INTERNATIONAL UNION OF RAILWAYS

Questions and Answers

Tender “HYDROGEN RISKS ANALYSIS + SAFETY COMPARISON WITH AMMONIA”

Reference: HYDROGEN_RISKS-TENDER-2024-04-17

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1	14/05/2024	First publication, questions and answers from n°1 to n°26.

Questions and answers – Tender reference HYDROGEN_RISKS-TENDER-2024-04-17		
N°	**Question**	**Answer**
Q1	Phase 2 - Could UIC confirm that a typical 5x5 matrix considering likelihood and severity is sufficient for quantitative risk assessment?	Yes
Q2	Phase 3 - Is it UIC's intention that a UIC member, i.e. OEM, operator, etc., will look to apply the risk analysis methodology to an ongoing or hypothetical project, with guidance from the supplier, or that the supplier who has produced the risk analysis methodology will apply the methodology, with inputs from an OEM, operator, etc.?	Our intention is applying the proposed methodology to a real project.
Q3	Generic - Battery Limits - The tender document references production, storage, distribution etc of hydrogen quite a bit, but this could mean quite a	The focus should be on transport, not forgetting that H2 has to reach refuelling centres within the railway

	few things – Does UIC want us to consider this as part of the assessment, and if so, how do we constrain? It could open us up to looking at a large-scale distribution etc. Or does UIC want us to focus on the transportation side of things?	facilities. In other words, the risk analysis will start with the production of H2, its transport and storage for railway use, exclusively.
Q4	There is nothing defined under the item penalties. How should this be understood?	No penalties are expected, the work is going to be paid as it's done. Please, note that there are minimum requirements for each phase.
Q5	Who will choose the experts in the task force, which shall be coordinated? Where will these experts come from and what is their background?	The task force has already been built and is working on it. They are UIC members specialist on Safety and H2 technologies.
Q6	What is meant by “waste management” in correlation with Hydrogen processes?	The combustion of hydrogen generates a number of gases that need to be managed, especially in some parts of the infrastructure such as tunnels. The consultant should be aware of this process and propose solutions.
Q7	The scope of the risk analysis is unclear, since “production, storage (lang side?), distribution (refuelling?) and waste management are no railway related topics. The interfaces with the railway vehicle and railway operation can be considered, but the complete life cycle of Hydrogen would drastically enlarge the scope. Please specify the scope of the risk analysis more clearly.	For the use of hydrogen it is necessary to produce, transport and store it somewhere close to the railway infrastructure. Subsequently, the process of refuelling the locomotives and the process of treating the residues (gases). The risk analysis must analyse all these phases.
Q8	For which nations should the national rules be determined?	National rules will be provided by members. At least: Spain, Italy, Netherlands, USA, Switzerland and UK.
Q9	What is meant by “distribution and wasting H2 by locomotives”? Does distribution include transportation via rail? Is it limited to locomotives or also HEMUs?	It is the process of combustion of hydrogen in the locomotive. Although freight locomotives are being considered as the worst case, passenger trains (HEMU) should also be analysed. Distribution by rail is not out of the question, but it is not the key to the project.
Q10	Does the Benchmark and Risk Analysis Methodology also include maintenance / ECM?	No
Q11	In Phase 3 it is referred to “H2 production centers, distribution and storage networks, as well as the reality of its railways and trains” - in each phase,	Phase 3 is the application of a case study among the UIC members participating in the project. The

	the scope is described a little bit differently. Distribution and storage networks may also include pipelines. H2 production centers are not really a topic for railway applications.	concrete conditions of application are therefore not known, but the consultant should be able to apply the conclusions of the previous phases to this case.
Q12	What is meant by “RAMS requirements in all hydrogen and ammonia equipment”? Please clarify.	In order to harmonise with the railway RAMS criteria, the consultant will calculate the RAMS parameters for H2 equipment, e.g. the MTBF, which the consultant should already know.
Q13	What is meant by “possible other technologies” in phase 1?	At the moment only hydrogen and ammonia combustion technology are known, but if new technologies emerge that are currently unknown, the consultant should be able to include them in the risk analysis to a reasonable extent.
Q14	Phase 4: How large should the extent of the IRS to be created?	The necessary pages to explain the methodology adequately, with matrices and flow charts to facilitate understanding. From similar works, it can be said that 20 to 30 pages will be sufficient.
Q15	Phase 3: How should RAMS requirements for the use of ammonia arise from an example risk analysis for a hydrogen application?	The question is not clear how it is asked. RAMS requirements should be similarly proposed with hydrogen or ammonia.
Q16	In the provided award criteria table the item “Previous experience in railway safety projects / safety certification body” is included. I kindly ask if it is possible to clarify if, when you refer to previous experience with safety certification body, you are looking for an experience in the role of AsBo / NoBo / Debo or for an experience as safety consultants/ safety managers in dealing with the Accredited bodies (AsBo / NoBo/ Debo), or both.	Obviously, accredited bodies will be considered, but other experiences will also be taken into account.
Q17	In the provided award criteria table, Quality Control measures are included. In particular, quality management plan and risk management plan are mentioned in this section as evaluated criteria. I kindly ask if it is possible to clarify if a preliminary quality plan and a preliminary risk management plan shall be developed and submitted as part of the tender methodology. Also, in case this is not requested, please specify	The consultant should mention your company's quality control processes. If your company is accredited to ISO 9001, for example, this is guarantee that the quality process will be done effectively.

	if such plans will need to be included as additional deliverables requested to be developed after tender award.	
Q18	Is there a structure/template for describing the technical offer?	No
Q19	What is the submission process and electronic portal to send the offer?	By email
Q20	What is the consultants role in "coordinating a dedicated task force"? Does that mean the consultant has to organize workshops/meetings?	Consultant will help UIC in this task, with the organization of the documentation, agenda, minutes of minutes, etc.
Q21	What is the consultants role in "support UIC in communication to external working parties"?	Consultant will help UIC in this task, writing some text about the communication needs (e.g. LinkedIn posts).
Q22	"A proposal of risk analysis method should be proposed by the contractor in the tender, but it will be discussed at the expert task force as well". Do we assume right that the tender should include feasible frameworks for different processes and not the risk analysis methodology which has to be established in phase 2 of the project?	The consultant will make a proposal in his offer, according to his experience, and this must be approved by the working group. In case it is not accepted, a classical methodology that the consultant can carry out correctly will be developed.
Q23	Phase 1: "There shall be a safety comparison between Hydrogen and Ammonia, and possible other technologies" - which other technologies have to be included?	At the moment only hydrogen and ammonia combustion technology are known, but if new technologies emerge that are currently unknown, the consultant should be able to include them in the risk analysis to a reasonable extent.
Q24	Phase 3: Unclear whether application is solely focusing on Hydrogen or both Hydrogen and Ammonia.	This is something to be decided in the working group, but always within a reasonable range.
Q25	Approximately, how many trips of our experts and consultants would be required?	As it is said in the tender, 2-3 trips by year.
Q26	For Phase 1 - Benchmarking regarding the use of H2 and ammonia in railways, including different ways of storing H2, distribution, and H2 consumption by locomotives, we would like to inquire whether all elements necessary for conducting this action will be provided directly by UIC or by its members/partners. These elements may encompass Return of Experiences/Lessons learned/Best practices,	For Phase 1: UIC and the members will contribute to the benchmarking with the consultant. The consultant will summarize, structure and organize the answers received, but will not carry out any sectoral research. As a maximum, some research in general terms, not at all a doctorate on it.

	National Rules, or information from previous projects and then it will be up to the competitors to summarize, structure, and organize them properly for reference. Or if the competitors should also conduct sectorial research on these matters?	