



REQUEST FOR INFORMATION (RFI) **87055-15-0319**

Date: January 8, 2016

File # R651.1

Subject: Request for Information (RFI) regarding Project “*Eyewear Shielding Factor Analysis*”

1. Background and Purpose of this RFI

The purpose of this RFI is to obtain information before finalizing the requirements definition and procurement strategy for the subject project which is being carried out by the Canadian Nuclear Safety Commission (CNSC).

This project is being undertaken to enhance CNSC’s regulatory guidance in the area of reducing dose to the lens of the eye. Specifically, the study is focused on researching the shielding factor offered by eyewear (including traditional safety glasses and prescriptive eyewear) that are commonly used in the industry, or readily available for purchase and use.

The project will involve a review of CNSC regulatory requirements being proposed for the *Radiation Protection Regulations*, found in Discussion paper DIS-13-01, *Proposals to Amend the Radiation Protection Regulations*.

The details of the project and requirements are further outlined in Annex “A” – Work Statement to this RFI.

2. Nature of this RFI

This RFI is not a solicitation and there is no commitment with respect to future purchases or contracts.

Potential suppliers of the services described in this RFI should not reserve stock or facilities, nor allocate resources as a result of any information contained in this RFI. The procurement of any services described in this RFI will not necessarily follow this RFI. This RFI is simply intended to solicit feedback from industry with respect to the matters described in this RFI.

3. Nature and Format of Responses Requested

Respondents are requested to provide their responses to questions in Section 6.

Responses are to be sent by email to:

Contracting Authority: Dan Simard
Email Address: dan.simard@canada.ca
Telephone: (613) 996-6784

4. Response Costs

CNSC will not reimburse any respondent for expenses incurred in responding to this RFI.

5. Treatment of Responses

- a) **Use of Response:** Responses will not be formally evaluated. However, the responses received may be used by CNSC to develop or modify procurement strategies or any draft documents contained in this RFI. CNSC will review all responses received by the RFI closing date. CNSC may, in its discretion, review responses received after the RFI closing date.
- b) **Confidentiality:** Respondents should mark any portions of their response that they consider proprietary or confidential. CNSC will handle the responses in accordance with the Access to Information Act.
- c) **Follow-up Activity:** CNSC may, in its discretion, contact any respondents to follow up with additional questions or for clarifications of any aspect of a response.

6. Questions to Interested Parties of this RFI

- 1) Would you/your organization be able to provide the services outlined in Annex “A” – Statement of Work (SOW) and be interested in bidding on any solicitation that may be issued related to the SOW?
- 2) Could the work be completed within the estimated dates related to the deliverables/milestones in the SOW and an estimated budget of \$50,000.00 Canadian dollars, excluding applicable taxes but all-inclusive of travel etc.?
- 3) What would the estimated level of effort be to complete the work (in person days)?
- 4) What types of resources (human and otherwise) are required to complete the work including experience and qualifications?
- 5) Is the Statement of Work clear and reasonable?
- 6) Do you have any general comments or concerns regarding the SOW and/or suggestions for improvements to the SOW?
- 7) How would the analysis performed as part of the SOW be validated?

7. Submission of Responses to Questions to Interested Parties

- a) **Closing Date for Submission of Responses:** Suppliers interested in providing a response should deliver it by email to the Contracting Authority identified above by **January 26, 2016**.
- b) **Responsibility of Timely Delivery:** Each respondent is solely responsible for ensuring its response is delivered on time per the instructions specified in this RFI.
- c) **Language of Response:** Responses may be in English or French at the preference of the respondent.

8. Enquiries

Because this is not a bid solicitation, CNSC will not necessarily respond to enquiries in writing or circulate answers to all potential suppliers/respondents. However, respondents with questions regarding the RFI may direct their enquiries by email to:

Contracting Authority: Dan Simard
Email Address: dan.simard@canada.ca
Telephone: (613) 996-6784

ANNEX “A” - WORK STATEMENT

1. Background

The lens of the eye is one of the most radiosensitive tissues in the body and the main health effect of concern is its opacification, which is termed cataract in its advanced stages. To prevent the incidence of radiation-induced cataracts, nuclear regulatory bodies worldwide set dose limits for the lens. Currently the dose limit prescribed by the CNSC’s *Radiation Protection Regulations* for the lens is 150 mSv per one year dosimetry period for Nuclear Energy Workers (NEW) and 15 mSv per calendar year for members of the public, or persons who are not NEWs.

Recently, a number of human epidemiological studies and experimental animal-based studies have suggested that the development of cataracts may occur following exposure to significantly lower doses of ionizing radiation than previously considered. Taking into consideration all of the information, and in alignment with the recommendations of the ICRP, the CNSC is proposing the following amendments to the *Radiation Protection Regulations*:

- to change the equivalent dose limit for the lens of an eye for a Nuclear Energy Worker from the current limit of 150 mSv to 50 mSv in a one-year dosimetry period
- to add a new dose limit for the lens of an eye for a Nuclear Energy Worker of 100 mSv in a five-year dosimetry period

While the process to amend the Regulations is on-going, it is recognized that stakeholders would benefit from regulatory guidance to assist in enhancing the protection of the lens of the eye of workers from ionizing radiation.

The purpose of this research project is to assist CNSC staff in developing regulatory guidance in the area of reducing dose to the lens of the eye. Specifically, the study is focused on researching the shielding factor offered by eyewear (including traditional safety glasses and prescriptive eyewear) that are commonly used in the industry, or readily available for purchase and use.

2. Objectives

The objective of this research project is to determine the shielding factor offered by commonly used protective eyewear in the nuclear industry.

3. Scope of Work

The scope of work includes determining the different types of protective eyewear currently in use, or available for use, in Canadian nuclear activities, and assessing the shielding factor offered by this eye

wear in typical exposure situations in CNSC's regulated activities.

4. Tasks to be Performed

- 4.1. Perform a literature review of existing guidance and studies on the protection factor offered by protective eyewear for dose to the lens of the eye. The source of the literature shall include:
 - Publications from international organizations such as the International Atomic Energy Agency (IAEA), the International Organization for Standardization (ISO) and Organization for Economic Cooperation and Development (OECD) Nuclear Energy Agency.
 - Publications, documents from regulatory authorities, such as the U.S. Nuclear Regulatory Commission (U.S. NRC).
 - Proceedings and papers from international conferences and workshops.
 - Journal papers.
- 4.2. Determine the protective eyewear that is currently in use and available for use in Canadian nuclear activities, including traditional safety glasses and prescription eyewear. Note: Due to the availability of standards on the protection afforded by lead lined eyewear used for diagnostic medical X-radiation, this type of eyewear should be excluded from the scope of this project.
- 4.3. Assess the shielding factor offered by each type of eyewear determined in 4.2, for exposure from photons of energies between 15 keV to 10 MeV at 0, 20, 40 and 60 degrees relative to normal incidence and betas of energies between 0.7 MeV to 10 MeV at 0, 20, 40 and 60 degrees relative to normal incidence. This assessment may be done using appropriate methods including analytical and /or Monte Carlo transport code assessment or experimental studies.
- 4.4. Based on the completion of Tasks 4.1 through 4.3, provide:
 - The shielding factor for eyewear used commonly in nuclear activities
 - Recommendations for the use of safety glasses in nuclear activities to optimize dose to the lens of the eye.
 - Information on the areas of limitation for the use of protective eyewear in reducing dose to the lens of the eye.

Documents provided by the CNSC:

- *Radiation Protection Regulations* (<http://laws-lois.justice.gc.ca/eng/regulations/sor-2000-203/>)
- Discussion Paper DIS-13-01, *Proposals to Amend the Radiation Protection Regulations* (<http://nuclearsafety.gc.ca/eng/acts-and-regulations/consultation/comment/d-13-01.cfm>)
- “*What We Heard*” report for Discussion Paper DIS-13-01 (<http://nuclearsafety.gc.ca/eng/acts-and-regulations/consultation/completed/dis-13-01.cfm>)

5.0 Deliverables

All deliverables are to be submitted to the Technical Authority.

5.1 Start-up Meeting

Date: Within 2 weeks of contract award

Location: CNSC Head Office in Ottawa or Via Tele/Videoconference

Purpose: To discuss the proposed approach, work plan and schedule to ensure achievement of the contract objectives. The contractor shall make a presentation with the above purpose in mind.

5.2 Progress Meetings

Due date: 1, 2, 3 and 4 months after contract award

Location: The CNSC Head Office, Ottawa or teleconference

Purpose: To assess the degree to which the agreed project objectives are being achieved as planned and thus to facilitate timely adjustments (if necessary) to ensure the project success.

5.3 Preliminary Assessment Report (subject to CNSC review and acceptance)

This report shall summarize the results of the literature review of existing guidance and studies on the protection factor offered by protective eyewear for dose to the lens of the eye.

Due Date: 1 month after contract award

Copies: One electronic copy via email to the Technical Authority

Format and style requirements: As specified in the Final Report.

5.4 Draft Final Report (Subject to CNSC review)

This report shall address the completion of all tasks, and include a discussion of all findings, conclusions and recommendations.

Due Date: 5 months after contract award

Copies: One electronic copy via email to the Project Authority

Format and style requirements: As specified in the Final Report.

5.5 Presentation

Due Date: 5.5 months after contract award

Location: CNSC Head Office, Ottawa

Purpose: To present the project findings, conclusions and recommendations documented in the Draft Report to the CNSC Commission.

5.6 Electronic Files used to support the research project

This deliverable shall provide all the electronic files associated with the projects analysis and results.

Due Date: 6 months after contract award

Copies: One electronic copy to the Project Authority

5.7 Final Report (Subject to CNSC review and acceptance)

The Final Report deliverable shall address any comments and recommended edits supplied by CNSC as it pertains to the Draft Final Report.

Due Date: 6 months after contract award

Copies: One electronic copy via email to the Project Authority and one bound copy

Format & style requirements:

The font Times New Roman 12 is to be used. Electronic copies must be provided in a format readable by Word 20010 with minor formatting changes. Any electronic files that cannot be read or require major formatting changes when opened are not acceptable and may be returned to the contractor for correction. The CNSC reserves the right, at its own discretion, to have the final report printed under CNSC cover, and to distribute it publicly. Translation of the abstract into French or English, CNSC report covers and the publication number will be provided by the CNSC.