



**Memorandum of Information – 202507018 KEM-58: Research fracture initiation and propagation after abandonment of salt caverns.**

Date: 27 October 2025

In this information memorandum, the client provides answers to the questions asked and comments made in the context of the above-mentioned request for quotation. This information memorandum forms part of the request for quotation for KEM-58: Research fracture initiation and propagation after abandonment of salt caverns – 202507018.

<b>Number</b>	<b>Referring to Chapter / Paragraph from the Request for Quotation</b>	<b>Question</b>	<b>Answer</b>
<b>1.</b>	Project partners	Is it possible to construct a project team with non-European partners?	Yes, this is allowed in consultation with and subject to the approval of the contracting authority.
<b>2.</b>	Scope	Is it the salt production caverns or also the gas storage caverns we should focus on?	This research relates on the salt production caverns.
<b>3.</b>	Scope	Should the modelling be based on specific real-world salt caverns (including geometry, operational and abandonment history), or may we use generic/parametric models that incorporate representative characteristics? If specific cases are preferred, will the necessary data (e.g. geometry, stratigraphy, pressure histories, stress conditions) be provided?	The modelling should be based on salt caverns in general, but with realistic conditions for the caverns in the Netherlands (Zechstein salt, dimensioning, characteristics of the salt etc.).
<b>4.</b>	Tender Document - Section 1.2	Footnote No. 5 on Page 6 refers to the reference "C. Spiers (2025). A brief review of the reports entitled "Abandonment of solution mining cavern field Zuidwending, the Netherlands. Statement on hydraulic fracturing risk" by the Cavern Closure Consortium". We have not been able to find a copy of this reference. Please could you provide a copy of this reference, or a link to the public copy of this reference, if available?	<a href="https://mijnbouwvergunningen.nl/attachment/entity/54ba15f3-b344-46eb-ae6d-2cc3b52cbaa9">https://mijnbouwvergunningen.nl/attachment/entity/54ba15f3-b344-46eb-ae6d-2cc3b52cbaa9</a>
<b>5.</b>	Tender Document - Section 3.2	Is there a preferred approach or methodology for simulating the hydraulic fracturing processes in salt?	No, this is up to the tenderer. The choice for the approach or methodology for simulating

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			the hydraulic fracturing processes in salt should be substantiated in the offer.
<b>6.</b>	Tender Document - Section 3.2	What is the expected time horizon for simulating the evolution and healing of hydraulic fractures (e.g. months, years, or decades)?	The expected time horizon for simulating the evolution and healing of hydraulic fractures is months to decades.
<b>7.</b>	Tender Document - Section 3.2	Are experiments part of the scope? And do we have access to core material?	Experiments are not mentioned in the tender and therefore not within scope. The access to the core material will be determined in consultation with the contracting authority.
<b>8.</b>	Tender Document - Section 3.2	To what extend do the research questions be answered? We think that the budget is not sufficient for such fundamental research and that it must be considered as a pre-study.	All research questions have to be answered with the current knowledge on the budget of this Tender. If (more) fundamental research is needed to further answer the research questions tenderer should indicate where further research should be done.
<b>9.</b>	Tender Document - Section 3.2	What should be the distribution in workload between experiments, modelling, literature review?	That is up to the tenderer. Experiments are however not within the scope of the tender.
<b>10.</b>	Tender Document - Section 3.2	Is a field test expected to be a part of the scope?	No, field tests are not a part of the scope of this research.
<b>11.</b>	Tender Document - Section 3.2	Is the focus of the modelling to only concentrate at the site scale, or also laboratory scale behavior? If validation of site scale behavior against laboratory experiments is expected, would this data be provided, come from literature, or to be collected during the project?	For this Tender is site scale focus preferred. Validation of site scale behavior against laboratory experiments is not requested.
<b>12.</b>	Tender Document - Section 3.2	Research questions (I) and (J) in Section 3.2 refer to the "healing of fractures". Please can you confirm that these questions do indeed relate to "healing", rather than "sealing"?	The questions in Section 3.2 are related to healing.
<b>13.</b>	Tender Document - Section 3.2	Previous research study KEM-17 focused on salt caverns within salt domes. Reference is made to salt domes within research question (C) in Section 3.2, but otherwise the questions only consider salt cavern	The focus of this research is on salt caverns in salt domes. The study is generic but salt

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		behavior regardless of location or geological structure. Please can you confirm whether the research is focused only on salt caverns in salt domes, or also within bedded salts, and also whether there are specific geological locations to be considered, or whether the study should be kept generic? If there is a specific field site of interest for the modelling study, will field measurement data be available for calibrating model behaviour?	characteristics in the northern part of the Netherlands can be assumed.
14.	Tender Document - Section 3.2	Could the Client clarify if required ground/geometry inputs for this research are going to be provided and form part of the agreement upon awarding the contract?	The chosen ground/geometry inputs are part of the offer and will be reviewed.
15.	Tender Document - Section 3.9.2	Could you please clarify how acceptance is defined for the invoicing mechanism to take place based on the allowed percentages outlined in 3.9.4? Are set milestones going to be established as part of the agreement?	A basic status report of the work should be provided with the progress of the project and the work performed in that period as stated in section 3.9.4 of the Tender Document. The milestones for these status reports is a summary of the progress of the research.
16.	Tender Document - Section 4.3.1	There are no specific requirements for LoL/PII. Are these going to be clarified from the Client's side during forming the agreement?	The terms LoL/PII do not appear in our tender documents. The contracting authority is not aware of the intended interpretation of these terms. Therefore, is de contracting authority unable to respond to this question.
17.	Tender Document - Section 4.3.2	Is there any tolerance on the required years to demonstrate expertise in the required fields?	No these are the required requirements as stated in section 4.3.2: <ul style="list-style-type: none"> <li>• Analytical and numerical modelling expertise (at least 3 years) in salt behaviour, salt mechanics and fracture modelling;</li> <li>• Geomechanical expertise (at least 3 years), with speciality on post-failure geomechanical analysis (large deformations).</li> </ul>
18.	Tender Document - Section 4.3.2	Section 4.3.2 on the core competences. Please can you confirm whether the experiences that need to be demonstrated, need to	No these are both the required requirements as stated in section 4.3.2:

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		demonstrate at least 3 years of experience, or whether you are looking for an example project that has been completed within the last 3 years?	<ul style="list-style-type: none"> <li>• Analytical and numerical modelling expertise (at least 3 years) in salt behaviour, salt mechanics and fracture modelling;</li> <li>• Geomechanical expertise (at least 3 years), with speciality on post-failure geomechanical analysis (large deformations).</li> </ul>
19.	Tender Document - Section 5.1, 5.2 and 5.3	Please clarify the distribution of points for evaluation criteria: Section 5.1 says 500 / 400 / 100 for plan of approach / project team / price, while Section 5.2.1 says 550 points for plan of approach and Section 5.3 says one time 50 points for price, two other times 100 points for price.	<p>The distribution of point are: Referring to section 5.2.1: 550 should be 500 points. Referring to section 5.3: 50 should be 100 points.</p> <p>The correct allocation of points is as follows:</p> <ol style="list-style-type: none"> <li>1. Plan of approach = 500 points</li> <li>2. Project team = 400 points</li> <li>3. Price = 100 points</li> </ol>
20.	ARVODI 2025 - Article 9	Article 9 of the model contract addresses "research materials", please can this term be defined. Please also confirm whether the contractor is allowed to use the research materials it retains for the contracting authority for itself (for research purposes other than the execution of this contract). Or are all rights transferred to the Contracting Authority?	<p>Research materials encompass all information, data and sources consulted and obtained during the conduct of the study and intended for that research.</p> <p>Moreover, article 9.1 mistakenly addresses the transfer of research materials to the Contracting authority. However, this is not correct. Article 9 will be amended to:</p> <p><b>9. Research material</b></p> <p><i>9.1 The Contractor will retain the title to all the research material received, acquired and/or produced and processed by the Contractor for the purpose of the research, in</i></p>

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			<p><i>so far as the Contractor has such research material at its disposal and in so far as the research material contains information relating to the research. At the Contracting Authority's request, the Contractor will immediately grant it access to the research material and other documents relating to the research and will make this research material available to the Contracting Authority, even if it is in the possession of a third party. At the Contracting Authority's request, the Contractor will produce duplicates of the research material and make them available to the Contracting Authority at cost price.</i></p> <p><i>9.2 The Contractor will retain the research material referred to in this Contract for the Contracting Authority for ... years free of charge, starting on the date on which the Contract is signed.</i></p> <p><i>9.3 The Contractor will replace the research material referred to above free of charge for as long as it is in its possession, if all or part of the research material, for whatever reason, becomes unusable, is destroyed or is disposed of. This provision applies in so far as replacement is possible and desired by the Contracting Authority.</i></p> <p><i>9.4 During the research, neither the Contractor nor a third party engaged by it may use the research material referred to in this Agreement without prior written permission from the Contracting Authority, except for the purpose of activities entailed</i></p>

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			<i>by performance of the Services. Accordingly, we confirm that Contractor is allowed to use the research materials it retains for itself, except for Confidential and Classified information, taking into account the clauses on confidentiality.</i>
21.	ARVODI 2025 - Article 14.3	Please can you clarify that the Contractor shall have the right to refuse additional work that is illegal, impossible or outside of the area of expertise for which the Contractor has been appointed?	For the avoidance of doubt, the Contractor shall have the right to refuse any additional work that is illegal, impossible, or falls outside the Contractor's appointed area of expertise.
22.	ARVODI 2025 - Article 17	Can it be confirmed that a bank guarantee is not required?	The Contracting Authority confirms that no bank guarantee will be required from the Contractor in connection with the performance of the Services.
23.	ARVODI-2025 Article 17	We assume that Article 17 (Advance) of ARVODI-2025 is not applicable (i.e., no credit guarantee is required in the case of a public body). Can you confirm this?	The Contracting Authority confirms that no bank guarantee will be required from the Contractor in connection with the performance of the Services.
24.	ARVODI-2025 Article 19	Please limit the liability as mentioned in article 19 to once the contract value.	We do not agree with limiting liability, as liability is already limited. Furthermore, it concerns damage that the other Party suffers when a Party imputably fails to fulfil its obligations.
25.	ARVODI-2025 Article 19.3 (D)	Article 19.3(d) (Exception to limitation of liability in relation to data protection) does not apply. As a processor agreement is not part of the assignment, this article is not applicable either. Can you confirm?	The Contract Authority confirms that a processor agreement is not part of the agreement. Article 19.3(d) however will not be removed.
26.	ARVODI-2025 Article 19.4	Article 19.4 (Liability for damage to Contracting Authority's property) is not applicable in this case. Considering the nature and scope of the	However the CA confirms that no potential damage is foreseen in this case, AD does not

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		assignment—a research and consultancy study—no potential damage to the Contracting Authority’s property is foreseen. Can you confirm?	exclude that situation. Article 19.4 remains applicable.
27.	ARVODI-2025 Article 23.1, 23.4 and 23.5	Can you confirm that the contractor will remain ownership of all results generated under the contract?	Contract Authority confirms that the ownership lies with the Contractor. Furthermore, Contract Authority confirms Articles 23.1, 23.4 and 23.5 of the ARVODI 2025 do not apply. The Contractor grants the Contracting Authority a non-exclusive, irrevocable right for an indefinite period to publish or reproduce the results of the Services, or have them published or reproduced, which right the Contracting Authority accepts, such in the widest sense, regardless of the method of use or reproduction and regardless of whether such use or method of reproduction is known when this Agreement is signed.
28.	ARVODI-2025 Article 23.2	We propose to modify the text of Article 23.2 as follows: “Insofar as the results of the Services performed are (partly) created by using existing intellectual property rights that do not belong to the Contracting Authority, the Contractor grants the Contracting Authority a non-exclusive and non-cancellable right of use for an indefinite period of time against a market-conform related fee. In that case, the Contractor guarantees to be entitled to grant the aforementioned right of use.” Can you confirm?	The Contract Authority does not agree with your proposal. Article 8.2 of the draft agreement is applicable. <u>Contracting Authority’s right of use</u> Articles 23.1, 23.4 and 23.5 of the ARVODI 2025 do not apply. The Contractor grants the Contracting Authority a non-exclusive, irrevocable right for an indefinite period to publish or reproduce the results of the Services, or have them published or reproduced, which right the Contracting Authority accepts, such in the widest sense, regardless of the method of use or reproduction and regardless of whether such use or method of reproduction is known when this Agreement is signed.

