

 <b>BIDSF</b> Project	<b>C13 – DISPOSAL OF LOOSE RADWASTE</b> <b>BIDSF 016 2 001</b>	<b>C13</b> Contract
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## **CONTRACT**

### **DISPOSAL OF LOOSE RADWASTE**

**CONTRACT N° : BIDSF 016 2 001**


between

**Jadrová a vyradovacia spoločnosť, a.s.**

and

**VUJE, a.s.**

Dated: \_\_\_\_\_

	<b>BIDSF</b> Project	<b>C13 – DISPOSAL OF LOOSE RADWASTE</b> <b>BIDSF 016 2 001</b>	<b>C13</b> Contract
---	-------------------------	---	------------------------

**CONTRACT FOR CONSULTING SERVICES  
SMALL ASSIGNMENTS  
LUMP-SUM PAYMENTS**

**CONTRACT No. 016 2 001**

This CONTRACT (hereinafter called the "Contract") is made the .... day of the month of....., 2012 (the Effective Date of the Contract), between, on the one hand,, **Jadrová a vyraďovacia spoločnosť, a.s.** a state owned joint stock company duly organized and existing under the Laws of the Slovak Republic with its registered office located at Tomášikova 22, 821 02 Bratislava, Slovak Republic and registered with the Trade Register of the District court Bratislava I in section Sa under number 4649/B, Company Identification No.: 35 946 024, duly represented by Mr. Ján Horváth – Chairman of the Board of Directors and Mr. Miroslav Obert – Vice-Chairman of the Board of Directors, entrusted with the relevant powers in compliance with the Statute of Jadrová a vyraďovacia spoločnosť, a.s. (hereinafter called "the Client"),

and,

**VUJE, a.s.**, on the other hand, a private owned joint stock company existing under the Laws of the Slovak republic with its registered office located at Okružná 5, 918 64 Trnava, Slovak Republic and registered with the Trade Register of the Slovak Republic in section Sa, File No. 164/T with identification number: 31 45 0474, duly represented by Mr. Peter Líška – Vice-Chairman of the Board of Directors and Mr. Matej Korec - Member of the Board of Directors, entrusted with the relevant powers in compliance with the Statute of VUJE, a.s. (hereinafter called the "Consultant").

WHEREAS, the Client wishes to have the Consultant perform the services hereinafter referred to, and

WHEREAS, the Consultant is willing to perform these services,

NOW THEREFORE THE PARTIES hereby agree as follows:

**1. Services**

- (i) The Consultant shall perform the services specified in Annex A, "Scope of Services" which is made an integral part of this Contract ("the Services"),
- (ii) The Consultant shall provide the personnel listed in Annex C, "Consultant's Personnel," to perform the Services,
- (iii) The Consultant shall submit to the Client the Deliverables in the

	<b>BIDSF</b> Project	<b>C13 – DISPOSAL OF LOOSE RADWASTE</b> <b>BIDSF 016 2 001</b>	<b>C13</b> Contract
---	-------------------------	---	------------------------

form, numbers and languages and within the time periods specified in Annex A. The Parties shall execute an acceptance protocol approving that the particular Deliverable is duly and in time submitted. The Client is entitled to review the Deliverable and determine whether it complies with the requirements set forth in Annex A. If the Consultant in Client's opinion fails to comply with the said requirements, the Deliverable shall be rectified and resubmitted by the Consultant free of charge in time and according to comments determined by the Client.

- (iv) The Client has received a grant from Bohunice International Decommissioning Support Fund being administered by the European Bank for Reconstruction and Development (hereinafter called the "Bank") towards the cost of the Services and intends to apply a portion of the proceeds of this grant to eligible payments under this Contract, it being understood (a) that payments by the Bank will be made only at the request of the Client and upon approval by the Bank, (b) that such payments will be subject, in all respects, to the terms and conditions of the grant agreement, and (c) that no party other than the Client shall derive any rights from the grant agreement or have any claim to the grant proceeds.

## 2. Definitions

Unless the context otherwise requires, the following terms whenever used in this Contract have the following meanings:

- (a) "Acceptance Protocol" means the acceptance and approval by the Client of the relevant Deliverable, which certifies the Consultant's fulfilment of the relevant part of the Services as certified by signatures on the Acceptance Protocol by both Parties. Final Report's Acceptance Protocol shall certify the Consultant's fulfilment of all Services,
- (b) "Applicable Law" shall be the Slovak Law,
- (c) "Bank" or "EBRD" means the European Bank for Reconstruction and Development as administrator of grant funds provided by the Bohunice International Decommissioning Support Fund;
- (d) "Contract" means this Contract signed by the Parties, together with Annexes A, B, C, D, E, F, G and H;
- (e) "Contract Price" means the price to be paid for the performance of the Services, in accordance with Clause 5;
- (f) "Foreign Currency" means any currency other than the currency of the Government;
- (g) "Deliverables" means the reports and documents which the Consultant is to provide to the Client duly and in time as specified in Annex A;
- (h) "Government" means the Government of the Client's country;

	<b>BIDSF</b> Project	<b>C13 – DISPOSAL OF LOOSE RADWASTE</b> <b>BIDSF 016 2 001</b>	<b>C13</b> Contract
---	-------------------------	---	------------------------

- (i) "Party" means the Client or the Consultant, as the case may be, and "Parties" means both of them;
- (j) "Personnel" means persons hired by the Consultant or by any Subconsultant as employees and assigned to the performance of the Services or any part thereof;
- (k) "Services" means the work to be performed by the Consultant pursuant to this Contract, and according the requirements described in Annex A;
- (l) "Subconsultant" means any entity to which the Consultant act any part of the Services, and
- (m) "Commercial Code" means Act No. 513/1991 Coll. Commercial Code, as amended.

#### 2.1 Modification

Modification of the terms and conditions of this Contract, including any modification of the scope of the Services or of the Contract Price, may only be made by written agreement between the Parties and shall not be effective until the consent of the Bank.

#### 3. Commencement Date and Effective date of the Contract

Commencement date is the date of signing of the Contract.

The Contract shall become effective on the following day after publication of this Contract according to the Act 211/2000 Coll. on free disclosure of information and on change and amendment of certain acts (act of information freedom), as amended.

#### 4. Date of completion

The Services shall be completed in accordance with the Annex A, and the Working Schedule in Annex D (Annex D shall comply with the Annex A).

#### 5. Payment

##### Ceiling

For Services, the Client shall pay the Consultant a lump sum amount of 175.264,-EUR, as described in Annex E. This amount has been established based on the understanding that it includes all of the Consultant's costs and profits, but free of any tax that may be levied on the territory of Slovak Republic.

##### B. Schedule of Payments

The contract price shall be paid in one payment in full amount as specified in this Clause 5 (A) after acceptance of the Final Report by the Client.

##### C. Payment Conditions

The following points shall be observed when submitting invoice for payment.

The invoice shall be addressed to the Client, together with the Final

	<b>BIDSF</b> Project	<b>C13 – DISPOSAL OF LOOSE RADWASTE</b> <b>BIDSF 016 2 001</b>	<b>C13</b> Contract
---	-------------------------	---	------------------------

Report's Acceptance Protocol signed by the Client, who will approve it and forward them to the Bank for payment. The Bank in turn will approve the invoice prior to paying the Consultant on behalf of the Client.

Foreign invoice shall be issued bilingually in English and Slovak language.

The name and telephone number of a person who may be contacted in case of need to raise queries shall be quoted on the invoice.

The contract number shall be quoted on the invoice.

Invoice shall be marked as an invoice showing invoice number, issue date, delivery date of goods and services, due date of the invoice, business address of the Client and Consultant, their company registration number and TINs. When services are provided into other EU member country, the VAT duty shall be transferred to the Client. In the case that goods are delivered into other EU member country, the Consultant shall state reference pursuant to which he applies the VAT exemption.

The invoice shall include also a column marked "Gross" (Price without taxes), a column marked "Taxes" (tax rates and tax) and column marked "Net". The amount to be shown in the column "Gross" is the amount corresponding to the payment and shall be free from any and all taxes, customs duties or other fees or mandatory payments levied by, or in the territory of the Slovak Republic. The amount to be shown in column "Net" is the amount to be invoiced. In the column "Taxes" shall be the amount of the all taxes, customs duties or other fees or mandatory payments levied by, or in the territory of, the Slovak Republic. The Bank will only make payments after the original signed copy of the Contract has been returned via the Client to the Bank and only on submission of original invoices and original supporting receipts.

Full details of the bank account where payment shall be made shall also be stated on the invoices, including currency of the account and SWIFT number (if available).

For the purpose of the refunding of the taxes, customs duties levied by, or in the territory of, the Slovak Republic;

- the VAT number (VAT registration in Slovak tax office obtained on the basis of the registration of the Consultant in Slovak Republic) should be inscribed on the invoices or the VAT registration number from its country if it is not registered in Slovak Republic and
- the Consultant should enclose the relevant documents

	<b>BIDSF</b> Project	<b>C13 – DISPOSAL OF LOOSE RADWASTE</b> <b>BIDSF 016 2 001</b>	<b>C13</b> Contract
---	-------------------------	---	------------------------

(invoices, others) demonstrating the amount and payment of the required refunding amount.

Number of Invoices: 2 originals and 2 copies.

All payments, including refunding amounts, should be made within sixty days of the acceptance by the Client of the Consultant's valid invoice, with full supporting documentation in accordance with the above mentioned requirements.

The Consultant acknowledges, that all eligible payments due to the Consultant pursuant to the Contract shall be approved by the Bank and therefore the Client shall not be responsible for paying to the Consultant (or carrying out) any payments from the Contract other than those approved and accepted by the Bank in compliance with the terms and conditions set forth in this Contract.

The Parties agree that the provision on late payment interests in Section 369 of the Commercial Code shall not apply for this Contract.

## 6. Project administration

### A. Coordinator

The Client designates Mr. Jaroslav Mlčůch as Client's Coordinator; the Coordinator will be responsible for the coordination of activities under this Contract, for acceptance and approval of the reports and of other deliverables by the Client and for receiving and approving invoices for the payment.

### B. Reports

The reports listed in Annex A shall be submitted in the course of the assignment.

### C. Services and Facilities provided by the Client

The Client shall ensure for the use by the Consultant and his personnel, the next facilities:

- a) Office accommodation for the Consultant at Bohunice V1 NPP site of not less than 20m<sup>2</sup> and no more than 40 m<sup>2</sup> in good decorative order and suitably furnished and with the following services:
  - Heat, light and power at no cost to the Consultant,
  - International telephone lines for telephone, fax, and e-mail connections. The cost of all telephone calls shall be met by the Consultant,
- b) Provisions of information and documentation on all technical and commercial data, documentation, drawings etc. that could be relevant for the Project and establishment of adequate and optimised interfaces to other departments of Bohunice V1 NPP,
- c) Permission for reasonable use by the Consultant of other facilities, e.g. meeting rooms, by agreement with the Client's

	<b>BIDSF</b> Project	<b>C13 – DISPOSAL OF LOOSE RADWASTE</b> <b>BIDSF 016 2 001</b>	<b>C13</b> Contract
---	-------------------------	---	------------------------

- management,
- d) Access to the Client's controlled area, including required facilities for washing and changing clothes, toilets, etc.
  - e) Access to the Client's health and safety facilities, including dosimeters, industrial safety, first aid, ambulance and emergency services at no cost to the Consultant,
  - f) Access to the Client's canteen at the Bohunice NPP site,
  - g) Consultant's reasonable requirements for truck parking, car parking and storage (location shall be allocated by agreement with Client's management) at the Bohunice NPP site at no cost to the Consultant,
  - h) Reasonable storage facilities for Consultant's Project Equipment (location shall be allocated by agreement with Client's management),

The above facilities/services requested and received free of charge by the Consultant from the Client, shall be listed, signed and approved by the Client pursuant to Sample forms in Annex G (Safety and Technical Conditions).

The Consultant acknowledges that the Services shall be rendered also in compliance with Safety and Technical Conditions contained in Annex G. For this purposes the Consultant undertakes to follow the terms and conditions of the Annex G in scope necessary for the nature of the Services.

**7. Performance Standards**

The Consultant undertakes to perform the Services with the highest standards of professional and ethical competence and integrity. The Consultant shall promptly replace any employees assigned under this Contract that the Client considers unsatisfactory. The Parties jointly agree that time is of the essence in this Contract.

**8. Confidentiality**

The Consultant shall not, during the term of this Contract and within two years after its expiration, disclose any proprietary or confidential information relating to the Services, this Contract or the Client's business or operations without the prior written consent of the Client.

**9. Ownership of Material**

Any Deliverables prepared by the Consultant for the Client under the Contract shall belong to and remain the property of the Client. The Consultant may retain a copy of such Deliverables.

The Consultant may not use any Deliverables or information provided for the Client pursuant to this Contract or in relation with this contract without previous consent of the Client.

The Client is entitled to use the Deliverables or information provided by

	<b>BIDSF</b> Project	<b>C13 – DISPOSAL OF LOOSE RADWASTE</b> <b>BIDSF 016 2 001</b>	<b>C13</b> Contract
---	-------------------------	---	------------------------

the Consultant for the purposes of this Contract and for the objective of the project as specified in Annex A. For the said purposes the Client is entitled to provide any documents or information provided by the Consultant also to any third party.

If the Services or part of it is an outcome of an activity to which is connected a right protected by copyright, industrial property right or other intellectual property right (work) the Client is entitled to use it especially for the purposes of this Contract or aim of the project as specified in Annex A and is entitled to provide the work also to third party for the said purposes. If it is necessary, the Consultant concludes with the Client a separate license agreement, upon which the Consultant grants a consent with the use of the work, especially for the following manner of use of the work: (i) to make a reproduction of the work, (ii) to distribute an original work or its copy to the public by sale or other forms of assignment of title, by rental or lending (iii) any alteration or processing, modification, improvement, development, translation or adaptation of work, (iv) inclusion of the work into a work of collection, (v) public exhibition, presentation, communication of the work, public performance of the work, in unlimited territorial and material scope of the license, for the period of license validity at least covering the time of implementation of the project that relates to the work or purpose of this Contract and the aim of the project as specified in Annex A. the Consultant shall grant exclusive license, i.e. the Consultant shall not grant the license to use work to any third party and he shall abstain from the exercise of the use of the work in the same manner of use to which he has granted the exclusive licence. The Parties agree that the Contract Price includes any remuneration for granting the license. The Client is entitled to grand a sublicense in the same scope to third party. The Consultant shall be liable for any breach of the copyrights in relation with the use of work by Client..

**10. Consultant Not to be Engaged in Certain activities**

The Consultant agrees that, during the term of this Contract and after its termination, the Consultant and any entity affiliated with the Consultant, shall be disqualified from providing goods, works or services (other than the Services and any continuation thereof) for any project resulting from or closely related to the Services.

**11. Insurance**

The Consultant will be responsible for taking out any appropriate insurance coverage.

**12. Assignment**

The Consultant shall not assign this Contract or sub-contract any portion of it without the Client's prior written consent.

**13. Law Governing Contract and Language**

The laws of Slovak Republic shall govern the Contract, and the language of the Contract shall be English.

The Deliverables provided in the frame of this Contract shall be in English and Slovak language, both language versions shall be equal. In case of discrepancies or conflicts between the language versions, the



	<b>BIDSF</b> Project	<b>C13 – DISPOSAL OF LOOSE RADWASTE</b> <b>BIDSF 016 2 001</b>	<b>C13</b> Contract
---	-------------------------	---	------------------------

#### 14. Termination

Slovak version shall prevail.

The Client may terminate this Contract, by not less than ten (10) days' written notice of termination to the Consultant, to be given after the occurrence of any of the events specified in paragraphs (a) through (d) of this Clause:

- (a) if the Consultant do not remedy a failure in the performance of their obligations under the Contract, within ten (10) days after being notified or within any further period as the Client may have subsequently approved in writing;
- (b) if the Consultant become insolvent or bankrupt;
- (c) if the Consultant, in the judgment of the Client has engaged in corrupt or fraudulent practices in competing for or in executing the Contract.

For the purpose of this clause:

- "corrupt practice" means the offering, giving, receiving, or soliciting, directly or indirectly, anything of value to influence improperly the actions of another party.
- "fraudulent practice" means any act or omission, including a misrepresentation, that knowingly or recklessly misleads, or attempts to mislead, a party to obtain a financial or other benefit or to avoid an obligation.
- "coercive practice" means impairing or harming, or threatening to impair or harm, direct or indirectly, any party or the property of the party to influence improperly the actions of a party.
- "collusive practice" means an arrangement between two or more parties designed to achieve an improper purpose, including influencing improperly the actions of another party.

#### 15. Dispute Resolution

Any dispute arising out of the Contract, which cannot be amicably settled between the parties, shall be referred to adjudication/arbitration in accordance with the laws of Slovak Republic.

The place of arbitration shall be Vienna, Austria and the language of the arbitration shall be English.

The arbitration decision shall be final and binding upon the Parties.

The costs of the arbitration shall be in the discretion of the arbitrator.

	<b>BIDSF</b> Project	<b>C13 – DISPOSAL OF LOOSE RADWASTE</b> <b>BIDSF 016 2 001</b>	<b>C13</b> Contract
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For and on behalf of Jadrová a vyraďovacia spoločnosť, a.s.

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*Mr. Ján Horváth – Chairman of the Board of Directors*

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*Mr. Miroslav Obert – Vice-Chairman of the Board of Directors*


For and on behalf of VUJE, a.s.

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*Mr. Peter Líška – Vice-Chairman of the Board of Directors*

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*Mr. Matej Korec – Member of the Board of Director*

 <p><b>javys</b> jadrová a vyradovacia spoločnosť</p>	<b>BIDSF Project</b>	<b>C13 – DISPOSAL OF LOOSE RADWASTE BIDSF 016 2 001</b>	<b>C13</b> Contract ANNEX B
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## **BIDSF project C13**


BIDSF 016 2 001

### **“DISPOSAL OF LOOSE RADWASTE”**

**Consultancy Services**

**Contract – ANNEX B**

**Terms of Reference**

	<b>BIDSF</b> Project	<b>C13 – DISPOSAL OF LOOSE RADWASTE</b> <b>BIDSF 016 2 001</b>	<b>C13</b> Contract ANNEX B
---	-------------------------	---	-----------------------------------

## 1. INTRODUCTION


Pursuant to the Slovak Government Ordinance No. 801/1999, dated September 1999, the Slovak Republic undertook the commitment to shutdown and decommission the two reactor units of V1 NPP located at Jaslovské Bohunice nearby the town of Trnava. The first unit of the plant was shutdown on 31<sup>st</sup> December, 2006 and the second one on 31<sup>st</sup> December, 2008.

The official standpoint of the Nuclear Regulatory Authority of the Slovak Republic (UJD SR) is that all historical RAW from V1 NPP should be disposed of prior to the commencement of decommissioning activities. In order to meet this standpoint, JAVYS has undertaken actions relating to the management of historical waste at the site. The historical waste also implies loose RAW. Although it is characterized by a very low activity its volume is quite large. Up to now JAVYS has not resolved the disposal of this type of waste.

### 1.1 BACKGROUND

Various categories of RAW are managed at the Bohunice site by JAVYS. About 6000 m<sup>3</sup> of loose RAW were collected and stored in building 839 (ZNAKB – Storing space of low level sludges of Bioclar) and Arched shed at building 44/20 (see Figure 2). The stored wastes include mostly soils and debris. At present, if not managed, they represent an obstacle obtaining the authorization for V1 NPP decommissioning. In these circumstances, the BIDSF C13 Project has been identified.

1,850 m<sup>3</sup> of loose RAW from V1 NPP operation and another 1,850 m<sup>3</sup> of loose RAW from A1 NPP operation were identified in ZNAKB during the inventory control of the V1 NPP historical RAW. During storing operations some large pieces (cement, debris, etc.) were brought into the building. It is important to consider the need of their fragmentation or crushing in accordance with the parameters of transport packages and the requirements of the receptors.

	<b>BIDSF Project</b>	<b>C13 – DISPOSAL OF LOOSE RADWASTE BIDSF 016 2 001</b>	<b>C13</b> Contract ANNEX B
---	--------------------------	---	-----------------------------------

Approximately 400 m<sup>3</sup> of loose RAW were identified in the Arched shed, mostly soil, originated from landscaping works before the construction of the BSC a facility needed by all nuclear power plants in Bohunice site. ZNAKB was handed over to operation on 13<sup>th</sup> August 1984. It was designed to store 3,240 m<sup>3</sup> of sludges. In compliance with the. Public Health Office R

Regulation No. 2357 – 244.9/89, dated 15<sup>th</sup> August, 1989, low contaminated soils with mass activity level from 3 to 10 kBq/kg were transported to ZNAKB changing the character of the storing place within a certain extent.

The Arched shed has been in operation since 1990.

Pursuant to the “Operating procedure for the storing space of low level soils and sludges of Bioclar – building 839” – T-019, it is permitted to transport waste to this building during day light only and during favorable atmospheric conditions. The transport is not permitted during rain, snow, fog and strong wind. Conditions for waste sampling shall be the same.

## 1.2 OBJECTIVE


The objective of this project is to create conditions for the disposal of solid historical loose RAW from JAVYS Bohunice site. In order to meet this objective it is necessary:

- to proper characterize the above mentioned RAW, and
- to define the manner of their disposal.

## 1.3 MAIN CHARACTERISTICS OF THE WASTES

The precise composition of the waste is not known. The dose rates in contact with waste range from 1 to 8 μGy/h, with the maximum local values of 10 μGy/h. The surface contamination of the loose RAW storing places ranges from 1 to 10 Bq/cm<sup>2</sup> with the maximum local value of 50 Bq/cm<sup>2</sup>. The mass waste activity - total beta, gamma is lower than 10 kBq/kg. The dominant contaminants are, in various rates depending on the character of the waste, <sup>137</sup>Cs, <sup>60</sup>Co and <sup>90</sup>Sr.

Wastes which are being handled shall have appropriate humidity, which excludes the possibility of spilling and dust releases. According to the operating procedure T-019, the required state is characterized as “a consistency of fresh drained humus” (from Slovak “konzistencia čerstvo rozsušeného humusu”). A detailed characterization of the wastes shall be provided during the implementation of this project.

	<b>BIDSF Project</b>	<b>C13 – DISPOSAL OF LOOSE RADWASTE BIDSF 016 2 001</b>	<b>C13</b> Contract ANNEX B
---	--------------------------	---	-----------------------------------

## 1.4 LOCAL CONDITIONS

Loose RAW storages are situated in the northern part of JAVYS site. They are connected to the reinforced local routes enabling transport of waste in lorries.

Meteorological Conditions (Cumulative over last 35 years):


Average air temperature (°C):	9.4
Absolute maximum air temperature (°C):	40.0
Absolute minimum air temperature (°C):	-26.1
The coldest month (January) average temperature (°C):	-1.5
The hottest month (July) average temperature (°C):	19.5
Average air relative humidity (%):	75.0
Average annual precipitation (mm):	533.0
Prevailing wind direction:	NW
Average wind speed (m/s):	3.9
Average number of days with snow cover per year:	40.0
Average snow depth (cm) in winter period (November - March):	5.3
Maximal snow depth (cm) in the 35 year period:	47.0

## 2. SCOPE OF THE PROJECT

The purpose of the present Terms of Reference (ToR) for BIDSF Project C13 is to describe the scope of services to be provided to JAVYS by the Consultant, i. e. to carry out a proper characterization of the loose historical RAW stored in buildings 839 and Arched shed at the building 44/20 in JAVYS site and to propose the manner for the final disposal of this historical waste according to the characterization results.

The delivery is divided into two parts, and includes the following tasks

- Deliverable C13-D01 Includes all activities related to the proper characterization of loose RAW, i.e. volume and characteristics (physical, chemical and radiological)

	<b>BIDSF</b> Project	<b>C13 – DISPOSAL OF LOOSE RADWASTE</b> <b>BIDSF 016 2 001</b>	<b>C13</b> Contract ANNEX B
---	-------------------------	---	-----------------------------------

- Deliverable C13-D02 Includes the recommendations of the manner the waste should be disposable of and the clearance of both Building 839 and Arched shed at building 44/20. The disposal itself (transport to the recycling plant, dumps and VLLW disposal or NRR, classification or fragmentation) is not part of the delivery.

Radioactive waste is required to be characterized at various stages in its predisposal management to obtain information on its properties, facilitating the subsequent steps for safe processing and final disposal of the radwaste.

The data requirements and methods for characterization will differ depending on the type, form and properties (physical, radiological, chemical, etc.) of the radwaste. Therefore, a good definition of the physical boundary of the waste site, the volume and waste conditions in the storage buildings and of the physical-chemical characteristics of the waste will be crucial for an optimized radiological characterization.

The proper radiological characterization will enable to classify the material into waste to be released from the regulatory control (UVZ SR) [20], waste to be disposed of in a VLLW repository and LILW waste to be disposed of in the National RAW repository [34]. The BIDSF C9.1 project, which proposed the erection of a VLLW repository, is finished. *(Note: VLLW repository in Slovak Republic still does not exist. However it was decided to erect it).*

The results of the characterization work and the waste classification resulting from the characterization will support the planning to select the disposal option and the potential waste sorting and required treatment, taking into account all applicable Slovak Acts, Ordinances, regulations and RWM policy, as well as the RWM strategy proposed for the different streams of historical and decommissioning wastes from V1 NPP [20].

Additionally, as the site of the two storage buildings, will be required for the management of materials generated in the upcoming V1 NPP decommissioning, the characterization work will support the planned buildings clearance.

In order to accomplish the objectives of the project, the Consultant shall carry out the following activities,

➤ **Deliverable C13-D01: Loose RAW Characterization**

The deliverable includes all activities related to the proper initial characterization of loose RAW, i.e. physical, chemical and radiological characteristics, amount and classification of loose RAW.

The Consultant's scope of services, in this deliverable, as a minimum, can be summarized as the fulfillment of the following tasks:

- a. Collection and review of all the historical information relevant for loose RAW and the buildings of storage (Historical Site Assessment)
- b. Planning and execution of a scoping survey to provide input to the characterization design. The physical boundary of the waste site, the volume and amount of the waste and the waste conditions in the storage buildings will be identified (according to [27] )
- c. Design, planning and performing of the characterization campaign of historical RAW in buildings 839 and Arched shed at the building 44/20 based on the results of the HSA and scoping survey. The design and the planning shall be approved by the Client before implementation Storage buildings structures will be included also in the scope of the characterization campaign

	<b>BIDSF Project</b>	<b>C13 – DISPOSAL OF LOOSE RADWASTE BIDSF 016 2 001</b>	<b>C13</b> Contract ANNEX B
--	--------------------------	---	-----------------------------------

- d. Classification of the loose RAW based on the results of the characterization campaign
- e. Providing of the necessary equipment to satisfy above mentioned tasks in the time frame provided in this (ToR)

The Consultant shall use technologies, methodologies and procedures already proved and fulfill all relevant national and international norms.

BIDSF project B6.4 -- *Decommissioning Database* -- is being carried out to characterize the V1 NPP site with the objective to describe the conditions of the V1 nuclear installation and to plan its decommissioning (e.g. decide on decommissioning methods, dismantling works planning, manpower, decontamination efforts, waste stream determination, waste management, dose assessment, free release of materials, cost estimation, an other decommissioning activities). Relevant data from BIDSF project B6.4 will be made available to the Consultant.

➤ **Deliverable C13-D02: Proposals for final management of historical RAW and clearance of buildings**

This deliverable includes the development of the recommendations for the final management of historical RAW and the proposal for clearance of buildings 839 (Storing space of low level sludges of Bioclar) and Arched shed at building 44/20 according to the results of the characterization activities corresponding to Deliverable C13-D01.

In the proposals, shall be indicated the most suitable methods to sort the waste into the established waste streams and the final waste conditioning process, waste form, transport and disposal site, in accordance with BIDSF project, C9.1 based upon waste minimization principle, disposal path and anticipated waste form.

### 3. PROJECT IMPLEMENTATION


#### 3.1 CHARACTERIZATION OF THE LOOSE RAW (DELIVERABLE C13-D01)

The Consultant shall determine the volume of loose RAW and their physical, chemical and radioactive characteristics. This characterization shall be carried out in accordance with the **Programme of Works** elaborated by the Consultant and submitted to the Client for its approval. The Programme of Works shall be elaborated in compliance with the applicable Slovak legislation (mainly [1], [2], [3], [7]) and JAVYS operating procedures. The activities at the place of sampling shall follow the requirements of the “operating procedure T-019 “For the storing space of low level sludges of Bioclar – building 839” (use and removal of the protective aids, dosimeters, favorable atmospheric conditions, time of sampling, etc.).

The characterization shall be completed by an analysis of the results in the form of a **Characterization Report**.

The Consultant shall justify the **Sampling Plan** taking into account the data compiled in the previous phases in order to optimize location, type and number of the proposed samples according to MARSSIM [28].



	<b>BIDSF</b> Project	<b>C13 – DISPOSAL OF LOOSE RADWASTE</b> <b>BIDSF 016 2 001</b>	<b>C13</b> Contract ANNEX B
---	-------------------------	---	-----------------------------------

### 3.1.1 Quantity definition

The Consultant shall determine the total volume of loose wastes in cubic meters and their total mass in tones in order to define the average specific mass. The Consultant shall also define the amount of dry matter content in order to eliminate the impact of the waste humidity variation. Consultant shall also determine the fraction of waste releasable into the environment, conditionally releasable (e.g. backfilling in the NPP area), fraction of very low level waste (VLLW) and low and medium level waste (LILW). Based on the sampling, the Consultant shall estimate the fraction of waste necessary to be separated due to the a need of fragmentation or different physical characteristics (textile waste).

### 3.1.2 Definition of the physical characteristics of waste

The Consultant shall define the density of individual samples, dry matter content and average powder density of the waste in average samples from both buildings: the Storing space of low level soils and sludges of Bioclar (building 839) and the Arched shed (at building 44/20). Consequently, the Consultant shall define the fraction rate of the waste (distribution of particles), describe and document the waste (photo documentation).


### 3.1.3 Definition of the chemical characteristics of waste

The Consultant shall define the chemical composition of the waste leachate from both buildings at least in ten various mixed samples according to:

- Decree of the Ministry of the Environment of the Slovak Republic No. 1/2002, dated 12 February 2002, by which consistent methods of the analytical waste inspection are specified
- Conditions of waste categorization mentioned in appendices of Regulation No. 284/2001 Coll.
- Appendix 5 of the Act. No. 223/2001 Coll. on Waste which specifies limit concentrations of harmful substances in waste

### 3.1.4 Definition of the radiological characteristics of waste

Dose rate measurement and surface contamination measurement shall be carried out prior to the **Programme of Works** and **Samples Schedule** elaboration. The measurement is necessary for definition of working conditions during sampling that is time consuming and can be related to the risk of aerosols formation.

	<b>BIDSF</b> <b>Project</b>	<b>C13 – DISPOSAL OF LOOSE RADWASTE</b> <b>BIDSF 016 2 001</b>	<b>C13</b> Contract ANNEX B
---	--------------------------------	---	-----------------------------------

The Consultant shall map the dose rate on the surface of waste entities noting down within the Plan the dose rate in the net of points separated from each other 0.5 m maximum.

The Consultant will shall use the stated mapping to elaborate a **Sampling Plan** which is a part of the **Programme of Works**. The Consultant shall specify the surface contamination through direct measurement (structure of the halls, etc.) of at least 20 places with the highest dose rate.

The Consultant shall define in all taken samples:

- dose rate (in  $\mu\text{Gy/h}$ ), and
- total specific activity (in  $\text{Bq/kg}$ )

In addition, the Consultant shall define in ten various mixed samples:

- gamma spectrometry analysis
- $^{90}\text{Sr}$  specific activity, and
- specific activity of substantial alpha radionuclides specified by specrometry


### 3.1.5 Requirements for taking and transport of samples

A part of the **Programme of Works** shall be a **Sampling Plan**. The **Sampling Plan** (mainly the statistical approach and samples size) shall be elaborated in accordance with Slovak rules [17], However it shall include of at least 300 samples from various depths and places so the waste can be characterized at its best. It is permitted to take some of the samples from the same place but from properly selected depth.

The **Sampling Plan** shall be justified and will respect available wastes information (various dose rates at surface, visual review, history of waste transport and collection, etc.) The minimum weight of one sample shall be 200g.

It can be expected that it will not be possible to take samples from some of the places selected in advance (e.g. a large piece of concrete). Therefore, the **Sampling Plan** has to include a larger number of samples taking as it is stated above.

The **Sampling Plan** will in preference include places where the detectable surface dose rate is higher than  $4 \mu\text{Gy/h}$ . These wastes may not be acceptable for the VLLW repository. The

 <b>javys</b> jadrová a vyradovacia spoločnosť	<b>BIDSF</b> <b>Project</b>	<b>C13 – DISPOSAL OF LOOSE RADWASTE</b> <b>BIDSF 016 2 001</b>	<b>C13</b> Contract ANNEX B
---	--------------------------------	---	-----------------------------------

**Sampling Plan** will also include places with the dose rate below 1  $\mu\text{Gy/h}$ . It is likely that the corresponding characterization of these wastes may contribute to their release into the environment. The sample taking place shall be exhausted by appropriate portable equipment provided by the Consultant in order to avoid radioactive aerosols spread. The samples shall be taken through a verified sampling equipment enabling to take loose RAW from all places of the entities of the stored waste.

The sampler (equipment for taking samples) shall have, as minimum, the following features:

- retain properties of waste
- take waste from defined space
- take all waste from defined space
- retain all taken waste inside the chamber (prevention of spontaneous dropping)
- be easily discharged and decontaminated
- be resistant against the sampled material

### 3.1.6 Requirements for marking and samples transport

The samples shall be transported to the laboratory in closed and properly marked (number of sample) plastic covers. Further identification of samples will be recorded in the log including the number of sample, place of taking the sample, date and hour of the sample taking or other additional data. The marked samples will be placed in a container and transported to the laboratory. Transport of these radioactive samples follows the “ADR” [29] international agreement, Slovak legislation and local procedures.

## 3.2 RECOMMENDATION FOR FINAL MANAGEMENT OF LOOSE RAW & CLEARANCE OF BUILDINGS (DELIVERABLE C13-D02)


### 3.2.1 Recommendation for the final management of loose RAW

As a result of the characterization work, the loose RAW (stored in buildings 839 and in the “Arched shed” at the building 44/20) shall be classified according to its physical, chemical and radiological characteristics into the waste categories according to [25] and [26].

The characterization results and the waste classification will support the planning for selecting the disposal option and the potential waste sorting and treatment required, taking into account the Slovak legislation and RWM policy, as well as the RWM strategy proposed for the different streams of historical and decommissioning wastes from V1 NPP [20].

The Consultant shall formulate a proposal for the final management of loose RAW including:

- a. The Criteria and methodology for material sorting into residual materials to be release from the regulatory control (UVZ SR), waste to be disposed of in a VLLW repository and the waste to be disposed in the National RAW repository, if applicable
- b. The requirement for pretreatment and/or conditioning for each waste stream identified, if necessary
- c. The dimensional, chemical - physical, etc. requirements or limitations for the disposal and/or the pretreatment/conditioning
- d. Waste packages needed for the final disposal

	<b>BIDSF Project</b>	<b>C13 – DISPOSAL OF LOOSE RADWASTE BIDSF 016 2 001</b>	<b>C13</b> Contract ANNEX B
---	--------------------------	---	-----------------------------------

- e. Cost estimation of the final management (disposal and, if necessary, sorting and treatment).

### 3.2.2 Recommendation for clearance of Buildings

Based on the characterization results on the storage building structures, the Consultant shall analyze the feasibility of clearance of materials from the civil structures (Buildings 839 and the Arched shed - part of building 44/20) and shall develop a proposal for it.

The proposal shall take into consideration the needs of the Client. during the V1 NPP decommissioning and the Slovak regulations related to clearance of materials.

### 3.3 GENERAL ARRANGEMENTS

The deliveries and works shall correspond to the following requirements:

The Consultant is obliged to follow the relevant Client's procedures and instructions specified in Section VIII "Site Accessibility Requirements" of the Request for Proposal for any installation and operation carried out by the Client.

The Consultant shall pay particular attention to follow legislation, procedures and instruction concerning to the nuclear and radiation safety and management of produced secondary waste.


### 3.4 OPERATIONAL CONSTRAINTS

The Consultant shall take into consideration the Client's operational requirements during the project implementation. The Consultant shall provide the works in a way not to interrupt the plant system activities or to minimize the outages. The works shall be carried out in accordance with the **Schedule** approved by the Client.

### 3.5 INTERFACE MANAGEMENT

Taking into the consideration that the works will be carried out in buildings separated from the operated nuclear installations it is not necessary to manage the interface in a special way. Arrangements will be made directly with Plant Operational management. The Consultant shall identify all Project Interfaces and include within the **Inception Report**

The Consultant is not responsible for interactions with Regulatory bodies (e.g. UJD SR, UVZ SR). The Client is responsible for these interactions. However, the Consultant shall duly support the Client in the interactions with Regulators if requested.

	<b>BIDSF</b> Project	<b>C13 – DISPOSAL OF LOOSE RADWASTE</b> <b>BIDSF 016 2 001</b>	<b>C13</b> Contract ANNEX B
---	-------------------------	---	-----------------------------------

### 3.6 RESOURCES

The successful completion of the Project involves different on-site, off-site and laboratory activities of the Consultant requiring the participation of several experts. The Consultant shall define the role, expertise and composition of his working team, their managers and responsibilities, and the functional and hierarchical links between them. The Consultant shall define an **Organizational Chart** with the aforesaid information. All experts having a crucial role in implementing the contract are referred to as key experts. They shall be fluent in English and have a university degree in their field of expertise.

At the top of the chart, (first key expert) there shall be a **Consultant's Project Manager**, who will be responsible for the activities of the project and interlocution with the Client. This person shall have experience of nuclear sites and of project management. It is expected that this person will spend more than 50% of his time dedicated to this project.

There is also a requirement for a **Statistical/waste Professional**. Familiarity with Slovak waste characterization methods (17) is required.

The third key expert will be an **Analytical Professional**. This person shall be experienced in laboratory procedures and analysis for radiochemical isotopes; also for the other physical and chemical properties that have been specified (17).


It is possible that the above requirements might be satisfied by a different mix of skill balances between the Project Team. It is permissible to make alternative proposals provided the quality, experience and availability of the people is not reduced.

#### 3.6.1 Laboratory requirements

The laboratory shall possess the appropriate well-documented procedures, instrumentation, and trained personnel to perform the necessary analyses included in the scope of the project in the frame of required time schedule.

The laboratory shall possess a radioactive materials handling license for the samples to be analyzed and will be able to prove experience in performing the same or similar analyses. It shall also fulfill requirements for laboratories which are qualified to provide analyses of non-active waste due to their classification [24]. It shall have an active and fully documented QA program in place, complying with the objectives determined by the DQO process. The QA program should include laboratory organizational structure; personnel qualifications; written standard operating procedures and instructions; inter - and intralaboratory performance analyses; design control to define the flow of samples through the laboratory; a corrective action plan; and an internal audit program.

Additionally, the laboratory shall count on the capacity to provide the results on time.

	<b>BIDSF Project</b>	<b>C13 – DISPOSAL OF LOOSE RADWASTE BIDSF 016 2 001</b>	<b>C13</b> Contract ANNEX B
---	--------------------------	---	-----------------------------------

### 3.7 TIME SCHEDULE

Transport and testing of the sampling equipment at Client's outside the controlled zone (in the JAVYS area) will have been carried out by 3 months from the Contract signature. The Consultant shall submit to the Client the "**Programme of Works**" within this period. The sampling will have been finished by six months from the Contract signature. The characterization according to the chapter 3 will have been finished by 9 months and the **Final Report** will have been submitted to the Client by 12 months from the **Contract Commencement Date**.

By this period, the Consultant's equipment shall be removed and the secondary waste, generated during the project implementation, shall be disposed of a specified way (see also Section VIII "Site Accessibility Requirements" of the Request for Proposal).

### 3.8 MEETINGS

The Consultant shall participate at monthly meetings organized by the Client to check and discuss the Consultant's progress. The Client or the Consultant shall request another project meetings in case when unforeseen circumstances take place, or problems arise, which could jeopardize the project's success. In these meetings, the Consultant shall report the unforeseen circumstances or problems, and propose a course of action to solve them.

### 3.9 REPORTS AND DOCUMENTS ELABORATION

The Consultant shall submit to the Client documents as it is stated in Table 2 defining the Schedule of submission, language, and number of hard copies of the document elaborated by the Consultant.

#### 3.9.1 Basic requirements


The documents will be submitted to the Client both in printed and electronic forms on a CD medium in formats specified in Section VIII, "Site Accessibility Requirements" of the Request for Proposal.

Any changes during the project shall be managed. They shall be approved by the Client and incorporated.

#### 3.9.2 Documents being a part of the delivery

##### a) Inception Report

This report will be a detailed description of the project objectives, the scope of the work, organization, activities and programming, (Schedule), including the Deliverables milestones and the identification of interfaces (including with third parties). It will also include follow up sections dedicated to possible risks and the application of the QA system.

	<b>BIDSF</b> Project	<b>C13 – DISPOSAL OF LOOSE RADWASTE</b> <b>BIDSF 016 2 001</b>	<b>C13</b> Contract ANNEX B
---	-------------------------	---	-----------------------------------

The **Inception Report** shall be issued no later than one month after the **Contract Commencement Date** and sent to the Client for comments.

#### b) Operating Health and Safety Plan

The Consultant shall elaborate a document describing specific requirements for safety and health protection at work, radiation protection during implementation in the JAVYS, a.s. area.

The Plan shall prescribe detailed working procedures, including monitoring and dosimetric equipment, protection clothing, identification of access, etc. Special attention will be paid to protective aids and measures to minimize the radioactive aerosols formation and dispersion of contamination. Arrangements to minimize the production of secondary RAW will be also included. These measures will be incorporated in compliance with the ALARA principles.

The **Operating Health and Safety Plan** shall be submitted to the Client for approval.

#### c) Project Quality Plan

The Consultant shall elaborate a **Project** Quality Plan in compliance with QA/QC requirements of the Contract.

Objectives and criteria for a Quality Management System implementation in the project shall be indicated in the Consultant's proposal, and shall include, at least, the following aspects:

- Planning and execution of the characterization activities (sampling, measurement, sample handling and chain of custody, etc.) in JAVYS, a.s. and in external laboratories
- Data management and record keeping of all the information and data produced during the characterization process
- Documentation management, to ensure that all documents can be accessed in their last edition, and to keep track of the evolution of the documentation treatment
- Process management, to assure that documents are treated in a systematic and coherent manner
- Procedure for the internal and external audits

This plan shall be sent to the Client for comments


#### d) Programme of Works

The Consultant shall elaborate a document describing a method of sampling, loose RAW characterization. It will include:

- a duly justified **Sampling Plan**
- a proposal of the statistic model of sampling and characterization
- description of equipment, installations and methods of samples taking and evaluation
- measures to minimize secondary RAW production
- proposal procedure for Deliverable C13-D02
- number and positions descriptions of persons
- **Time Schedule**

The whole document shall be elaborated in compliance with the Slovak legislation ( mainly [1], [3], [4], [17] ) shall be submitted to the Client for approval. The Consultant shall incorporate potential Client's comments.

#### e) Monthly Progress Reports

	<b>BIDSF Project</b>	<b>C13 – DISPOSAL OF LOOSE RADWASTE BIDSF 016 2 001</b>	<b>C13</b> Contract ANNEX B
---	--------------------------	---	-----------------------------------

As a conclusion of Monthly Meetings, the Consultant shall submit a **Monthly Progress Report** describing the work carried out during that period of time against the work plan and describing the problems or constraints that are affecting the progress.

Monthly Progress Reports shall be used to compare planned activities against the developed activities, inputs, outputs, and to plan detailed project activities and resources for the next reporting period. The Consultant shall give explanations on the deviations of activities, and propose remedial actions if such deviations could delay the project development.


**f) Report of loose RAW characterization**

Based on the performed sampling and characterization, the Consultant shall produce a comprehensive document named “**Report on Loose RAW Characterization**”, registering the data and information resulting from the sampling and analytical measurement implementation stage. This document shall consist, at least, of the following:

- The description of field activities
- The drawings and schemes with the measurement and sampling points
- Measurement records including the low detection limits and the standard deviation

The report shall be submitted to the Client for approval.



	<b>BIDSF Project</b>	<b>C13 – DISPOSAL OF LOOSE RADWASTE BIDSF 016 2 001</b>	<b>C13</b> Contract ANNEX B
---	--------------------------	---	-----------------------------------

**g) Recommendation for the loose RAW disposal and buildings clearance**

Based on performed characterization, the Consultant shall elaborate a proposal for an effective disposal of loose RAW and buildings clearance. The proposal will be based on the legal requirements for introduction of radioactive substances the environment and the very low level RAW management. The proposal will also include particular areas designated for waste disposal and cost estimation regarding the disposal. Within the field of wastes, the proposal will further take into consideration a potential need and ways of the final sorting or fragmentation in compliance with the current requirements of recycling equipment, dumps and disposal sites. These requirements will include the maximum parameters or mass of concrete pieces, organic admixtures, e.g. textile, etc. Within the field of civil structures (building 839 and the Arched shed at the building 44/20), the proposal shall take into consideration the needs of JAVYS, a.s. during the V1 NPP decommissioning. The report shall be submitted to the Client for comments.

**h) Final Report**

The Consultant shall prepare a **Final Report** (see table 2) summarizing the development of the project, relevant milestones, difficulties, and conclusions, evaluating whether the project's objectives have been achieved. Modifications of the time schedule and the scope of characterization, compared to the Contract and the **Inception Report**, shall be documented. Real impacts of risks postulated in the **Inception Report** shall be evaluated. Recommendations for waste management shall prevent repetition in similar future projects. The **Final Report** shall be submitted to the Client for approval.

	<b>BIDSF Project</b>	<b>C13 – DISPOSAL OF LOOSE RADWASTE BIDSF 016 2 001</b>	<b>C13</b> Contract ANNEX B
---	--------------------------	---	-----------------------------------

Additional information to be included in the Contract **Final Report** shall be agreed with the Client during the **Kick-Off Meeting** and the preparation of the **Inception Report**

**Required documents are listed in Table 2. The following abbreviations are used for data description**

**CC** - Contract Commencement date

“i” – information

“c” – comments

“a” – approval

*Table 2: Documents required with the delivery*

Documents required with the delivery			
Document title	Client's activity	Submission date	No. of hard copies EN/SK
Inception Report	c	CC + 1 month	2/2
Operating Health and Safety Plan (including ALARA)	a	CC + 1 month	2/2
Project Quality Plan	c	CC + 2 months	2/2
Programme of Works (including Sampling Plan)	a	CC + 4 months	4/10
Report on Loose RAW Characterization (C13-D01)	a	CC + 9 months	2/4
Recommendation for Loose RAW Disposal and Buildings Clearance (C13-D02)	c	CC + 11 months	2/4
Final Report	a	CC + 12 months	4/4
Periodical Monthly Reports	i	monthly	2/2

### 3.10 REQUIREMENTS FOR PERSONNEL TRAINING

All persons who need access to the Client site will require adequate training in accordance with [27] (see also Section VIII“Site Accessibility Requirements“ of the Request for Proposal).

	<b>BIDSF</b> Project	<b>C13 – DISPOSAL OF LOOSE RADWASTE</b> <b>BIDSF 016 2 001</b>	<b>C13</b> Contract ANNEX B
---	-------------------------	---	-----------------------------------

## 4. PROCEDURES, STANDARDS AND CERTIFICATES

### 4.1 PROCEDURES AND STANDARDS

1. The Consultant shall follow valid Slovak legislation (mainly [1], [2], [3], and [7]) and local operation procedures of the Client. The Consultant shall hold the authorization/permission of UJD SR for the Radioactive Waste Management according to [1]. The authorization/permission guarantees the professional ability of personnel.
2. For the purpose of the Contract the Slovak Technical Standard (STN) ] and [17] will be used.
3. Based on the agreement with the Client, international standards/directives and recommended approaches or other relevant approaches and legislation can be used, provided that their requirements are stricter as of standards stated in item 1 and 2. In case the Consultant is required to provide a proof of his authorization/permission to the Client, the costs related to this shall be covered by the Consultant.
4. The Consultant is obliged to notify the Client of any nonconformity between the requirements of this Terms of Reference and documents stated in this section.

### 4.2 CERTIFICATION OF PRODUCTS

The certification of applied measurement devices shall be carried out in compliance with the Act No. 142/2000 Coll. on Metrology. The costs related to the certification shall be covered by the Consultant.

## 5. TESTING, PROCESSING AND ACCEPTANCE


### 5.1 GENERAL REQUIREMENTS FOR TESTING

The Consultant is obliged to assure necessary testing in order to demonstrate conformity of the used installations (e.g. sampler) with this ToR and the requirements of the aforementioned standards.


The results of the testing shall be included in the **Final Report**.

## 6. BIBLIOGRAPHY

1. Act No. 541/2004 Coll. on Peaceful Use of Nuclear Energy (Atomic Act) and on alternations and amendments to some Acts
2. Act No. 24/2006 Coll. on Environmental Impact Assessment and on alternations and amendments to some Acts

	<b>BIDSF</b> <b>Project</b>	<b>C13 – DISPOSAL OF LOOSE RADWASTE</b> <b>BIDSF 016 2 001</b>	<b>C13</b> Contract ANNEX B
---	--------------------------------	---	-----------------------------------

3. Act No. 355/2007 Coll. on Public Health Protection, Support and Development and on alternations and amendments to some Acts
4. Act No. 311/2001 Coll. Labour Code, as amended by some Acts
5. Act No. 142/2000 Coll. on Metrology and on alternations and amendments to some Acts
6. Slovak Work Safety Office Decree No. 59/1982, which defines general conditions of securing the safety of work and technical devices as amended by some other Decrees
7. Decree of the Ministry of Environment of the Slovak Republic No. 706/2002 on air pollution sources, on emission limits, on technical requirements and general operational conditions, on list of pollutants, on categorization of air pollution sources and on requirements of emission's dispersion as amended by Decree No. 410/2003 Coll.
8. Decree of the Ministry of Labour, Social Affairs and Family of the Slovak Republic No. 508/2009 Coll. by which are established details on assurance of health and protection during works with pressurized, lifting, electrical and gaseous technical equipment and by which are established technical equipment, which are employed as selected technical equipment
9. Decree of the Ministry of Environment of the Slovak Republic No. 408/2003 Coll. on monitoring of emissions and air quality monitoring
10. Slovak Government Ordinance No. 510/2001 Coll on minimum safety and health requirements at building sites as amended by 282/2004
11. STN EN ISO 9001 - Quality management system. Requirements
12. STN EN ISO 12100-2 – Safety of machinery. Basic concepts, general principles for design. Part 2: Technical principles
13. PP -U- 016 – Monitoring of radioactive releases through the vent stack (Bldg 46, Part A and Bldg 808)
14. PP -U- 034 – BSC radiation measurement system
15. PP A- 02/BSC – Limits and conditions for operation of technological processing facilities
16. PP A - 19 – List of classified equipment
17. Decree of the Ministry of the Environment of the Slovak Republic No. 1/2002, dated 12 February 2002, by which consistent methods of the analytical waste inspection are specified
18. Unified methods for waste characterisation, Slovak Environment Agency, issued for Ministry of Environment of SR, 1994

	<b>BIDSF</b> Project	<b>C13 – DISPOSAL OF LOOSE RADWASTE</b> <b>BIDSF 016 2 001</b>	<b>C13</b> Contract ANNEX B
---	-------------------------	---	-----------------------------------

19. Bohunice V1 NPP Historical and Decommissioning Waste Management Strategy (D8), rev. 3, PMU 2005
20. Governmental Ordinance No. 345/2006 Coll. on basic safety requirements for health protection of the workers and general public against the ionizing radiation
21. Decree No. 545/2007 Coll., which lays down details on the requirements on provision for radiation protection in the activities leading to irradiation and the activities important from the viewpoint of radiation protection
22. PP T-019 Storage of low level soils and sludges from Bioclar – Building 839, Operational Procedure of JAVYS, a.s.
23. Act of the National Council of the Slovak Republic No. 223/2001 Coll. On Waste and on Amendment of Certain Acts
24. Decree of the Ministry of the Environment of the Slovak Republic No. 283/2001 Coll. implementing certain provisions of the Act on Wastes
25. Decree of the Ministry of the Environment of the Slovak Republic No. 284/2001 Coll. establishing the Catalogue of Wastes
26. Regulation of UJD SR No. 53/2006 Coll. which lays down details on requirements for management of nuclear materials, radioactive waste and spent nuclear fuel
27. Training on Industrial Safety, Protective Means, Physical Protection, Radiation Protection, and Emergency Planning - Manual of JAVYS, a.s.
28. MARSSIM - MULTI-AGENCY RADIATION SURVEY AND SITE INVESTIGATION MANUAL (MARSSIM), NUREG-1575, Rev. 1; EPA 402-R-97-016, rev. 1; DOE/EH-0624, Rev.1. August 2000
29. The European Agreement concerning the International Carriage of Dangerous Goods by Road (ADR), UNECE 2007
30. STN EN ISO 14001: 2005 Environmental Management System
31. OHSAS 18001: 2007 Occupational health and safety management systems
32. Decree of the Minister of Foreign Affairs No. 64/1987 Coll. On the European Agreement concerning the international carriage of dangerous goods by road
33. PP A02/ RU RAO, Limits and conditions of Republic Radioactive Waste Repository
34. Feasibility study of enlargement of NRR Mochovce, C9.1 BIDSF project