

**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: RNDr. Jiří Slovák, 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 consortium with Saanio & Riekkola 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**”)

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

| | |
|---------------------------|--|
| Name of Partial Contract: | Kravi hora site - preliminary safety case and supporting safety assessment |
| Area of Services: | v. the assessment and/or development of safety case and supporting safety assessment |
| ID of Services: | 2016-120-03 |

| | Function | Name | Date | Signature |
|--|---|------------------|------|-----------|
| Client approved for chapter 1 | Project Manager | Ilona Pospíšková | | |
| Worked out by | Project Manager of the Partial Contract | Antonín Vokál | | |
| Partial Contract approved by the Client | Managing Director | Jiří Slovák | | |
| Supplier approved project manager | Project Manager | Kimmo Lehto | | |
| Supplier approved manager for partial contract | Project Manager of the Partial Contract | Marja Vuorio | | |
| Partial Contract approved by the Supplier | Sales Director, Posiva Oy | Mika Pohjonen | | |
| | Managing Director, Saanio&Riekkola Oy | Timo Saanio | | |
| | Managing Director, Posiva Solutions Oy | Mika Pohjonen | | |

1 CLIENT'S ASSIGNMENT

1.1 Requirements concerning the scope and technical specification

The main aim of the Client is to prepare a preliminary pilot safety case accompanied by supporting safety assessments of the Kravi hora candidate site so as to gain a better understanding of issues relevant to the preparation of the safety case and to verify the potential to prove the long-term safety of a deep geological repository located at this site in the future. The Client is interested in obtaining the Supplier's assistance in the preparation of a preliminary safety case with supporting safety assessments. The safety case should be prepared based on archive geological data, surface geological survey data and data from the vicinity of the Bukov underground laboratory and the nearby Rožná mine in the complex of which the underground laboratory is located. If the Supplier concludes that the site should be subject to further characterization, the Client requests that recommendations be made with respect to further research.

Activities to be performed by the Supplier:

- To become familiar with and review the following input documents and the results of previous and current site characterization projects and to provide advice concerning the updating thereof
 - o Template for the preparation of a safety assessment for the long-term safety of a deep geological repository, including the suggestion of an approach concerning the identification of safety functions and scenario development
 - o SURAO R&D programme for the period 2014 - 2025 and reports available concerning the implementation thereof
 - o Current documentation concerning the preparation of a 3D geological model of the Kraví hora site
 - o Current documentation concerning the preparation of a hydrogeological model/models of the Kraví hora site
 - o Current documentation concerning the preparation of radionuclide transport models at the Kraví hora site
 - o Current documentation concerning the preparation of parameter databases for the evaluation of radionuclide transport at the Kraví hora site
 - o Current documentation concerning the preparation of near-field and far-field models for safety assessment purposes at the Kraví Hora site
 - o Current documentation concerning the verification of the suitability of the rock environment for the siting of a deep geological repository for spent fuel and radioactive waste within the Kraví hora exploration/investigation area

The documentation will be provided to the Supplier as soon as possible following the signing of the Partial Contract and following the translation of those documents available only in the Czech language into English.

- to organize meetings with the Client and its suppliers aimed at becoming familiar with the various results achieved to date and to discuss and provide advice

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concerning the approach, models and parameters required for compiling a preliminary safety case for, and safety assessments of, the Kraví hora site

- to provide assistance in the preparation of the Kraví hora safety case and the supporting safety assessment, particularly with respect to the interpretation of the results achieved.
- to suggest whether to continue the characterization of the site,
- to prepare a programme of further surveys at the site in the case of the continuation of the characterization of the site.

The main outputs of the Partial Contract will consist of:

- 1) Report 1 reviewing the input documentation with recommendations for their updating, particularly the updating of the template prepared by SURAO for the safety case and supporting safety assessments.
- 2) Report 2 analysing the results of meetings with SURAO experts responsible for preparing the data and models for the safety case and supporting safety assessments and the provision of advice to SURAO.
- 3) Report 3 reviewing the first draft of the safety case prepared by SURAO experts with recommendations concerning the preparation of a second draft.
- 4) Report 4 reviewing the second draft of the safety case with recommendations concerning the final report.
- 5) Report 5 reviewing the final version of the safety case with a programme outlining the further geological surveys required for the preparation of subsequent versions of the long-term safety case.

The Client nominates the following person as Project Manager of the Partial Contract: Antonín Vokál, e-mail: vokal@surao.cz. The Supplier will communicate directly with this person with correspondence copied on all occasions to Ilona Pospíšková, e-mail: pospiskova@surao.cz.

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

The deadlines for preparing the reports listed in part 1.1 are set as follows:

| | |
|----------|---------|
| Report 1 | 04/2017 |
| Report 2 | 08/2017 |
| Report 3 | 01/2018 |

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Report 4 05/2018

Report 5 09/2018

Report deadlines may be extended due to delays in the provision of the input documentation to the Supplier.

1.3 Estimated labour intensity and limitations thereof

The estimation of labour intensity in person-hours: 2000 hours

1.4 Specific requirements concerning the organisation of the Services

The Supplier is required to propose the location and timing of meetings with the Client's experts deemed necessary with respect to fulfilling the objectives of the Partial Contract.

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

2.1 Scope of Services and technical specification

The Supplier will perform the assignment of Services by the Client as stated in Article 1.1. At the beginning of the work the Client provides a list of the documentation with the documentation and the Supplier review concerns only the documents provided by the Client stated in the list.

After each report the Supplier may suggest modifications or partial changes, these changes need agreement by the Client.

2.2 Fulfilment dates

The Supplier suggests a time schedule of the Services as stated in Article 1.2 by the Client. These time schedules are depending on when the documents provided by the Client are delivered to the Supplier

The Supplier may suggest changes to the partial deadlines; however, the final deadline should be in line with the requirements of the Client. If there are delays in delivery of the documents to the Supplier this has to be taken into account in the deadlines.

2.3 Price of the Partial Contract

The Supplier states here the price limit of the Partial Contract which must be based on 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 organization and their hourly rates the cost estimate without travel costs is 259 700 €. The Supplier shall justify all his necessary incidental expenses.

2.4 Organization of Services

The Supplier has specified the activities corresponding to the schedule and the persons involved in those activities, their roles and their labour intensity in the table 1.

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When determining labour intensity, the Supplier shall take into account the limit required by the Client in Article 1.3 of the Partial Contract (2000 hrs).

The Supplier has described in the table 1 the organisation and accountability of the individual persons involved in the Partial Contract. In the table 2 hours per category are listed.

Table 1. Personnel and roles in the Partial Contract work.

| Name | Role/position | Knowledge area(s) (relevant for this PC) | Tentative involvement in the Report(s) |
|------------------------|---|---|---|
| Kimmo Lehto | Project Manager | | 1-5 |
| Dr. Marja Vuorio | Project manager, PC3 Senior Expert | Safety case, R&D programme, radionuclide sorption parameters | 1-5 |
| Dr. Jussi Mattila | Senior Expert | 3D-geological model, suitability of rock for siting, R&D programme | 1-4 |
| Ismo Aaltonen | Adviser | 3D-geological model, suitability of rock for siting, R&D programme | 1-3,5 |
| Lasse Koskinen | Adviser | Hydrogeological model, transport models | 1-5 |
| Outi Vanhanarkaus | a competent young expert assisting the more experienced ones | Hydrogeological model | 1-5 |
| Dr. Aimo Hautojärvi | Adviser | 3D-geological model, suitability of rock for siting, R&D programme, hydrogeological, nearfield & farfield models & transport models, safety case, sorption parameters | 1-5 |
| Pirjo Hellä | Adviser | Safety case, safety functions, scenario development, R&D, 3D-geological model | 1-5 |
| Dr. Annika Hagros | Adviser | Safety case, safety functions | 1-4 |

| | | | |
|---------------------|----------------|---|-------|
| Dr. Nuria Marcos | Adviser | Safety case, scenario development | 1-3,5 |
| Dr. Fredrik Valhund | Adviser | Nearfield & farfield models & transport models | 1-5 |
| Dr. Peter Wikberg | Senior Adviser | Suitability of rock for siting | 3-5 |
| Teresita Morales | Adviser | Nearfield & farfield models, modelling for long term development of the site for safety assessments purpose | 1-5 |

We have named more experts than most probably will be needed, because the time span of this task is relatively long. When the exact content and timing of different tasks clarifies over the time, we will then select those experts, who will carry out the tasks.

Table 2. Personnel hours by category.

| Category | Hours | ~% | Price/€ |
|-----------------|--------------|------------|----------------|
| 1 | 200 | 10 | 33200 |
| 2 | 1100 | 55 | 151800 |
| 3 | 600 | 30 | 67200 |
| 4 | 100 | 5 | 7500 |
| 5 | - | - | - |
| Total | 2000 | 100 | 259700 |

2.5 Risk identification

Risk identification, assessment and management procedures are presented in the Annex No. 3 of FA.

Without seeing the extent of documentation to be reviewed, it is difficult to give exact list of personnel and time schedule. Time schedules strongly depend on the availability of the documentation in English.

3 CONCLUSION OF THE PARTIAL CONTRACT

Articles numbers 1 and 2 of this Partial Contract are valid in full. The sub-project is subject to the approval of persons authorised in contractual matters pursuant to Article 1.3 of the FA.

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

This Partial Contract becomes valid and comes into force on the date of its signature by authorized representatives of both Contractual Parties.

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