EXECUTIVE SUMMARY

At the request of the Government of Bosnia and Herzegovina through the State Regulatory Agency for Radiation and Nuclear Safety (SRARNS) addressed to the International Atomic Energy Agency (IAEA) to conduct an Occupational Radiation Protection Appraisal Services (ORPAS) mission dated as 20 March 2018, the Agency organised the ORPAS in Bosnia and Herzegovina during 7-16 October 2018 with a team of ten international experts that includes a Team Leader and an Agency Coordinator. The State Regulatory Agency for Radiation and Nuclear Safety acted as the national contact point for the mission.

The purpose of this mission was to appraise the regulatory and practical implementation of the occupational radiation protection arrangements in Bosnia and Herzegovina. Prior to this mission, a pre-mission was conducted from 4 to 6 July 2018 in Sarajevo to determine the participating organizations, to introduce and agree on self-assessment by those organizations using the ORPAS questionnaires prepared by the Agency, and to agree upon the scope and dates of the mission. Accordingly, the organizations participated in the ORPAS mission were the following:

REGULATOR
— State Regulatory Agency for Radiation and Nuclear Safety (SRARNS)

TECHNICAL SUPPORT ORGANIZATIONS
— Public Health Institute of Federation Bosnia and Herzegovina, Radiation Protection Center
— Public Health Institute of Republic of Srpska, Radiation Protection Center
— EKOTEH D.O.O.
— Institute of Metrology of Bosnia and Herzegovina, Standard Dosimetry Laboratory
— Faculty of Veterinary Medicine, University of Sarajevo

END-USER FACILITIES
— University Clinical Centre of Sarajevo
— University Clinical Centre of Republic of Srpska
— International Medical Centre of Affidea
— University Clinical Hospital Mostar
— Jelšingrad Livar Steel Foundry
— Bosnamontaža Prijedor
— Jajce Alloy Wheels D.O.O.
— Elektroprivreda BiH Kakanj Coal Mine
— Elektroprivreda BiH Thermal Power Plant, Tuzla

The review compared the Bosnia and Herzegovina’s arrangements for occupational radiation protection against the IAEA Safety standards as the international benchmark for protection and safety of workers. The mission was also used to exchange information and experience between the team members and national counterparts. The SRARNS provided the review team with advance material relevant to the mission including the self-assessment carried out by the participating organizations.

This report provides the main recommendations and good practices identified during the mission. Detailed findings for individual organizations are provided in the Appendices.
In general, occupational exposure control regime is covered in the regulatory framework of Bosnia and Herzegovina. The framework is based on the Law and the subsequent regulations, which is well structured and generally in line with the IAEA Safety Standards. No major gaps in relation to these Standards were observed. The regulatory framework consists of a broad set of regulations, complemented with a set of regulatory guides. Some overlaps have been observed, but no major contradictions were identified.

The ORPAS Team was impressed with the remarkable progress made by the host country in a relatively short period of time since the drafting of legislations and implementation into practice. It is unusual, yet encouraging, that the host country requested an ORPAS mission only 9 years after the regulatory body becoming operational. This demonstrates their willingness to further improve and expand the safety culture across a range of sectors and within the country.

The ORPAS Team noticed open communication and adequate cooperation between the different radiation protection actors – regulator, TSOs and end users.

Specific to the regulatory authority, SRARNS should give priority to the development of a strategy for adequate staffing to fulfil its mission, furthermore, to the full implementation and further improvement of the regulations with consideration to a graded approach. In addition, the regulator should address the occupational exposure control in existing exposure situations, such as mining and mineral processing industries, in order that the actors in these fields become aware of the exposure due to natural radionuclides, including radon in the working environment and take actions, if necessary. Existing environmental monitoring programs could be used as a starting point for monitoring occupational exposure to natural radionuclides.

One of the cornerstones to proper occupational radiation protection arrangement in a country is the stakeholder involvement during the drafting of regulations to have mutual understanding on the main characteristics of occupational exposure control, monitor and recording.

SRARNS should consider harmonizing the services provided by the TSOs, along with promoting capacity building for internal exposure assessment and calibration. It is essential that all TSOs optimize their processes to minimize the probability of human errors and provide relevant training to their personnel.

Authorization holders should apply a graded approach in decision making for individual monitoring, based on safety assessment. Moreover, a robust method of internal communication on the features of radiation protection programme with exposed workers should be established. Authorization holders should formalize any agreements with the relevant educational institutions to cover occupational radiation protection arrangements for trainees, such as residents.

Good practices, identified during the mission, are listed below:

— Policy on the Safety of Ionising Radiation Sources in Bosnia and Herzegovina as a commitment from the Council of Ministers,
— Broad range of authorizations of TSOs and requirement of appropriate accreditation,
— Mandatory training on radiation protection for authorization holder’s management reinforces overall safety culture of the organization.

Finally, it should be noted that not all the requirements of these Standards are relevant for every practice or source, or for all actions.