

SSM registration number 2020-3872
Activity number: 3030015-01

**CONTRACT: REVIEW ASSIGNMENT FOR THE SWEDISH
RADIATION SAFETY AUTHORITY**

**Quality assurance review of the Swedish Nuclear Fuel and Waste
Management Company's LOT experiment (phase S2 and A3) at the Äspö
facility in Sweden**

Parties and contact persons

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Referred to as "the Supplier" below

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Referred to as "Authority" below

1. Contract period

This Contract is valid until SSM's final approval of the requested deliverables associated with the assignment.

2. Completion of assignments

2.1 Specification of the assignment

The supplier shall in close collaboration with SSM staff review SKB reports and documentation either specified in appendix 2, or identified in close collaboration with the SSM staff in the early phase of the project. The supplier shall as the main deliverable in close collaboration with SSM staff provide a written review report containing all essential review results. The supplier shall also in close collaboration with SSM provide notes from planned remote meetings (preferably using SKYPE) during the course of the project (or physical meeting in Sweden if that is possible towards the latter part of this project). The

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supplier's reporting shall follow the instructions in section 2 and 3 of appendix 2. The supplier shall apply quality assurance measures according to the specifications in the assignment description (appendix 2, section 2.2). Other parts of appendix 2 are SSM's guidelines and instructions for the conduct of the assignment.

2.2 Time schedule

The supplier shall complete the review assignment in accordance with the time schedule provided in this Contract.

In the event of a change to the assignment, the time schedule must be adapted to the extent required considering the nature and scope of such change.

A Party must immediately notify the other Party about a circumstance affecting the time schedule.

2.3 Agreed supply date

The "Agreed Supply Date" is the date when the assignment must comply with all the requirements according to the Description of the assignment, see Appendix 2.

This assignment includes a written final report, which shall be accessible for SSM no later than 30th of November 2020. The detailed description of the reporting is provided in section 3 in appendix 2.

2.4 Approval of the assignment

The supplied assignment is only finalised when the Authority has given its approval.

3. Suppliers and consultants

The following Supplier shall perform the consultant services:

- Galson Sciences Limited

The following consultant(s) shall be responsible for the assignment and shall perform the consulting service:

- Timothy W. Hicks
- Tamara D. Baldwin

According to SSM's impartiality requirements for this type of review work, the Consultant(s) shall not have been involved directly, or indirectly through subcontracting in work for the Swedish Nuclear Fuel and Waste Management company (SKB), any of its subsidiaries or its Finnish counterpart POSIVA during the past two years. SSM shall be notified immediately should any new circumstances occur during the

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course of the assignment that can affect the selected Consultant(s) impartiality. See also article 4 in the general conditions applicable for the assignment (appendix 1).

4. Price

The following total maximum price shall apply for the assignment 319 540 SEK **excluding** VAT and travel expenses but including all other cost. The maximum price shall be based on a total effort of 200 man hours.

The possibility to travel to Sweden is very uncertain at the moment due to the Covid-19 situation and thus there may be no compensation for travel, or per diem expenses. Meetings will be done remotely preferably using Skype. However, if international travelling is permitted early autumn 2020, it is possible that a physical review meeting will be held in Stockholm. A decision about this will be made August 2020. Additional funding for such travelling will be provided if feasible at the time.

This contract includes an optional extension of the contract for an additional 100 working hours not included in the price above. SSM will determine if this is needed early autumn 2020 and will notify the contact person of selected supplier in that case. The hourly price for the optional extension shall be the same as in the main assignment.

5. Invoices and payment

5.1 Payment plan

The following payment plan will apply for this assignment:

- When the agreement has been signed by both parties: a sum of 20% of the maximum price for the assignment.
- At the time of approval of the final review report (November or December, 2020): the remaining part of the price.

5.2 Payment terms of the Authority

Payment terms	Payment is made against an itemized invoice with net payment due in 30 days from the invoice date. Payment is made once the invoice has been approved.
Penalty interest	Payable under the Interest Act (1975:635).
Value added tax	Additional in accordance with current legislation.
Admin. charges	Service, invoicing and similar charges are not payable.

**Compulsory invoice
details**

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- Invoice content itemized

The Supplier must send electronic invoices using the 'Svefaktura' standard. The recommendations from SFTI for electronic invoicing shall be followed. The invoice is normally matched with electronic commissioning of consultant services at SSM. The invoice shall therefore upon request from SSM include a specific reference to facilitate this matching.

The Supplier shall send electronic invoices via PEPPOL's infrastructure for government agencies. Below there is a specification of the specific instructions for invoicing:

- Electronic invoices shall be sent to SSM's PEPPOL address: 0007:2021005737

In the event of errors in the invoice, it will be returned unchanged for correction by the Supplier.

6. Other terms

The Swedish Radiation Safety Authority's General Conditions for the Assignment in Appendix 1, apply to the Contract. By signing this Contract the Supplier confirms that he has taken note of and accepted the said general conditions.

The appendices (1-2) are a substantive and integral part of this Contract.

For the Contract to take effect, two copies needs to be printed out and signed and returned to the SSM by 2020-08-31, at the latest. SSM will return one signed copy to the supplier.

Stockholm 2020- -

Oakham 2020-09-03

Swedish Radiation Safety Authority

Galson Sciences Ltd.



Ansi Gerhardsson

Daniel Galson

Unit for Spent Fuel and waste disposal,
Department of radioactive materials

Managing director

Johan Anderberg
Head of Department

Appendix 1: The Swedish Radiation Safety Authority's General Conditions for Consulting Assignments

1. Definitions of certain concepts

In these General Conditions, the concepts stated below have the following definitions: *fee*: the compensation payable by SSM for the assignment as stated in the agreement

SSM: the Swedish Radiation Safety Authority

Assignment: the consulting assignment described in the agreement

Supplier: the undertaking or person tasked with performance of the assignment as stated in the agreement.

2. Secrecy

The supplier may not disclose or exploit a piece of information that is confidential. The Public Access to Information and Secrecy Act (2009:400) contains provisions concerning duty of confidentiality in public sector work and concerning a prohibition against releasing official documents. Chapter 2, Section 1 of this Act states that the Act not only applies to employees of central government authorities; here, secrecy applies to persons who, in their capacity as suppliers or "on other, similar grounds" on behalf of the public sector participate in, or have participated in, the authority's work and have thus received knowledge about a piece of information that is confidential. This rule on secrecy not only encompasses suppliers personally, but also any persons who the supplier makes available to SSM for performance of the assignment. Secrecy still applies even after the assignment has ceased.

Those who breach the secrecy rule will be penalised in accordance with Chapter 20, Section 3 of the Penal Code.

The supplier agrees to inform coworkers and sub-consultants working on the assignment about the current provisions applying to secrecy.

3. Procurement

In the event of an assignment encompassing procurement or preparation for procurement, the supplier shall observe the provisions contained in the Public Procurement Act (2016:1145).

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4. Guarantees, etc.

In connection with performance of the assignment, the supplier shall safeguard and represent the interests of SSM. For the duration of the assignment, the supplier may not carry out activities which might undermine confidence in it in something pertaining to the assignment.

The supplier is solely responsible for the accuracy of drawings and projection documentation and may not assign this responsibility to a third party.

When SSM requests it, any deficiencies in the assignment caused by means of deviations from agreed specifications shall be rectified by the supplier. This kind of action is to be covered by the fee and shall be taken as soon as possible by the supplier.

5. Consultation

The Parties agree to consult with each other to the extent required for performance of the assignment.

6. Delays

If a default fine for delay of the entire or part of, the assignment has been agreed, a default fine of 2% of the fee is payable for each week during which the assignment has been delayed, though by a maximum total of 15% of the fee.

Beyond a default fine, SSM is entitled to compensation for damage, injury or loss occurring owing to a delay. As a final measure, SSM is entitled to cancel the assignment.

7. Force majeure

The Parties will be released from their respective obligations under the agreement if an event of an unusual nature and significant impact and which is beyond the Parties' control impedes performance of the agreement in the way expected. Regardless of the circumstances referred to for release from the agreed obligations, the other party is entitled to revoke the agreement if the situation has resulted in a delay to the agreed performance by a period exceeding three months.

8. Amendments to the agreement

If SSM changes the assumptions for the assignment the supplier is entitled to change the cost parameters and time schedule of the assignment. Agreed amendments are to be made in writing and implemented before the assignment has commenced.

9. Premature termination and limitations to the agreement

SSM may give notice terminating the agreement or limit the scope of the agreement before the end of the contractual period. SSM will notify in writing about such action in good time so that inconvenience to the supplier is minimized. If the agreement is terminated, compensation will be payable to the supplier for work performed, expenses incurred and verified as well as any necessary wind-up cost.

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If for some reason the supplier determines that it is unable to perform the assignment, the supplier must immediately notify SSM in writing. SSM will determine the manner in which the assignment is to be completed and will communicate this to the supplier in writing.

12. Limitation of marketing rights

The supplier, or any sub-consultants engaged by the supplier, may not refer in their marketing or advertising to the assignment or otherwise to SSM without SSM's express written permission. This provision still applies after the agreement has otherwise ceased to apply.

13. Applicable law

Disputes concerning the application or interpretation of this Agreement and legal circumstances associated with it are subject to Swedish law and courts in Sweden. Proceedings are to be instituted at Stockholm City Court.

Appendix 2: Description of Review Assignment: Quality assurance review of the Swedish Nuclear Fuel and Waste Management Company's LOT experiment (phase S2 and A3) at the Äspö facility in Sweden

SUMMARY: This assignment concerns the Swedish Radiation Safety Authority's (SSM) follow up review based on the analysis of two recently decommissioned parcels of EBS materials from the LOT experiment at the Äspö facility in Sweden (S2 and A3). The experiment is part of the Swedish Nuclear Fuel and Waste Management Company's (SKB) research programme. This experiment has been addressed previously by SSM as part of review of SKB's Research, Development and Demonstrations Programmes, as well as in the context of the licensing review for a spent fuel repository at the Forsmark site. The focus is on project management and quality assurance issues involving both SKB and its sub-contractors. This phase of the review is conducted based on SSM's requirement to review SKB's Research, Development and Demonstration programmes of which the LOT experiment is a part. The suppliers who previously had now terminated framework agreements in the review area 2.2 **Quality Assurance Review** (Consulting services regarding the Swedish Radiation Safety Authority's review of the safety assessment methodology and consequence analysis in the SR-Site safety assessment for a spent nuclear fuel repository in Sweden) were invited to submit tenders.

1. Introduction

The Swedish Nuclear Fuel and Waste Management Company (SKB) has operated the Long term test of buffer material at the Äspö HRL, or the LOT experiments at the Äspö Laboratory in Sweden for about 20 years, since 1996 to 1999. These tests are intended to give information about the physical and chemical alteration of buffer materials during the early high temperature evolution phase of the engineered barrier system of KBS-3. Test are operated either in a standard expected conditions (the S tests just below 100° C) or under considerably higher than expected temperatures (adverse conditions of A tests at about 140° C). The test also provide an opportunity to study the early evolution of copper canister corrosion under these conditions. This project will mainly focus on quality assurance issues and the copper corrosion part since such results are expected to be available from SKB at an earlier stage August/September 2020, as compared with buffer materials results (2022). SSM's planned detailed scrutiny of relevant new SKB material has been approved by SKB.

Implementation of a sound project management and appropriate quality assurance procedures are essential elements in the evaluation of the termination and analysis phase of these experiments. SSM has previously analysed such aspects of the LOT experiments in the context of termination of earlier phases

of LOT (see e.g. SSM report 2015:29). The main goal of this project is to provide a detailed analysis and assessment of SKB's quality assurance of relevant aspects of current phases of the LOT experiments.

2. Scope of services

2.1 General instructions

The appointed reviewer(s) shall:

- review the supplementary information to be submitted by SKB to SSM at the latest in August/September 2020 to address quality assurance of SKB's LOT experiment. This involves final technical reports, project management, quality assurance program, project activity plans, method descriptions, detailed technical specifications of dismantling and sampling, sample treatment, analysis etc. SSM will provide the available and required information to the selected supplier in due course. The review shall address experimental procedures and quality assurance procedures of both SKB as well as SKB's main external suppliers with assignments related to the LOT experiments (Clay technology AB, Uppländska bergborring AB, Rise Kimab AB, Swerim AB). The main information from SKB is expected to be:
 - SKB TR-20-11 Installation, monitoring, dismantling and initial analyzes of material from LOT test parcel S2 and A3
 - SKB TR-20-14 Corrosion of copper in bentonite after 20 years exposure in the field tests LOT S2 and LOT A3.
 - Other SKB documents with a more narrow focus on particular aspects of SKB's LOT dismantling project, such as project management plan, activity plans, method descriptions and documentation requirements. Since most of this material will be in Swedish, review of such documents will have to be done in close collaboration with the SSM staff. SSM will if necessary provide translations of critical selections of these references deemed necessary for the review.
- in close collaboration with SSM in more detail identify the detailed scope of the review, as well as quality assurance aspects and criteria of particular relevance for the review assignment.
- provide a list of topics and questions to be provided to SKB in written form or asked at hearings with SKB staff and consultants.
- as a starting point, consider SSM's previous review reports related to quality assurance of SKB's scientific experiments at the Äspö facility (SKI report 2007:11, SSM report 2010:17SSM 2015:29).

Since the exact number of man hours is difficult to anticipate at the time of commissioning of this review service, the contract include an optional extension of the assignment with an additional 100 man hours in addition to the 200 man hours of the main assignment. SSM will determine if the 100 hours will be needed approximately half way through the main phase of the review project.

2.2 Participation at meetings organised by SSM

Several review meetings will take place as part of this assignment. These meetings will be done remotely via Skype. The first review meeting will take place soon after the project start. The purpose of that

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meeting will be to make sure that the scope of the assignment is clarified and that all necessary information from SKB has been identified and can be made available for the reviewers. The purpose of the additional meetings is to prepare for meetings with SKB, to ask questions to SKB representatives and to respond to any question of clarification from SSM.

If feasible toward the end of the assignment after the main SKB TR reports have been published, a physical review meeting will be organised in Sweden if possible due to the Covid-19 situation. SSM will provide additional funding for travelling and subsistence in the context of this meeting if it can take place.

2.3 Quality assurance

The appointed reviewer(s) shall be able to demonstrate that they have followed quality assurance procedures. This shall involve documentation of how the final version of the review report delivered to SSM has been developed from a final draft version, based on comments from a qualified scientific/technical expert (not included in the assignment and selected by the appointed reviewer(s)). SSM may provide additional comments after having received this version. Any required compensation for this work has to be covered through the financial means provided in this contract.

3. Deliverables

The main deliverable for this assignment is a review report, which shall be accessible for SSM no later than 30th of November 2020. The report shall be developed in close collaboration with SSM. This includes definition of a detailed scope and contents list of the report during one of the early review meetings.

A template for the final report with information relating to text formatting etc. will be provided by SSM. All the results shall be sent by email (bo.stromberg@ssm.se and henrik.oberg@ssm.se). SSM will if necessary provide comments related to factual errors, the need for clarification of certain items etc. The supplier shall send the final version of the report prepared in response to SSM's comments (if any) within two weeks after having received SSM's comments.