatic and technological conditions and space requirements for the system placement and operation. |  |

Table 2

|  |
| --- |
| System Specifications of feedstock pre-treatment unit and the main disposal unit |
| Nominal processing capacity:400 tons / year is requested in this RFP for the pure PCB (100% PCB) | (in tons per year): |
| Processing capacity for the pure PCB (100%) | (in tons per 24-hour day): |
| Range of PCB concentrations that the system is capable of processing for different matrices |  (in % by weight): |
| Summary of treatability studies for different PCBs concentrations and matrices |  |

Table 2b

|  |
| --- |
| **System specification of the exhausted gas treatment unit** |
| Nominal processing capacity | *(in m3 per hour):* |
| Chemicals and other materials needed for the operation of the unit (list below) | *(in kg per 1 m3 of gas stream)* |

Table 3

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Typical operating parameters\* | Feedstock pre-treatment unit | PCB destruction unit | Exhausted gases treatment unit | Other treatment devices\*\* |
| Temperature (°C) |  |  |  |  |
| Pressure (kPa) |  |  |  |  |
| Concentrations of reactants if applicable (specify chemicals and units) |  |  |  |  |
| Concentration of catalyst, if applicable (specify its type and unit) |  |  |  |  |
| Other key operating parameters\*\* |  |  |  |  |
| \* Expand table if operating parameters are significantly different for different matrices and PCB concentrations\*\* Add more columns or rows if necessary |  |  |  |  |

Table 4

|  |  |  |
| --- | --- | --- |
| Matrices: | Total destruction and removal efficiency (DRE) (in %) | Residual PCB level in by-products, wastes and exhausted gases (ppm) |
| Transformer oil over 5000 ppm |  |  |
| Pure PCB (100 % PCB) |  |  |
| Others, if applicable (*please, specify type of matrices*) |  |  |

Table 5

|  |  |  |
| --- | --- | --- |
| Utilities for the pre-treatment unit, PCB destruction unit and exhausted gases treatment unit (please, use different tables for each unit) | Demand or pressure | Consumption per ton of pure PCB  |
| Electricity | (power in kilowatts) | (in kilowatt-hours) |
| Water if applicable | (pressure in kilopascals) | (in kg) |
| Steam, if applicable | (pressure in bars) | (in m3) |
| Air, if applicable | (kilos per hour) | (in m3) |
| Diesel or other fuels (specify) |  | (in kg) |
| Other utilities (specify type of utility and units) |  | (as may be required) |

Table 6

|  |  |
| --- | --- |
| Consumable materials (please, use different tables for each unit) | Amount consumed per ton of pure PCB  |
| Chemicals: (list below) | (in kg) |
| Catalysts: (list below) | (in kg) |
| Other consumable supplies (specify): | (specify units) |

Table 7

|  |
| --- |
| Other system specifications per ton of pure PCB |
| Amount of wastes (solid residue, wastewater, air emissions, etc.) | *(in kg or m3)* |
| Requirements for quality of wastes and its additional treatment |  |
| Total physical dimensions (length x width x height) and weight  | *(dimensions in meters)* *(weight in tons)* |

Table 8

|  |
| --- |
| Component Specifications and Overall Layout for all units (please, use different tables for each unit) |
| Description and specifications of all major equipment groups  | Use separate sheet |
| Representative drawing(s) showing general configuration(s) of major equipment groups | Use separate sheet |
| General facility specifications for installing the system | Use separate sheet |
| Requirements for location/premise (workshop), access roads, demands on transport media, etc. | Use separate sheet |
| Standard Operating Procedures and General Maintenance Requirements | Use separate sheet |

Table 9

|  |
| --- |
| Additional Technical Information for waste streams (please, use different tables for each unit) |
| Characterization and analysis of process residues (solid, liquid, and gaseous) based on commercial operation | Use separate sheet(include data on the input, detection limits and qualifications of testing laboratory) |
| Quantification of the by-products and residues (list below) | (in kg per phases) |
| Describe the fate of chlorine content in PCBs, chlorinated aromatic and poly-molecular aromatic compounds such as polychlorinated benzenes and naphthalene, and heavy metals such as lead, arsenic and mercury |  |
| Description of process control and details of instrumentation |  |
| Applicability to other POPs treatment |  |

Table 10

|  |
| --- |
| Training Programs (please, use different tables for each unit) |
| Description of the training program |  |
| Description of on-site and off-site technical support to be offered |  |

* 1. Bidder's Qualifications

(Including company history, years in business, expertise, experience, laboratory capacity and other technical qualifications)

Use separate sheet

* 1. Technical Data

Table 11

|  |
| --- |
| Supporting Documentation regarding the PCB destruction unit and exhausted gases treatment unit |
| Results of chemical analyses for dioxins, furans and chlorinated phenols in the output streams (specify which toxic equivalency factors are used, e.g., I-TEQ or WHO-TEQ) | Use a separate sheet if necessary(include data on the input, sampling time, detection limits, and qualifications of the testing laboratory) |
| Specification of the wastes generated (liquid, solid, gaseous) | Details of the composition of the wastes |

Table 12

|  |
| --- |
| Supporting Documentation on a Closed System |
| Explanation of how the overall technology including the pre-treatment unit is a closed system |  |
| Detailed description of how the system verifies reaction completion, how emissions and output residues are captured for assay (including emissions from relief valves if applicable), and how they can be reprocessed if the minimum destruction efficiencies have not been achieved |  |
| Data on when and how frequent "upset" conditions have occurred (that is, conditions when facility operations deviated from the parameters of normal operating conditions), and data on possible releases that may have occurred during those "upset" conditions |  |

Table 13

|  |
| --- |
| Supporting Documentation on Total Destruction Efficiency |
| Results of chemical analyses of PCBs and other toxic pollutants of concern in all solid, liquid and gaseous streams | Use a separate sheet(include data on the input, number of samples tested, the phase of the operation during which samples were obtained, detection limits, and qualifications of the testing laboratory) |
| Mass balances and other calculations to obtain total destruction efficiencies of PCBs and other toxic pollutants of concern | Show calculations in a separate sheet for both waste streams of interest |

Table 14

|  |
| --- |
| Information on the commercial operating history of the technology |
| Past and current commercial installations | Name of contact person, address, telephone, email | Start date of operation / ending date of operation if applicable | Total amounts of PCBs and/or other POPs processed | Description of positive and negative experiences |
|  |  |  |  |  |
|  |  |  |  |  |

Table 15

|  |
| --- |
| Supporting documentation on the safety of the technology |
| Identification and analysis of potential risks and hazards |  |
| Occupational safety and health records or other supporting documentation to demonstrate the safety of the technology during commercial operation | Use a separate sheet if necessary |
| Description of all safety design features, safety and emergency procedures, contingency plans, and other approaches for minimizing risks and mitigating hazards |  |
| Positive evaluation document of the Federal Agency of Control of Natural Resources Utilization, which is obligatory for all new technologies and projects, which in the course of their utilization could influence on the environment. This document is due according to the Article 11 of the Federal law No. 174-FZ of 23.11.1995 “About the ecological expertize”. |  |

Table 16

|  |  |
| --- | --- |
| **Wear parts** (please, use different tables for each unit) and spare parts with the service life less than 1 yesr | **Approximate service life (days)** |
| Wear part 1 | … |
| Wear part 2 | …. |
| Spare part 1 | …. |

Table 17

|  |
| --- |
| Supporting documentation on the spare parts  |
| Spare parts for equipment | Producer | Approximate service life (days) |
|  |  |  |
|  |  |  |

Table 18

|  |
| --- |
| Information on warranty period and service supprt |
| Warranty period for technlogy | *months* |
| Service support period |  Months or years |

Table 19

|  |  |
| --- | --- |
| **Compliance with the requirements of national norms, standards, rules, etc, as listed under para. 2.2.1, 2.2.2 of the ToR** | Confirmation of compliance, or relevant documents (wherever required)  |

Table 20

|  |
| --- |
| Conformance With Tender Specifications |
| Is your technical offer in exact conformity with the tender specifications? | (Yes or No) |
| If not, indicate where there are deviations: |  |

1. **CONTENT OF THE BIDDER’s COMMERCIAL PROPOSAL (to be submitted in a separate sealed envelope)**

1. Content of the Bidder's Commercial Proposal

The price quotes shall be specified in US dollars including the VAT (18%) and customs duty (1%) for the imported equipment, where relevant. The financial proposal should clearly provide costs for the PCB Disposal System

In the financial proposal, the bidder shall provide information regarding costs and delivery timeframes as given in the Table 18 of the “Financial Offer”.

**2. Template for financial data required of the bidder for their economic offer**

* The Bidder shall quote the prices that shall be covered by the Contractor only. Please indicate separately the costs that are expected to be covered from other sources, like national/ international co-funding resources;
* PCB owners shall cover only local transportation cost limited to transporting the PCB-contaminated wastes to the operation site;
* Expand the number of rows of the table as needed for specific expenditure items, like name of and types of consumables, types and numbers of technical assistance, topics of training programs, manpower for each item etc,. If there is not enough space, tables could be expanded and information could be attached in one or more separate sheets;
* If certain items are not relevant to the required specifications or other parameters in the tender specifications the Bidder shall indicate the alternative specifications or parameters in the column;

Table 21

|  |  |  |
| --- | --- | --- |
| **UNIDO REQUIREMENTS** |  **TO BE COMPLETED BY THE INVITEE** |  |
| **Item** | **Name and required parameters** | **Quantity** | **Proposed Item and/or Service Description** | **Any deviation from the Tech Specs?\*****(YES/NO)** | **Unit price****(USD) EXW** | **Unit Price****(USD) DDP, Moscow region****(Incoterm 2010) including 18 % VAT and 1% custom duty (when/if applicable)** | **Total price (USD) DDP, Moscow region****(Incoterm 2010) including 18 % VAT and 1% custom duty (when/if applicable)** |
|  | **I. Equipment, parts, supplies** |  |  |  |  |  |  |
| 1 | Manufacturing the PCB destruction system, as per Technical Specifications |  |  |  |  |  |  |
| 2 | Spare parts/ wear parts  |  |  |  |  |  |  |
| 3 | Reagents |  |  |  |  |  |  |
| 4 | Consumables |  |  |  |  |  |  |
|   |  **II. Training** |  |   |   |   |   |  |
|  | **III. Insurance** |  |  |  |  | VAT and customs duty n/a |  |
|  | **IV Delivery, commissioning related costs** | 1 |  |  |  | VAT and customs duty n/a |  |
|  | **V. At least 12-month warranty starting from UNIDO and end-users ‘performance acceptance, including one year monitoring and three (3) years service costs** | 1 |  |  |  | VAT and customs duty n/a |  |
|  | **Total price:** |  |  |  |  |  |  |

Table 22

|  |
| --- |
| Conformance With the Tender Specifications |
| Is your financial offer in exact conformity with the tender specifications/ requirements? | (Yes or No) |
| If not, indicate where there are deviations |  |