

**Partial Contract concluded on the basis of the Framework Agreement signed on
12 October 2016 with the title:**

**Utilization of foreign experience in the siting process for a deep geological repository
for radioactive waste in the Czech Republic**

between

CONTRACTING PARTIES

Client: **Česká republika – Správa úložišť radioaktivních odpadů**

Registered office: Dlážděná 6, 110 00 Praha 1, Czech Republic

Represented by: JUDr. Jan Prachař, Managing Director

ID: 66000769,

Banking details:

Name of Bank: ČNB, Na Příkopě 28, Praha 1

Account No.: 35-64726011/0710

Not a payer of VAT

(hereinafter referred to as the “**Client**”) and

Name of company: **Posiva Oy (lead party) in a consortium with A-Insinöörin Civil Oy**

Registered office: Olkiluoto, FI- 27160 Eurajoki, Finland

Represented by: Janne Mokka

ID: 1029258-8,

Tax ID: FI10292588,

Banking details:

Name of Bank: Nordea (NDEAFIHH)

Account No.: FI 281660 3001 1003 98

(hereinafter referred to as the “**Supplier**”)

(hereinafter both referred to as the “**Contractual Parties**”)

The Contractual Parties hereby conclude the following Partial Contract (PC) in accordance with the provisions of Article 5 and in the format of Annex No 4 of the Framework Agreement.

**Utilization of foreign experience in the siting process for a deep geological repository
for radioactive waste in the Czech Republic**

Name of the Partial Contract:	PC 15 Recommendations for the monitoring and experimental programme accompanying the Bukov URF Phase II excavation process
Area of Services:	iv. the assessment and/or development of specific site characterization methods
ID of Services:	SO2016-120-15

	Function	Name	Date	Signature
Client approved for chapter 1	Project Manager	Xxxxx xxxxxxx	28.5.2020	
Compiled by	Project Manager of the Partial Contract	Xxx xxxxxx	28.5.2020	
Partial Contract approved by the Client	Managing Director	Jan Prachař	2.6.2020	
Supplier approved - project manager	Project Manager	Xxxxxxx xxxxx	3.6.2020	
Supplier approved - manager of the partial contract	Project Manager of the Partial Contract	Xxx xxxxxx	6.6.2020	
Partial Contract approved by the Supplier	Sales Director, Posiva Oy	Xxxx xxxxx	23.6.2020	
	Vice President, A-Insinöörin Civil Oy AINS	Xxxx xxxxx	10.6.2020	
	Managing Director, Posiva Solutions Oy	Xxxx xxxxxx	23.6.2020	

Note: This Partial Contract (PC) has been concluded in compliance with the conditions of a Framework Agreement (FA) signed on 12 October 2016 entitled: "Utilization of foreign

experience in the siting process for a deep geological repository for radioactive waste in the Czech Republic”.

1 CLIENT’S ASSIGNMENT

1.1 Requirements concerning the scope and technical specifications

Since 2017 SÚRAO has been operating the Bukov Underground Research Facility (URF) to perform RD&D activities in support of the Czech deep geological repository development programme. The current experimental galleries of the URF are mostly occupied with experiments, therefore it is planned to excavate new laboratory galleries. The preliminary project of the Bukov URF Phase II involves the excavation of new underground openings for the conducting of further experiments on level 12 of the Rožná mine.

The main purpose of this partial contract is to elaborate a plan with recommendations for the monitoring and experimental activities which should be performed within the selected rock mass block before, during and shortly after the excavation of new underground workings with respect to Client’s planned experiments.

The transfer of Finnish knowledge will take place in the following areas:

1.1.1 Review and analysis of similar programmes

The first project phase will involve a review of the host rock characterization programme performed during the excavation of the Bukov URF Phase I. For background information, the Supplier will deliver two reports (uploaded to Sievert before the PC’s activities begin), ca. 630 pages, describing the complex geological and geotechnical characterization of the host rock during the excavation of the Bukov URF Phase I. The aim is its comparison with the programmes carried out during the excavation of the ONKALO facility and the Äspö HRL. Furthermore, the review will contain information about such activities from other URFs in crystalline rocks. The Supplier will focus on creating an overview of various parameters (geological, geotechnical, hydrogeological, hydrochemical, etc.) which are usually described and monitored in the host rock before, during and after the excavation of the laboratory spaces with respect to the further experiments. Furthermore, methods for monitoring these parameters will be described.

1.1.2 Elaboration of monitoring and experimental plan

The aim of this phase is to make recommendations for the monitoring and experimental programme accompanying the Bukov URF Phase II construction project. For these purposes, the Client will provide all the available technical data about the Bukov URF Phase II construction project.

Based on the information from the review the Supplier will make recommendations of activities that should be performed within the selected rock mass block before, during and after the excavation of new underground workings with respect to the planned experiments.

1.1.3. Optimization of excavation technology

The last project part is the review and recommendations for the optimization of excavation technology to be used for the excavation of new laboratory galleries. The Supplier will provide his experience and current technological approach of the drill and blast method from the excavation of the ONKALO facility galleries.

The Client will provide the information about the smooth blasting method applied during the excavation of the Bukov URF Phase I (blasthole schemes, firing sequence, description of

explosive charges, etc.) and the Supplier will propose its modifications in order to optimize the excavation process (to minimize the extent of the excavation damaged zone and maximize the stability of the gallery profile).

1.2 Required Services deadlines

The time schedule depends on the time at which the information to be provided by the Client is delivered to the Supplier. The time schedule is presented in Table 1. The starting time (T0) of each subtask (1.1.1, 1.1.2 and 1.1.3) refers to the time when the Partial Contract (PC) has been signed by both parties and all relevant materials are delivered by the Client. In the case that materials are not available by the time that all parties have signed the PC, T0 will be confirmed by a confirmatory document signed by both parties.

Table 1.

Milestone 1: based on par. 1.1.1	T0 + 1,5 M
Milestone 2: based on par. 1.1.2	T0 + 3 M
Milestone 3: based on par. 1.1.3	T0 + 1,5 M

1.3 Estimated labour intensity and/or its limitation

Table 2. The Client estimates that the work involved in the PC will amount to 350 hours.

Point in the PC	Activities	Estimated labour intensity [hours]
1.1.1	Familiarization to reports provided by Client, comparison with other projects, overview of parameters	170
1.1.2	Recommendations for activities to be carried out in Bukov URF Phase II	100
1.1.3	Review and recommendations for the optimization of excavation technology	30
	Managing of the PC	50

1.4 Specific requirements concerning the organisation of the Services

The Supplier shall propose the location and timing of those meetings with the Client's experts deemed necessary for the fulfilment of the objectives of the Partial Contract. Communication via telephone, email and videoconferencing will be acceptable provided the security of the information disclosed is ensured.

2 CONFIRMATION / MODIFICATION OF THE ASSIGNMENT OF SERVICES BY THE SUPPLIER

2.1 Scope of the Services and technical specification

The Client shall provide all sufficient initial data documentation (as described in Article 1.1) to the Supplier in the English language.

The Supplier performs the assignment of the Services set out by the Client in Article 1.1.

Supplier produces following outputs:

1. Combined memo from findings and recommendations based on activities in Sections to 1.1.1 and 1.1.2
2. Memo from findings in Section 1.1.3

PC will include two web meetings: a kick-off meeting and closing meeting for presenting results and recommendations.

2.2 Fulfilment dates

The Supplier shall suggest the time schedule of the Services provided to the Client as stated in Article 1.2: The time schedule shall depend on the time at which the information to be provided by the Client is delivered to the Supplier. The starting time (T0) of each subtask (1.1.1, 1.1.2 and 1.1.3) refers to the time when the Partial Contract (PC) has been signed by both parties and all the relevant materials are delivered by the Client. In the case that relevant materials are not available by the time that all parties have signed the PC, T0 will be confirmed by a confirmatory document signed by both parties.

The Supplier may suggest changes to the partial deadlines; however, the final deadline shall respect the requirements of the Client. If delays occur with respect to the delivery of information to the Supplier, such delays must be taken into account in the deadlines and overall schedule.

2.3 Price of the Partial Contract

The Supplier states herein the price limit of the Partial Contract which is based on the labour intensity determined in accordance with Article 2.4 of this document and the rates specified in Article 4.3 of the FA. Based on the preliminary allocation of working hours to the various experts and their hourly rates, the price estimate (exclusive of travel costs) is set at 52 406 €. The Supplier shall be required to justify all the expenses incurred. As a minimum, consultation at the Client's premises will incur travelling expenses.

2.4 Organisation of the Services

The Supplier shall set out the various activities corresponding to the work schedule, the persons involved in those activities and their roles in Table 1. When determining labour intensity, the Supplier shall take into account the limit set by the Client in Article 1.3 of the Partial Contract (350 hours).

The Supplier shall set out the organisation and accountability of the persons involved in the Partial Contract in Table 3. Estimated hours per category are listed in Table 4.

Table 3. Personnel and roles in the activities set out in the Partial Contract.

Name (hours)	Role/position	Knowledge areas relevant to this PC
xxxxxxxx (145)	Adviser	PC management, host rock characterization, URL experiences
xxxxxxxx (25)	Adviser	Safety case, URL experiences
xxxxxxxx (125)	Adviser	Host rock characteristics and requirements, URL experiences
xxxxxxxxxxx (30)	Adviser	Excavation technology
xxxxxxxx (25)	Adviser	FA management

Table 4: Personnel hours by category

Category	Hours	%	Price/€
1			
2	350	100	52 406
Total	350		52 406

2.5 Risk identification

The risk identification, assessment and management procedures are set out in Annex no. 3 of the FA. The time schedule depends to a great extent on the availability of the initial data in the English language.

3 CONCLUSION OF THE PARTIAL CONTRACT

Articles 1 and 2 of this Partial Contract are valid.

The sub-project is subject to the approval of those persons authorised with respect to contractual matters pursuant to Article 1.3 of the FA.

The Partial Contract shall be concluded in line with Article 5 of the FA.

This Partial Contract becomes valid and comes into force on the date of its signing by authorised representatives of the two Contractual Parties.