

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

**Costs estimation 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-Insinöörit 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:	<b>Costs estimation for a deep geological repository for radioactive waste in the Czech Republic</b>
Area of Services:	b) A cost estimate activities covering the preparation and construction of the deep geological repository and the relevant cost optimisation
ID of Services:	SO2016-120-13

	Function	Name	Date	Signature
Client approved for chapter 1	Project Manager	Xxxxx xxxxxxxxxxxx		
Compiled by	Project Manager of the Partial Contract	xxxxxxxxxxxx		
Partial Contract approved by the Client	Managing Director	Jan Prachař	6.4.2020	
Supplier approved - project manager	Project Manager	Xxxxxxx xxxxx	8.4.2020	
Supplier approved - manager of the partial contract	Project Manager of the Partial Contract	Xxx xxxxx	19.4.2020	
Partial Contract approved by the Supplier	Sales Director, Posiva Oy	Xxxx xxxxxx	14.4.2020	
	Vice President, A-Insinööri Civil Oy AINS	Xxxx xxxxx	19.4.2020	
	Managing Director, Posiva Solutions Oy	Mika Pohjonen	14.4.2020	

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**

The main purpose of this agreement is to suggest and calculate economic estimation of costs according their character with respect to their dependence on the number of disposed waste disposal package (WDP) and according to their purpose related to the deep geological repository (DGR) using the knowledge acquired by Posiva and AINS at the price level of 2019. Regarding time, all costs related to the DGR from the year 2019 to the closure of the DGR must be considered. The Client shall provide information (in the form of a report 1) concerning the "Optimisation of the underground part of the DGR of the reference project" comprising initial data for the Comparison of the level of costs for different cases.

The output of this PC will be a) Report and b) Excel files. The report will describe how the costs have been calculated for each phase and introduce what the costs are.

The Excel files will point out in detail how each cost component in the report is calculated. This Excel file can be revised in the later stages when more detailed information for the project is available. The Excel file will have few hundred lines items and sub-items.

The costs are first calculated using Finnish cost level. Then the costs for the most significant items are changed to Czech cost level. Finally there will be two Excel files; one in Finnish cost level and another in Czech cost level. All costs are calculated in current cost level (2020) and without value added tax (VAT).

The output will be covered in two data sheets: first data sheet will contain the input reference and setup data; second data sheet will contain the calculation of the cost estimation. The technical report will contain the description of the data sheet philosophy and the manual how to modify the input reference data in report.

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

#### **1.1.1. Division of costs according to their dependence on the number of disposed WDP**

The Client shall provide information of the number of WDP considered.

#### **1.1.2 Costs estimation based on their purpose**

a) Research and development costs – the research and development of engineered barrier systems, WDP, manipulation, demonstrations and monitoring are supposed to continue during the period of 2025 – 2035. During the period of 2035 to 2065, these tasks involve the barriers, manipulation, demonstrations and development of monitoring of the DGR.

b) preparation costs – the preparation of construction encompasses this works: exploratory and geodetic works, designing, site preparation, site equipment, engineering activities

c) construction costs – construction of the underground part and surface premises

d) operational costs - labour costs, costs of repair, maintenance and modernisation of equipment, energy consumption by the DGR operation, operational costs of disposal

e) costs of the closure

### **1.1.3 Distribution of costs over time**

Distribution is divided in years 2013-2025, 2025-2035, 2035 – 2065, after 2065.

### **1.1.4 Vertical disposal**

- a) mechanised excavation (TBM)
- b) conventional excavation (drill & blast, D&B)

The vertical storage variant will be worked out in detail in a mechanised (using TBM) and conventional way.

### **1.1.5 Horizontal disposal**

A rough comparison should be made with the vertical storage option and the cost level.

### **1.1.6 Determination of prices per unit (EUR/m<sup>3</sup>, EUR/rm, EUR/m<sup>2</sup>)**

An indication of the unit prices used to determine the price of construction and its source.

### **1.1.7 Technical report on SÚRAO's Cost estimation of the future Czech DGR**

The Client shall provide information (in the form of a report 2) on past, current and future R&D activities. Further, the Supplier shall provide their comments on the technical report 1 "Optimisation of the underground part of the DGR of the reference project" and propose suggestions for and participate in the implementation of improvements. The Supplier's outputs will serve as input material for the implementation of improvements (consultation) that will take place at the Client's premises.

On the basis of the activities undertaken under Article 1 of the PC, the Supplier shall draw up a draft of a technical report to be entitled the "Cost estimation of the future Czech DGR". A draft of the report shall then be handed over to SÚRAO for comments, which will subsequently be discussed between the two contractual parties (via correspondence or at face-to-face meetings depending on the level of seriousness and/or complexity). The Supplier shall, subsequently, draw up a final version of the technical report and submit it to the Client who will then append a final statement to it.

The Client nominates the following person as the Project Manager for the Partial Contract (PC): Mrs. xxxxx xxxxx e-mail: xxxxxxxxxxxxxx. The Supplier will communicate directly with this person, with correspondence copied on all occasions to Mr. xxxx xxxxxxxx, e-mail: xxxxxxxxxxxxxx. The Client requires the Supplier to nominate those PC participants that will be financed from this Partial Contract.

Changes of persons nominated either by the Client or the Supplier are permitted without the requirement for amending the PC. In case of a change of Project Manager either on the side of the Client or the Supplier, the Project Manager of the one party shall be required to notify his/her counterpart in writing of the change.

## 1.2 Required Services deadlines

Milestone 1: Delivery of all relevant initial data of the Czech project (provided by the Client)	T0 + 0,5 M
Milestone 2: Familiarization and clarifications - Supplier familiarization to the initial data - The Client's preparations (presentations) for the workshop - 1-1.5 day workshop at the Client's premises (the Client presents the relevant initial data in presentations, the Supplier inquire clarifying questions)	T0 + 1,5 M
Milestone 3: Cost estimates and draft of a technical report by the Supplier and submission to the Client	T0 + 3,5 M
Milestone 4: Milestone 4: Client comments on the technical report	T0 + 4,5 M
Milestone 5: Milestone 5: Final version of the technical report drawn up by the Supplier and submission for the Client's final statement	T0 + 5,5 M
Milestone 6: Final statement from the Client	T0 + 6 M
Milestone 7: 2 day consultation (suggestions, the implementation of improvements, training) at the Client's premises	T0 + 6 M

## 1.3 Estimated labour intensity and/or its limitation

The Client estimates that the work involved in the PC will amount to 878 hours.

Point in the PC	Activities	Estimated labour intensity [hours]
1	Familiarization to the current state of SÚRAO initial data	112
2	Clarification workshop, including preparations (2-3 pers.)	68
3	Cost estimation and draft of the technical report	450
4	Editing of the technical report	30
5	Final version of the cost estimation and technical report	68
6	Consultation at the Client's premises, including presentation preparations (2-3 pers.)	105
1-6	Managing of the PC	45

#### **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 Supplier shall perform the assignment of the Services set out by the Client in Article 1.1. The Client shall provide all sufficient initial data documentation (as described in Article 1.1) to the Supplier in the English language. The approach via which the Supplier participates in the implementation of the improvements (as outlined in Article 1.1.7 of this Partial Contract 13) shall consist of consultancy, the presentation of the Supplier's knowledge and training activities.

### **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 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 123 009,46 €. 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 13 (878 hours).

The Supplier shall set out the organisation and accountability of the persons involved in the Partial Contract in Table 1. Estimated hours per category are listed in Table 2.

Table 1. Personnel and roles in the activities set out in the Partial Contract.

Name	Role/position	Knowledge areas relevant to this PC
Xxxx xxxxxxxx	Project Leader	Cost estimate expert
Xxxxx xxxxx	Adviser	Technological initial data
Xxxx xxxxxxxxxx	Adviser	Cost data management, cost estimation
Xxxxxx xxxxxx	Adviser	Cost estimate expert
Xxxxx xxxxx	Adviser	Cost estimate expert
Xxxxx xxxxxxxx	Senior Expert	Cost estimation, editing
Xxxxx xxxxxxxx	Senior Expert	Unit price analysis
Xxxxxxx xxxx	Adviser	Project management

Table 2: Personnel hours by category

Category	Hours	%	Price/€
1	23	2	4 157.71
2	525	60	78 608.25
3	330	38	40 243.50
4	-	-	-
5	-	-	-
Total	878	100	123 009.46

## 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.