AMENDMENT/MODIFICATION 003

The objective of Amendment 003 is to bring the following changes/additions to the Request for Proposals (RFP):

L'objectif de la modification 003 est d'apporter les modifications/ajouts suivants à la demande de propositions (DDP) :

A. Questions et réponses 4-8
B. RFP revisions/DDP Modifications 1-2

A. Questions et réponses :

Question #4

English: With respect to Point Rated Requirement R3, is there a reason why the Team Lead is excluded?

French: En ce qui concerne l'exigence cotée par points R3, y a-t-il une raison pour laquelle le chef d'équipe est exclu ?

Response/réponse

English: The Team Lead is excluded from the Point Rated Requirement R3 as they are included in the mandatory requirement of M2.

French: Le chef d'équipe est exclu de l'exigence cotée par points R3 car il est inclus dans le critère obligatoire M2.

Question #5

English: Are the R3 points cumulative to one individual (e.g. consultant with Ph.D., M.Sc. B.Sc. and P.Eng. awarded 5 points or 13 points)?

French: Les points R3 sont-ils cumulatifs pour une même personne (par exemple, un consultant titulaire d'un doctorat, d'une maîtrise en sciences, d'un baccalauréat en sciences et d'un diplôme d'ingénieur reçoit 5 points ou 13 points) ?

Response/réponse

English: Please see RFP Amendment #2 – Question 2

French: Veuillez consulter la modification 2 de la demande de propositions - question 2.

Question #6

English: If R3 points are not cumulative, is NRCan looking for a large consulting team (not including the Team Lead), e.g. 3 Ph.D.'s or 5 M.Sc.'s?

French: Si les points R3 ne sont pas cumulatifs, est-ce que RNCan recherche une grande équipe de consultants (sans compter le chef d'équipe), par exemple 3 titulaires de doctorat ou 5 titulaires de maîtrise en sciences?

Response/réponse

English: NRCan is seeking a team of adequate size and competency to fulfill the project requirements in the allotted timeframe.

French: RNCan est à la recherche d'une équipe de taille et de compétences adéquates pour répondre aux exigences du projet dans les délais impartis.

Question #7

English: Are location exposures (earthquake, flood, other) and worker/public population exposure to be included in the relative risk rating of the various installation classes?

French: Les risques liés à l'emplacement (séisme, inondation, autres) et l'exposition des travailleurs et de la population doivent-ils être pris en compte dans l'évaluation du risque relatif des diverses classes d'installations ?

Response/réponse

English: The NLCA does not currently consider site-specific risk criteria in its assignment of liability limits.

French: Le LRIMN ne tient pas compte actuellement des critères de risque spécifiques à un site dans son attribution des limites de responsabilité.

Question #8

English: Regarding section SW 3.0 Scope and Objectives –

a. For item 1, Reactors of over 7 MW: please confirm if this category can be completely covered by SMRs in items 11-14?
b. For item 2, Nuclear fuel waste processing facility: please confirm to what existing facility this category refers to? Does this apply to future fuel waste processing facility to support certain SMR designs?
c. For item 10, HR: please identify what the acronym HR refers to?

French: Concernant la section ÉT3.0 Portée et Objectifs –

a. Pour le point 1, Réacteurs de plus de 7 MW : veuillez confirmer si cette catégorie peut être complètement couverte par les PRM dans les points 11-14 ?
b. Pour le point 2, Installation de traitement des déchets de combustible nucléaire : veuillez confirmer à quelle installation existante cette catégorie fait référence ? Cela s'applique-t-il aux futures installations de traitement des déchets de combustible destinées à soutenir certaines conceptions de PRM ?
c. Pour le point 10, HR : veuillez identifier ce à quoi l'acronyme HR fait référence ?

Response/réponse

English: The responses below reflect an updated English SW3.0.

- Question a) For item 1, Reactors of over 7 MW may include SMRs listed between items 10-15, in addition to the now de-fueled National Research Universal Reactor at the Chalk River Laboratories site for which this category was originally intended.
- Question b) Please refer to the NLCR for the facilities currently considered by this definition. Future SMR fuel waste processing may or may not be considered under this category, and will ultimately depend on the determined risk profiles of materials being considered.
- Question c) Please see the acronym in the updated English SW3.0

French: Les réponses ci-dessous reflètent une mise à jour de la version anglaise ÉT3.0.

- Question a) Pour le point 1, les réacteurs de plus de 7 MW peuvent inclure les PRM listés entre les points 10-15, en plus du réacteur national de recherche universel maintenant déchargé du combustible sur le site des Laboratoires de Chalk River, pour lequel cette catégorie était initialement prévue.
- Question b) Veuillez vous référer au RRIMN pour les installations actuellement considérées par cette définition. Le traitement futur des déchets de combustible des PRM peut ou non être considéré dans cette catégorie, et dépendra en fin de compte des profils de risque déterminés des matériaux envisagés.
- Question c) N'est pas applicable en Français

B. RFP revisions/DDP modifications 1-2

1. The RFP closing date has been extended to July 15, 2022 at 2:00 EDT / La date de clôture de la DP a été reportée au 15 juillet 2022 à 14 h 00, heure avancée de l'Est

2. Delete the SOW in its entirety and replace with the following: / Supprimer l'énoncé de travaux dans son intégralité et le remplacer par ce qui suit :

Statement of Work (SOW)

SW.1.0 TITLE

Review and Update of the Risk Assessment for Nuclear Installations Administered as a part of the *Nuclear Liability and Compensation Act (NLCA)*

SW.2.0 BACKGROUND

The *Nuclear Liability and Compensation Act* (NLCA) is the legislation that sets out the nuclear third party liability (NTPL) requirements for the operators of nuclear installations in Canada, currently set to a maximum of C$1 billion.

In 2017, the NLCA entered into force, having successfully replaced the previous legislation, the *Nuclear Liability Act* (NLA). The NLCA maintained the same principles of absolute and exclusive liability of the operator as in the NLA, while increasing the liability limit of the operator of a nuclear power plant – from C$75 million in the NLA – to C$1 billion. Nuclear operators carry financial security to address their liability under the NLCA. The liability limit set out in the NLCA for power reactors influences the liability limit for lower risk installations, described in the *Nuclear Liability and Compensation Regulations* (NLCR). Classes of nuclear installations designated in the NLCR are as follows, their respective Canadian dollar NTPL limits indicated in parentheses:

1. power reactor ($1 billion);
2. reactor of over 7 MW ($180 million);
3. nuclear fuel waste processing facility ($40 million);
4. nuclear fuel waste management facility ($13 million);
5. nuclear fuel conversion facility ($3.3 million);
6. nuclear fuel production facility ($2.3 million);
7. reactor of 1 MW to 7 MW ($1.3 million);
8. radioactive waste management facility ($1 million); and
9. reactor of less than 1 MW ($0.5 million).

Prior to the implementation of these regulations, a risk analysis, having consideration for the following factors, was used to determine the relative liabilities and financial security for the different categories of lower risk installations:

1. Accidental Criticality
2. Fission Product Inventory
3. Potential Energy
4. Other Potential Risks
5. Uncontrolled Release
6. Need for control measures

Each factor was evaluated relative to the risk posed by nuclear power plants, which was considered to be the maximum risk with the highest associated liability limit (all values = 10 = MAX). This risk analysis was originally undertaken more than a decade ago, and as such requires re-evaluation and right sizing with the increase in nuclear power plant liability limit. The updated risk analysis may consider, in addition to the above and as needed:

1. Nuclear Substance Inventory with a short half life
2. Nuclear Substance Inventory with a long half life
3. Energy (both criticality and thermal/pressure/chemical)
4. Control measures for reactor
5. Nuclear Substance/Material Inventory in storage
6. Energy (both criticality and thermal/pressure/chemical) for storage inventory
7. Control measures for material in storage
8. Number of units
9. Frequency of release

NRCan anticipates considering the above list of risk factors, or some derivation of them, when establishing liability limits for new nuclear technologies and installations, namely small modular reactors (SMRs) and deep geological repositories (DGRs). The SMR and DGR liability and financial security requirements should, as with the low risk installations, be a function of their relative risk and the liability limit of existing nuclear power reactors (CANDU). The leading SMR technologies in Canada include, but are not limited to, heatpipe reactors (HR, eVinci Westinghouse/Bruce Power and the Saskatchewan Research Council), boiling water reactors (BWR, BWRX-300 GE Hitachi/Ontario Power Generation), high-temperature gas reactors (HTGR, X-energy, Global First Power), sodium-cooled fast-reactor (SCFR, ARC Clean Energy), and molten salt reactors (MSR), stable salt reactor (SSR, Moltex), Integral MSR (iMSR, Terrestrial Energy).. Additional consideration needs to be given to the potential deployment of these new nuclear reactor types in marine environments and the relative risk posed by such deployments as compared to those on land.

SW.3.0 SCOPE AND OBJECTIVES

The scope and objectives of the work to be carried out under this contract are to provide a technical evaluation of the relative risk posed by existing low risk installations, a DGR, and SMRs (subject to available information), as compared to the risk posed by nuclear power reactors. To be examined are the risks of, and corresponding liability limits of, the following types of facilities:

1. reactor of over 7 MW;
2. nuclear fuel waste processing facility;
3. nuclear fuel waste management facility;
4. nuclear fuel conversion facility;
5. nuclear fuel production facility;

6. reactor of 1 MW to 7 MW;
7. radioactive waste management facility;
8. reactor of less than 1 MW;
9. DGR
10. HR
11. HTGR
12. MSR-SSR
13. MSR-iMSR
14. BWR
15. SCFR

This evaluation will consider, as necessary, the following risk factors:

1. Accidental Criticality
2. Fission Product Inventory
3. Potential Energy
4. Other Potential Risks
5. Uncontrolled Release
6. Need for control measures
7. Nuclear Substance Inventory with a short half life
8. Nuclear Substance Inventory with a long half life
9. Energy (both criticality and thermal/pressure/chemical)
10. Control measures for reactor
11. Nuclear Substance/Material Inventory in storage
12. Energy (both criticality and thermal/pressure/chemical) for storage inventory
13. Control measures for material in storage
14. Number of units
15. Frequency of release

This technical evaluation will produce a risk matrix for the different classes under consideration so that the matrix, or a points system, can be used to determine new liability limits. There may be a calculation to determine the final "total points" for each entity based on the importance of a risk factor or a safety measure, and details and rational for such calculations must be provided. The evaluation will also produce a sample liability limit for each of the existing and "new" classes of installations, as required. Ultimately, an iteration of the proposed methodology/matrix should enable proponents and the public to calculate approximate technology/installation-specific liability limits based on the determined relative risks and the C$1 billion liability limit for power reactors. The Minister would make the final determination on the liability limit for nuclear installations.

SW.4.0 PROJECT REQUIREMENTS

SW.4.1Tasks, Deliverables, Milestones and Schedule

Tasks/Activities	Deliverables/Milestones	Time Schedule	Constraints
Task 1: Determine the most relevant risk factors for evaluating nuclear installation classes, including a DGR, and SMRs, and in doing so evaluate the relative risk for each factor. This should yield a matrix or calculation that enables the input of the liability limit of power reactors and the output of a relative liability limit for the given entity based on its relative risk.	**Milestone 1 - Letter Report proposing criteria for assessment (for NRCan approval), listing any questions, issues or topics for discussion, along with describing in brief the analysis.**	One month following issuance of contract (target July 2022) Meetings to discuss progress of study or any concerns the contractor may have should be scheduled as needed, in addition to the two required progress updates.	Schedule an initial meeting as soon as possible following issuance of contract to establish relationship. (June 2022) Letter to be provided at least 1 week prior to first of two progress meetings. Second progress meeting to be held once a significant portion of the work has been completed (target: September 2022)
Task 2: Recommend an analytical approach, and determine and indicate proposed liability limits for each of the classes of installations identified in the "Scope and Objectives" section of this SOW. Indicate how these determinations were made and provide sufficient detail on any relevant calculations.	**Milestone 2 - Draft Report** The proponent will prepare a draft report, to be shared with the Project authority, detailing findings so that any necessary revisions or gaps in study can be addressed. **Milestone 3 - Final Report** The final report will provide a detailed explanation of the development and application of the determined methodology for evaluating the	Four months after contract is issued (target October 2022) – Five months after contract is issued (target November 2022)	Draft report to be shared at least 1 week prior to meeting regarding content. Prior to the completion of its final report, the proponent will present its draft findings to the project authority so that any necessary revisions to the study can be addressed.

	liability limits of low risk installations. To be approved by the contracting authority following receipt.		

SW.4.2Reporting Requirements

The Contractor schedule for four teleconference or virtual meetings with NRCan, including:

- An initial meeting before significant work under the contract occurs
- Two progress meetings during the conduct to receive an update with respect to progress of the analysis, options, and recommendations
- A meeting following completion of the analysis to discuss the draft report.

In addition to the above-noted meetings, the contractor should schedule additional meetings as necessary with NRCan staff to review progress and any issues arising.

The requirements for submitting reports and presentations under the contract are listed in the table entitled "Contract Tasks, Milestones, Deliverables and Schedule" in Subsection 4.1. The contractor shall provide an electronic version (in Microsoft Office Word and PDF) and two (2) paper copies of each document identified in the table. For the Final Report, in addition to the electronic version, five (5) paper copies are required.

SW.4.3Method and Source of Acceptance

All deliverables and services rendered under any contract are subject to inspection by the Project Authority. The Project Authority shall have the right to reject any deliverables that are not considered satisfactory, or require their correction before payment will be authorized.

The payment schedule will be based on the following deliverable dates:

- Milestone 1: Contractor completes Task 1 in the Table entitled "Contract Tasks, Milestones, Deliverables and Schedule" by submitting an acceptable letter report and providing an update through a teleconference meeting, confirming that sufficient analysis has been conducted to proceed to Task 2
- Milestone 2: Contractor completes the first part of Task 2 in the Table entitled "Contract Tasks, Milestones, Deliverables and Schedule" by submitting an acceptable draft report.
- Milestone 3: Contractor completes the residual portions of Task 2 in the Table entitled "Contract Tasks, Milestones, Deliverables and Schedule" by submitting an acceptable final report.

In its proposal, the contractor will provide a breakdown of the costs by milestone and cost category.

SW.5.0OTHER TERMS AND CONDITIONS OF THE SOW

SW.5.1Contractor's Obligations

In addition to the obligations outlined in Section 2 of this Statement of Work, the Contractor shall keep all documents and proprietary information confidential, return all materials belonging to NRCan upon completion of the Contract; attend meeting with stakeholders; participate in teleconferences; and maintain all documentation in a secure area.

SW.5.2NRCan's Obligations

NRCan will liaise with the contractor to provide for the timely flow of information and documentation required by the contractor to complete its analysis.

SW.5.3Location of Work, Work Site and Delivery Point

The work will be carried out by the contractor at its usual place of business and online as required by recommended public health guidance.

SW.5.4Language of Work

The language of work for this contract is English, spoken and written. Documentation and information provided for review by the consultant will be in English only.

SW.5.5Special Requirements

The contractor shall keep confidential all documentation, correspondence, information, and data that it receives from NRCan in relation to this contract and shall place appropriate restrictions on the storage, maintenance, and use of the materials to ensure confidentiality

The contractor will be required sign an appropriate letter of confidentiality stating that it will keep confidential all documents and information received from NRCan as part of the conduct of this contract.

Applicants will be required to complete the Canadian Cyber Security Tool (CCST) virtual self-assessment (for their organization's operational resilience and cyber security posture). The tool is divided into specific and clearly defined categories that are complemented by supporting web links, which provide additional guidance and information. Applicants will be required to provide proof of completion and a brief summary of their CCST virtual self-assessment in their application.

French: there are no changes to the French version within the RFP.

ALL OTHER TERMS AND CONDITIONS REMAIN UNCHANGED/ AUCUNE AUTRE MODALITÉ N'EST MODIFIÉE.