

Annex "Specifications"

	Nordisk Sikkerhet AS
	Tender title: "Turnkey supply of automated radiation portal monitor and personnel contamination monitor systems"
	Project title: "Supply of monitoring and detection equipment for industrial site of Prydniprovsky chemical plant (PChP), Ukraine"

Specifications

Turnkey supply of
automated radiation portal monitor and personnel
contamination monitor systems

Contracting Authority: Nordisk Sikkerhet AS

Recipient: State Enterprise "Barrier"

Tenderer's name: _____

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BACKGROUND

The Tenderer shall fill in the Annex “Specifications” in the format given below. The Tenderer’s proposed supplies should be manufactured and certified, if applicable, in accordance with the technical regulations and standards of Ukraine or EU/EEA countries. The complete table should be submitted to the Contracting Authority along with the required tender documents. On the front page of the Annex “Specifications”, the Tenderer shall indicate its name. After the completion of this document, it should be signed and dated by the Tenderer-authorized person.

1. RADIATION PORTAL MONITOR SYSTEM

1.1 VEHICAL RADIATION PORTAL MONITORS

	The Contracting Authority’s Requirements	Tenderer’s Offer
Manufacturer	—	
Model	—	
Scope of supply	3 sets	
TECHNICAL SPECIFICATIONS		
Number of pillars	2	
Detection channels	Gamma	
Gamma channel	Organic plastic scintillator	
Gamma-neutron discrimination	Required	
Energy range of detected gamma radiation	From 50 keV to 3 MeV or better	
Volume of plastic scintillation detector, no less than	100 liters in total	
Sensitivity to gamma radiation for Cs-137, no less than	10 cps/kBq or better	
Detection zone, no less than	Vertical: 3.0 m Horizontal: 3.5 m	
Natural gamma background suppression	Required	
False alarm rate	1 per 1000 passages	
Occupancy sensors	Required. Infra-red sensor or other type	
Tamper switch	Required	
Alarm indication	Audible and visual indication, both on the monitor pillar and at the operator’s workplaces. [Ref. Annex A to these Specifications]	

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	The Contracting Authority's Requirements	Tenderer's Offer
Dry (relay) contact output	Required. Control signal must be automatically generated to close the existing traffic booms, when a radioactive source is detected by RPM.	
External connection to network	TCP/IP protocol. RPMs shall be linked to the LAN (Ethernet).	
Requirements to cable lines	Cable must be laid outside in a corrugated pipe at an approximate distance to the operator's workplace (server) of no more than 1000 m. [Ref. Annex A to these Specifications] Elements of structured cable system (cable communication lines, cross connect panels cable connectors, info-sockets and other components) shall be included in the scope of this contract.	
RPM' data processing unit	RPM' data processing unit: – Collection and processing of information from the RPM's detection units; – Compensation of radiation background attenuation induced by the vehicle; – Visual and audible alarms when radioactive source is detected; – Issuance of control signals (relay contact) to existing traffic booms at the vehicle checkpoint; – Communication with the operator's workstations (server) via Ethernet interface; – Self-diagnosis of the RPM.	
Power supply	220 ±10% V / 50±5 Hz	
Offline work in the event of power supply interruption, no less than	2 hours for the whole system. UPS and AC voltage stabilizers are required.	
Regime of operation	24/7 continuous operation	
Physical dimensions, length x width x height	—	
Weight, no more than	450 kg per one pillar	

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	The Contracting Authority's Requirements	Tenderer's Offer
Service life, no less than	10 years	
Mean time between failures, no less than	4000 hours	
Protection against shocks from vehicles	Required. Metal pipe bollards, concrete bollards or other type are required to protect RPM from vehicle collisions	
Foundation	Required. Construction of appropriate concrete foundations for RPM, IP-camera pole and LED floodlight is required.	
Additional lighting	Required. Additional LED floodlight shall be installed in the detection zone within the scope of this contract.	
Environmental requirements		
Ambient temperatures	From -20 to +45 °C	
Relative humidity	Up to 95% at ambient temperature of 35°C and lower, without condensation of moisture	
Protection degree, no less than	IP 54 (dust protection, solid bodies protection, antisplash)	
CONSUMABLES AND SPARE PARTS		
Spare parts and accessories for three (3) years of operation	Yes	
OTHER REQUIREMENTS		
Certification	Certification of RPMs in Ukraine and/or in EU/EEA countries in accordance with the Legislation in force	
Primary metrological verification	N/A	
Visibility of Norwegian financing	Any equipment delivered under the contract should be clearly identified and should have metallic plates or indelible labels containing the flag of Norway and the phrase “Provided with support from the Government of Norway” in the language of Recipient and in English.	

1.2 PEDESTRIAN RADIATION PORTAL MONITORS

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	The Contracting Authority's Requirements	Tenderer's Offer
Manufacturer	—	
Model	—	
Scope of supply	3 sets	
TECHNICAL SPECIFICATIONS		
Number of pillars	1 or 2 pillars	
Detection channel	Gamma	
Gamma channel	Organic plastic scintillator	
Gamma-neutron discrimination	Required	
Energy range of detected gamma radiation	From 50 keV to 3 MeV or better	
Volume of plastic scintillation detector, no less than	2,5 liters in total	
Sensitivity to gamma radiation for Cs-137, no less than	2 cps/kBq or better	
Detection zone, no less than	Vertical: 0.8 m Horizontal: 2 m	
Natural gamma background suppression	Required	
False alarm rate	1 per 1000 passages	
Occupancy sensors	Required. Infra-red sensor or other type	
Tamper switch	Required	
Alarm indication	Audible and visual indication, both on the monitor pillar and at the operator's workplaces. [Ref. Annex A to these Specifications]	
Remote alarm unit	To be installed outdoor, within ~ 10 meters away from RPM. [Ref. Annex A to these Specifications]	
Dry (relay) contact output	N/A	
External connection to network	TCP/IP protocol. RPMs shall be linked to the LAN (Ethernet).	
RPM' data processing unit	RPM' data processing unit: – Collection and processing of information from the RPM's detection units; – Compensation of radiation background; – Visual and audible alarms when radioactive source is detected;	

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	The Contracting Authority's Requirements	Tenderer's Offer
	<ul style="list-style-type: none"> – Communication with the operator's workstations (server) via Ethernet interface; – Self-diagnosis of the RPM. 	
Power supply	220 ±10% V / 50±5 Hz	
Offline work in the event of power supply interruption, no less than	2 hours for the whole system. UPS and AC voltage stabilizers are required.	
Regime of operation	24/7 continuous operation	
Physical dimensions, length x width x height	—	
Weight, no more than	150 kg per one pillar	
Service life, no less than	10 years	
Mean time between failures, no less than	4000 hours	
Environmental requirements		
Ambient temperatures	From 5 to +45 °C	
Relative humidity	Up to 75% at the ambient temperature of 30 °C and lower, without condensation of moisture	
Protection degree, no less than	IP 54 (dust protection, solid bodies protection, antispash)	
CONSUMABLES AND SPARE PARTS		
Spare parts and accessories for three (3) years of operation	Yes	
OTHER REQUIREMENTS		
Certification	Certification of RPMs in Ukraine and/or in EU/EEA countries in accordance with the Legislation in force	
Primary metrological verification	N/A	
Visibility of Norwegian financing	Any equipment delivered under the contract should be clearly identified and should have metallic plates or indelible labels containing the flag of Norway and the phrase “Provided with support from the Government of Norway” in the language of Recipient and in English.	

1.3 OPERATOR'S WORKPLACE EQUIPMENT AND SOFTWARE

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	The Contracting Authority's Requirements	Tenderer's Offer
Manufacturer	—	
Model	—	
Scope of supply	1. Operator's workstations (2 pcs), 2. Software, 3. Network equipment, 4. Elements of structured cable system.	
TECHNICAL SPECIFICATIONS		
Operator's workplace. PC general specifications		
PC type	PC	
Processor	Quad Core i5 or equivalent	
RAM	≥ 8GB	
Hard disk volume	≥ 1TB	
Number of external connections:		
-Ethernet 100/1000 Mbit	≥ 2	
-USB 2.0 or higher	≥ 2	
Display	LCD monitor ≥ 22"	
Operating system	Windows 7 or higher	
Functions	Operator's workplace: - Collection, storage and visualization of information from the RPMs; - Visual and audible alarms when radioactive source is detected; - Registration of all detection events and a database of these events; - Detection protocol creation and periodic reports; - Diagnosis of RPMs. One of PCs to be supplied shall be used as a database server for RPMs.	
Power supply	220 ±10% V / 50±5 Hz	
Off-line work in the event of power supply interruption, no less than	2 hours for the whole system. UPS and AC voltage stabilizers are required.	
Regime of operation	24/7 continuous operation	
Service life, no less than	7 years	
Software requirements		
Multilevel access	At least 2 level access: operator and administrator	
In normal (no alarm) state the operator must be able to monitor:	- RPMs status; - UPSs status (if there is no main power);	

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	The Contracting Authority's Requirements	Tenderer's Offer
Alarm window	- Displays count rate histogram of the alarm; - Displays gamma radiation background histogram;	
User's interface	In Ukrainian	
Database	Stores all collected data for at least 180 days	
Environmental requirements		
Ambient temperatures	From 5 to +45 °C	
Relative humidity	Up to 75% at the ambient temperature of 30 °C and lower, without condensation of moisture	
Protection degree, no less than	IP20 for operator's workstations (server) (dust protection, solid bodies protection).	
CONSUMABLES AND SPARE PARTS		
Spare parts and accessories for three (3) years of operation	Yes	
OTHER REQUIREMENTS		
Visibility of Norwegian financing	Any equipment delivered under the contract should be clearly identified and should have metallic plates or indelible labels containing the flag of Norway and the phrase “Provided with support from the Government of Norway” in Ukrainian and in English.	

2. PERSONNEL CONTAMINATION MONITOR SYSTEM

2.1 PERSONNEL CONTEMINATION MONITORS

	Contracting Authority's Requirements	Tenderer's Offer
Manufacturer	—	
Model	—	
Scope of supply	4 sets	
TECHNICAL SPECIFICATIONS		
Type	Whole body surface contamination monitor	
Detection channels	– Beta,	

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	<ul style="list-style-type: none"> - Alpha (alpha channel is to be envisaged for the remote detector). 	
Detectors	<p>The contamination monitor shall be equipped with stationary beta radiation detectors to monitor the following areas:</p> <ul style="list-style-type: none"> - upper part of head, - shoulders, - palms, - backs of hands, - side surface of legs, - feet. <p>The contamination monitor shall be additionally equipped with the remote detector(s) of alpha and beta radiation (with discrimination capability) to monitor the following:</p> <ul style="list-style-type: none"> - small items and parts of the body/clothes that cannot be covered by the stationary beta detectors. 	
Functions	<p>Detection, localization, and evaluation of radiological contamination of personnel:</p> <ul style="list-style-type: none"> - Control of personnel passage; - Measurement of flux density/surface activity of beta and alpha particles; - Natural and intrinsic background suppression; - Indication of measured values on the display; - Audible and visual alarm when thresholds are exceeded; - Adjustable thresholds for alarm; - Displaying the location of the contamination found, depending on which detector(s) is in the alarm state; - Generation of control signal to open the exit gate of the monitor when thresholds are not exceeded; 	

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	<ul style="list-style-type: none">- Recording the measurements in the non-volatile memory;- Self-diagnostics;- Communication with the operator's workstations (server) via Ethernet interface. <p>[Ref. Annex A to these Specifications]</p>	
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Equipment	<p>The contamination monitor shall be equipped with the following:</p> <ul style="list-style-type: none"> - set of stationary beta radiation detectors, - remote detector(s) (alpha-probe and beta-probe/alternatively, alpha&beta probe), - frame with one entrance gate and one exit gate, - data display and processing unit, - alarm units, - set of cables. 	
Entrance gate	<p>The contamination monitor shall be equipped with the two gates:</p> <ul style="list-style-type: none"> - entrance gate (to be locked when the monitor is occupied prior to beginning of the measurements), - exit gate (to be unlocked after the end of measurements). 	
Regime of operation	24/7 continuous operation	
Setup time of operating mode, no more than	10 min	
Measurement time, no more than	10 sec	
Alarm indication	<p>Visual and audible alarms both on the monitor and at the operator’s workplaces. Contaminated area(s) shall be indicated.</p> <p>[Ref. Annex A to these Specifications]</p>	
Additional remote alarm unit	<p>To be installed outdoor, within ~ 10 meters away from the monitor.</p> <p>[Ref. Annex A to these Specifications]</p>	
Dry (relay) contact output	N/A	
External connection to network	<p>TCP/IP protocol.</p> <p>All the contamination monitors shall be linked to the LAN (Ethernet).</p>	

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Power supply	220 \pm 10% V / 50 \pm 5 Hz	
Offline work in the event of power supply interruption, no less than	2 hours for the whole system. UPS and AC voltage stabilizers are required.	
Physical dimensions, length x width x height	1000 \times 1200 \times 2650 mm	
Weight, no more than	400 kg	
Mean time between failures, no less than	10 000 hours	
Service life, no less than	10 years	
ALPHA MEASUREMENTS		
Energy range of detected alpha radiation	From 4,5 MeV to 5,6 MeV or better	
Measurement range of alpha flux density	From 0,1 to 1 \cdot 10 ⁴ part./ (cm ² min) or better	
Relative measurement error, no more than	\pm 30%	
BETA MEASUREMENTS		
Energy range of detected beta radiation	From 150 keV to 2,5 MeV or better	
Measurement range of beta flux density	From 5 to 1 \cdot 10 ⁴ part./ (cm ² min) or better	
Relative measurement error, no more than	\pm 30%	
ENVIRONMENTAL REQUIREMENTS		
Ambient temperatures	From 5 to +45 °C	
Relative humidity	Up to 75% at the ambient temperature of 30 °C and lower, without condensation of moisture	
Protection degree, no less than	IP 20 or better - for alpha and beta radiation detectors. (dust protection, solid bodies protection).	
OTHER REQUIREMENTS		
Certification	Certification of the contamination monitor in Ukraine and/or in EU/EEA countries in accordance with the Legislation in force	
Primary metrological verification	Yes	

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Visibility of Norwegian financing	Any equipment delivered under the contract should be clearly identified and should have metallic plates or indelible labels containing the flag of Norway and the phrase “Provided with support from the Government of Norway” in the language of Recipient and in English.	
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2.2 OPERATOR’S WORKPLACE EQUIPMENT AND SOFTWARE

	The Contracting Authority’s Requirements	Tenderer’s Offer
Manufacturer	—	
Model	—	
Scope of supply	1. Operator’s workstations (2 pcs), 2. Software, 3. Network equipment, 4. Elements of structured cable system	
TECHNICAL SPECIFICATIONS		
Operator’s workplace. PC general specifications		
PC type	PC	
Processor	Quad Core i5 or equivalent	
RAM	≥ 8GB	
Hard disk volume	≥ 1TB	
Number of external connections:		
- Ethernet 100/1000 Mbit	≥ 2	
- USB 2.0 or higher	≥ 2	
Display	LCD monitor ≥ 22"	
Operating system	Windows 7 or higher	
Functions	Operator’s workplace: – Collection, storage and visualization of information from the contamination monitors; – Visual and audible alarms when radioactive contamination is detected; – Registration of all detection events and a database of these events; – Detection protocol creation and periodic reports;	

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	The Contracting Authority's Requirements	Tenderer's Offer
	– Diagnosis of the contamination monitors. One of PCs to be supplied shall be used as a database server for the contamination monitors.	
Power supply	220 ±10% V / 50±5 Hz	
Off-line work in the event of power supply interruption, no less than	2 hours for the whole system. UPS and AC voltage stabilizers are required.	
Regime of operation	24/7 continuous operation	
Service life, no less than	7 years	
Software requirements		
Multilevel access	At least 2 level access: operator and administrator	
In normal (no alarm) state the operator must be able to monitor:	- Status of contamination monitors; - UPSs status (if there is no main power).	
Alarm window	- Visual and audible alarms when thresholds are exceeded.	
User's interface	In Ukrainian	
Database	Stores all collected data for at least 180 days	
Environmental requirements		
Ambient temperatures	From 5 to +45 °C	
Relative humidity	Up to 75% at the ambient temperature of 30 °C and lower, without condensation of moisture	
Protection degree, no less than	IP20 for operator's workstations (server) (dust protection, solid bodies protection).	
CONSUMABLES AND SPARE PARTS		
Spare parts and accessories for three (3) years of operation	Yes	
OTHER REQUIREMENTS		
Visibility of Norwegian financing	Any equipment delivered under the contract should be clearly identified and should have metallic plates or indelible labels containing the flag of Norway and the phrase "Provided with support from the Government of Norway" in Ukrainian and in English.	

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3. VIDEO SURVEILLANCE SYSTEM

	The Contracting Authority's Requirements	Tenderer's Offer
Manufacturer	—	
Model	—	
Scope of supply	1. IP video cameras (11 pcs), 2. Video recorder/server with monitor (1 pc), 3. Operator's workstation with monitor (1 pc), 4. Software, 5. Network equipment, 6. Elements of structured cable system.	
TECHNICAL SPECIFICATIONS		
Video cameras. General specifications		
Type of video camera	IP-video camera with IR-illuminator	
Functions	Image of alarm-causing objects; Detection of vehicles and people; 24/7 video and audio recording;	
Resolutions	- ≥ 4 megapixel, - $\geq 2688 \times 1520$ pixels at 20 fps, - $\geq 2560 \times 1440$ pixels at 25/30 fps or better characteristics	
Power supply	220 $\pm 10\%$ V / 50 ± 5 Hz	
Off-line work in the event of power supply interruption, no less than	2 hours for the whole system. UPS and AC voltage stabilizers are required.	
Regime of operation	24/7 continuous operation	
Service life, no less than	7 years	
Environmental requirements		
Ambient temperatures	From -20 to +45 °C	
Relative humidity	Up to 95% at ambient temperature of 35°C and lower, without condensation of moisture	
Protection degree, no less than	IP 66 for IP-video cameras (dust tight and protected against powerful waterjets)	

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	The Contracting Authority's Requirements	Tenderer's Offer
Video server/recorder. General specifications		
Type	Digital network recorder	
Processor	to be defined by the tenderer	
Operating system	to be defined by the tenderer	
RAM	to be defined by the tenderer	
Hard drives number, type, and volume	to be defined by the tenderer	
Hot swappable drive	Yes	
Number of video and audio channels:	≥16	
Number of external connections:		
- HDMI	≥ 2	
- Ethernet 100/1000 Mbit	≥ 2	
- USB 2.0 or higher	≥ 2	
- eSATA	≥ 1	
- audio output	≥ 1	
Display	- LCD monitor ≥32", 4K - Displaying video from 11 associated IP-video cameras real-time and in the past.	
Functions	- Connecting 11 IP-video cameras; - Collection (24/7), storage and visualization of data from the associated IP-video cameras (audio and video); - Signal transmission via LAN (Ethernet) to monitor the situation at the checkpoints in real-time; - Data backup copying and archiving.	
Multilevel access	At least 2 level access: operator and administrator	
Database	Stores all collected data including 24/7 video and audio recording from 11 video cameras with resolution of at least 2560 x 1440 pixels for at least 7 days.	
Power supply	220 ±10% V / 50±5 Hz	
Off-line work in the event of power supply interruption, no less than	2 hours for the whole system. UPS and AC voltage stabilizers are required.	
Regime of operation	24/7 continuous operation	
Service life, no less than	7 years	
Operator's workplace. PC general specifications		

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	The Contracting Authority's Requirements	Tenderer's Offer
PC type	PC	
Processor	Quad Core i5 or equivalent	
RAM	≥ 8GB	
Hard disk volume	≥ 1TB	
Number of external connections:		
- Ethernet 100/1000 Mbit	≥ 2	
- USB 2.0 or higher	≥ 2	
Display	- LCD monitor ≥32", 4K - Displaying real-time video from 11 associated cameras.	
Operating system	Windows 7 or higher	
Functions	Operator's workplace: - Receiving data from video recorder/server to monitor the situation at the checkpoints in the real time and in the past	
Power supply	220 ±10% V / 50±5 Hz	
Off-line work in the event of power supply interruption, no less than	2 hours for the whole system. UPS and AC voltage stabilizers are required.	
Regime of operation	24/7 continuous operation	
Service life, no less than	7 years	
Environmental requirements		
Ambient temperatures	From +5 to +45 °C	
Relative humidity	Up to 75% at the ambient temperature of 30 °C and lower, without condensation of moisture	
Protection degree, no less than	IP20 for operator's workstation, video recorder/server and other equipment (dust protection, solid bodies protection).	
CONSUMABLES AND SPARE PARTS		
Spare parts and accessories for three (3) years of operation	Yes	
OTHER REQUIREMENTS		
Visibility of Norwegian financing	Any equipment delivered under the contract should be clearly identified and should have metallic plates or indelible labels containing the flag of Norway and the phrase "Provided with support from the Government of Norway"	

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	The Contracting Authority's Requirements	Tenderer's Offer
	in the language of Recipient and in English.	

4. LOCAL AREA NETWORK AND NETWORK EQUIPMENT

	The Contracting Authority's Requirements	Tenderer's Offer
Manufacturer	—	
Model	—	
Scope of supply	1. Network equipment, 2. Elements of structured cable system.	
Local Area Network (LAN)		
Network type	Ethernet network based on the fiber optic line with a transmission rate of ≥ 1 Gbps. Systems of radiation portal monitors, personnel contamination monitors and video surveillance shall use one common high-speed optical-fiber cable line for data networking. [Ref. Annex A to these Specifications]	
Network equipment	Network switches, routers, multiplexors, and other network equipment, as necessary. Lightning protection for all network equipment is required.	
Scope of supply	The scope of the contract includes the design and establishment of cable network: - for the system of RPMs, - for the system of personnel contamination monitors, - for the system of video surveillance. Elements of structured cable system (cable communication lines, cross connect panels, cable connectors, info-sockets and other components), fasteners and cable protective	

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	The Contracting Authority's Requirements	Tenderer's Offer
	elements (for indoor and outdoor use), and relevant network equipment shall be delivered under this contract.	
Power supply	220 ±10% V / 50±5 Hz	
Off-line work in the event of power supply interruption, no less than	2 hours for the whole system. UPS and AC voltage stabilizers are required.	
Regime of operation	24/7 continuous operation	
Service life, no less than	7 years	
CONSUMABLES AND SPARE PARTS		
Spare parts and accessories for three (3) years of operation	Yes	
OTHER REQUIREMENTS		
Visibility of Norwegian financing	Visibility of Norwegian financing	Visibility of Norwegian financing

5. DOCUMENTATION

	Contracting Authority's Requirements	Tenderer's Offer
DOCUMENTATION		
Terms of reference (TOR) for systems and software to be developed	In Ukrainian and English	
Design documentation for cable installation, including the following documents: -Chart of external points connection, -Cable log, -Mounting drawings, -Power supply drawings, etc.	In Ukrainian	
Passports for technical means	In Ukrainian	
Operator's manual for technical means, including procedure for periodical checks	In Ukrainian	
Operator's manual for application software, including installation guide	In Ukrainian	
Documents attesting certification of equipment	In Ukrainian and/or English	
Certificate of primary metrological verification (for personnel contamination monitors)	In Ukrainian	
Programme and procedure of factory tests	In Ukrainian and English	
Programme and procedure of site acceptance tests	In Ukrainian and English	
Training documentation	In Ukrainian	

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Transportation documentation	In Ukrainian and English	
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6. DELIVERY TERMS AND CONDITIONS

	Contracting Authority's Requirements	Tenderer's Offer
DELIVERY TERMS AND CONDITIONS		
Terms of delivery	DDP, Incoterms 2010	
Place of delivery and installation	STE “Barrier”. Anoshkina Avenue 179B, Kamianske, Ukraine	
Unloading at the place of delivery	By Contractor	
Delivery Time	≤ 250 calendar days after the date of contract signature	
PRESERVATION AND PACKAGING		
Packaging	Protection for transportation, handling and reliable storage without re-preservation within 1 year upon delivery.	

7. TRAINING COURSE: OPERATION, MAINTENANCE AND REPAIR

	Contracting Authority's Requirements	Tenderer's Offer
TRAINING		
TRAINING COURSE		
Place of training (training room to be provided by the Recipient)	STE “Barrier”. Anoshkina Avenue 179B, Kamianske, Ukraine	
Duration of training course	4 days	
Language of training course	In Ukrainian	
Number of trainees, up to	15 persons	
Themes to be covered	<ul style="list-style-type: none"> - Nature of ionizing radiation, - Interaction of ionizing radiation with matter, - Radioactive sources and nuclear materials to be detected using the radiation portal monitors, - Radiological contamination to be detected using the personnel contamination monitor, - Operating principles of operation, 	

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	<ul style="list-style-type: none"> - Detailed analysis of algorithms and features of operation, - Use of equipment, - Setting-up procedures, - Procedures of periodical checks, - Maintenance, - Minor repairs, - Specialized software: installation and operation. 	
Theoretical part duration, no less than	2 days	
Practical part duration, no less than	2 days	
Instructional video	Optional	
Verification	Test, written form	
TRAINING COURSE DOCUMENTATION		
One certificate per trainee	In Ukrainian and/or English	
List of materials to provide per trainee	<ul style="list-style-type: none"> - Set of training materials; - User's documentation; - Training materials on one USB drive. 	
Training materials language	In Ukrainian	
Results of test after training should be delivered to the Contracting Authority and the Recipient	Yes	

8. WARRANTY AND POST-WARRANTY SERVICES

	Contracting Authority's Requirements	Tenderer's Offer
WARRANTY AND POST-WARRANTY SERVICES		
Duration of warranty period	≥ 24 months	
Place of warranty repairs and maintenance	Ukraine	
Presence of official representative of the manufacturer or authorised service centre in Ukraine	Yes	
Technical support during warranty and post-warranty period	- Technical support by email or telephone in Ukrainian /English to solve any technical problems (software	

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	<p>failure, anomalous behaviour, minor improvements concerning process, functional capabilities of data processing, etc.) and rectify any system-disabled state,</p> <ul style="list-style-type: none"> - free-of-charge troubleshooting of software failure at the Recipient’s site during the warranty period, - Consultancy support in relation to the metrological verification by email or telephone in Ukrainian/English. 	
After-sales service	<p>Compulsory after-sales service to be provided under a separate agreement with the Recipient shall include the following:</p> <ul style="list-style-type: none"> - Maintenance and post warranty repair of the equipment on the territory of the Recipient; - Rapid provision of spare parts and consumables. 	

9. TIME SCHEDULE

	Action	Period of completion	Tenderer’s Offer
1	<p>Submission of documents:</p> <ul style="list-style-type: none"> - Terms of reference (TOR) for systems and software to be developed. 	Within 60 calendar days after the signing of Contract	
2	<p>Submission of documents:</p> <ul style="list-style-type: none"> - Design documentation for cables installation. 	Within 120 calendar days after the signing of Contract	
3	<p>Submission of documents:</p> <ul style="list-style-type: none"> - Passports for technical means, - Operator’s manual for technical means, including procedure for periodical checks, - Documents attesting certification of equipment, - Certificate of primary metrological verification 	2 weeks before the scheduled shipment and supplied with equipment	

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	(for personnel contamination monitor), - Operator's manual for application software, including installation guide, - Software licenses, - Transportation documentation.		
4	Submission of documents: - Training programme, - Training course documentation.	3 weeks before the scheduled training	
5	Submission of documents: - Programme and procedure of factory acceptance tests; - Programme and procedure of site acceptance tests.	3 weeks before the scheduled factory/on-site acceptance tests	
6	Delivery	Within 250 calendar days after the signing of Contract	
7	Turn-key installation and commissioning (including construction of concrete foundations, arrangement of cable lines, mounting, starting-up and adjustment of equipment, site-acceptance tests, etc.)	Within 270 calendar days after the signing of Contract	
8	Training of personnel	Within 290* calendar days after the signing of Contract	

Note: *) The personnel training must be carried out not later than 20* calendar days after the installation and startup of equipment. The actual dates of training shall be confirmed by the Recipient and Contracting Authority no later than 10 days before the training course.

Authorized person on behalf of the Tenderer:

Name: _____
 Title: _____
 Signature: _____
 Date: _____