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NPT Safeguards Agreement with the Islamic Republic of Iran

Report by the Director General

A. Introduction

1. This report of the Director General is on the implementation of the NPT Safeguards Agreement^{1,2} in the Islamic Republic of Iran (Iran). It also addresses the implementation of the Joint Statement³ agreed between the Director General and HE Mr Mohammad Eslami, the Vice-President of Iran and Head of the Atomic Energy Organization of Iran (AEOI) on 4 March 2023 covering the implementation of Iran's Safeguards Agreement, the outstanding safeguards issues and further verification and monitoring activities.

B. Background

2. The Agency is seeking explanations from Iran for the presence of uranium particles of anthropogenic origin identified by the Agency at three undeclared locations in Iran – Turquzabad (2019), Varamin (2020) and 'Marivan' (2020).⁴ The Director General has expressed his deep concern that

¹ The Agreement between Iran and the Agency for the Application of Safeguards in Connection with the Treaty on the Non-Proliferation of Nuclear Weapons (INFCIRC/214), which entered into force on 15 May 1974.

² Iran's Additional Protocol (INFCIRC/214/Add.1) was approved by the Board of Governors on 21 November 2003 and signed by Iran on 18 December 2003. Iran implemented voluntarily the Additional Protocol between December 2003 and February 2006. On 16 January 2016, Iran began provisionally applying the Additional Protocol in accordance with Article 17(b) of the Additional Protocol. As of 23 February 2021, Iran stopped the implementation of its nuclear-related commitments under the JCPOA, including the Additional Protocol (see GOV/INF/2021/13).

³ GOV/2023/9, Annex.

⁴ The Agency regards a safeguards issue relating to another location – Lavisian-Shian – to be no longer outstanding at this stage (GOV/2022/26, para. 7).

nuclear material had been present at these undeclared locations.⁵

3. By the time of the meeting of the Board of Governors in June 2022, the Agency was still seeking explanations from Iran for the presence of the aforementioned uranium particles of anthropogenic origin. A summary of the safeguards issues related to these three locations was set out in the Director General's report to that meeting.⁶ The Director General informed the Board in June 2022 and again in September 2022 that unless and until Iran provided technically credible explanations for the presence of the aforementioned uranium particles at the three undeclared locations in Iran and informed the Agency of the current location(s) of the nuclear material and/or of the contaminated equipment,⁷ the Agency would not be able to confirm the correctness and completeness of Iran's declarations under its Safeguards Agreement.⁸ The Director General reiterated that the Agency remained ready to engage with Iran without delay to resolve all of these matters. In its resolution of 8 June 2022, the Board of Governors, inter alia, called on Iran to "take up the Director General's offer of further engagement to clarify and resolve all outstanding safeguards issues".⁹

4. In November 2022, however, the Director General reported that there had been no progress in clarifying and resolving the outstanding safeguards issues.¹⁰ In its resolution of 17 November 2022,¹¹ the Board of Governors, inter alia, decided that it was "essential and urgent in order to ensure verification of the non-diversion of nuclear material that Iran act to fulfil its legal obligations and, with a view to clarifying all outstanding safeguards issues" take the following actions without delay:

- (i) "Provide technically credible explanations for the presence of uranium particles of anthropogenic origin at three undeclared locations in Iran;
- (ii) Inform the Agency of the current location(s) of the nuclear material and/or of the contaminated equipment;
- (iii) Provide all information, documentation, and answers the Agency requires for that purpose;
- (iv) Provide access to locations and material the Agency requires for that purpose, as well as for the taking of samples as deemed appropriate by the Agency."

5. The Board of Governors also noted that that "the provision by Iran of this information and access and the subsequent verification by the IAEA pursuant to Iran's NPT Safeguards Agreement is essential for the Secretariat to be in position to report the issues as no longer outstanding and thereby remove the need for the Board's consideration and action on these issues".¹²

6. As previously reported,¹³ on 4 March 2023, the Director General, at the invitation of Iran, visited Tehran where he participated in separate discussions with H.E. Ebrahim Raisi, President of the Islamic

⁵ GOV/2021/52, para. 14.

⁶ GOV/2022/26.

⁷ The Agency concluded that containers that had been stored at Turqzabad had either contained nuclear material or equipment that had been heavily contaminated with nuclear material, or both, and assessed that while some of the containers stored at Turqzabad were dismantled at the location, others were removed from Turqzabad intact in 2018 and moved to an unknown location (GOV/2023/9, para. 4).

⁸ GOV/2022/26, para. 36; GOV/2022/42, para. 9.

⁹ GOV/2022/34, operative paragraph 3.

¹⁰ GOV/2022/63, para. 9.

¹¹ GOV/2022/70.

¹² GOV/2022/70, operative paras 2–5.

¹³ GOV/2023/9, Section D.

Republic of Iran, H.E. Mohammad Eslami, Vice-President of Iran and Head of the AEOI and H.E. Hossien Amir-Abdollahian, Foreign Minister of Iran, on matters related to the cooperation between Iran and the Agency, in particular the need for the effective implementation of the NPT Safeguards Agreement in Iran.

7. During the discussions, the Director General stressed the need to ensure that effective cooperation and interactions between the Agency and Iran on safeguards implementation are fully in line with Iran's Safeguards Agreement. The Director General also stressed that, regarding the outstanding safeguards issues related to the three undeclared locations in Iran, a point has been reached where concrete steps needed to be taken in order to resolve them. Finally, the Director General referred to the importance of the Joint Comprehensive Plan of Action (JCPOA) and the positive impact of the Agency's verification and monitoring activities related to its full implementation, which had been interrupted since 23 February 2021. He reiterated that from the Agency's perspective, an agreed set of safeguards-related, confidence-building measures that would increase the Agency's safeguards-related knowledge in relation to the production and inventory of centrifuges, rotors and bellows, heavy water and uranium ore concentrate was needed. This increase of knowledge of Iran's nuclear-related activities and the resolution of the outstanding safeguards issues is indispensable for the Agency to be able to provide credible assurances of the peaceful nature of Iran's nuclear programme.

8. President Raisi reiterated the disposition of the Islamic Republic of Iran to work with the Agency in this direction. Iran agreed on the need to maintain a constant dialogue with the Agency in order to ensure a steady process leading to a favourable outcome for all. Foreign Minister Amir-Abdollahian also expressed his readiness to work with the Agency in the implementation of Iran's safeguards commitments and towards the prompt resolution of the outstanding safeguards issues. Following discussions between the Director General and Vice-President Eslami, a Joint Statement was agreed covering the implementation of Iran's Safeguards Agreement, the outstanding safeguards issues and further verification measures.

9. The Joint Statement¹⁴ acknowledged that the high-level meetings addressed the importance of taking steps in order to facilitate enhanced cooperation, to expedite as appropriate the resolution of outstanding safeguards issues. Both sides also recognized that such positive engagements can pave the way for wider agreements among state parties. The AEOI and the IAEA agreed on the following:

- Interactions between the IAEA and Iran will be carried out in a spirit of collaboration, and in full conformity with the competences of the IAEA and the rights and obligations of the Islamic Republic of Iran, based on the comprehensive safeguards agreement.
- Regarding the outstanding safeguards issues related to the three locations, Iran expressed its readiness to continue its cooperation and provide further information and access to address the outstanding safeguards issues.
- Iran, on a voluntary basis will allow the IAEA to implement further appropriate verification and monitoring activities. Modalities will be agreed between the two sides in the course of a technical meeting which will take place soon in Tehran.

¹⁴ GOV/2023/9, Annex.

C. Implementation of the Joint Statement of 4 March 2023

C.1. Interactions with the Agency

C.1.1. Enrichment level at FFEP

10. As previously reported, the analytical results of environmental samples taken by the Agency from the product sampling point at the Fordow Fuel Enrichment Plant (FFEP) in January 2023, showed the presence of high enriched uranium (HEU) particles containing up to 83.7% U-235 – above the enrichment level of HEU produced at FFEP, as declared by Iran.¹⁵

11. During a technical meeting at FFEP on 19 March 2023, Iran provided to the Agency explanations and additional data in relation to the presence of aforementioned HEU particles. In a letter dated 30 March 2023, the Agency informed Iran that, following its evaluation of the data, the Agency had assessed that the information provided was not inconsistent with Iran's explanation for the origin of particles containing up to 83.7% U-235 and that the Agency had no further questions on this matter at this stage.

C.1.2. Discrepancy in nuclear material balance evaluation

12. In March 2022, the Agency verified at the Uranium Conversion Facility (UCF) the dissolution of 302.7 kg of natural uranium, as declared by Iran, in the form of solid waste and items of uranium metal transferred from the Jaber Ibn Hayan Multipurpose Laboratory (JHL). The Agency identified a discrepancy that needs to be resolved in the amount of nuclear material it had verified compared to the amount declared by Iran.¹⁶

13. As previously reported,¹⁷ during a technical meeting between senior Agency officials and senior Iranian officials in Tehran on 23 February 2023, Iran confirmed the existence of a discrepancy (shortfall) and agreed to work with the Agency to address it.

14. In a letter dated 30 April 2023, Iran provided to the Agency revised nuclear material accountability reports for UCF. In its reply dated 11 May 2023, the Agency informed Iran that it had assessed that these revised reports neither addressed the discrepancy nor satisfied the requirements stipulated under Article 55 of Iran's Safeguards Agreement for measurement of nuclear material on which the records used for the preparation of accounting reports are based. Hence, the Agency considers the corrections made by Iran to the declared amount of uranium contained in the solid waste not to be based on scientific grounds and, therefore, not acceptable. In the same letter, the Agency requested Iran to correct the nuclear material accounting records and reports based on valid and technically sound measurement results.

C.2. Outstanding safeguards issues related to the three locations

15. As previously reported,¹⁸ the Agency has information, including photographs, indicating that Iran, in 2003, may have planned to use nuclear material at a location near Abadeh, known as 'Marivan'. 'Marivan' consists of two proximate areas. In respect of the first area, including two bunkers, where outdoor testing of conventional explosive systems took place, the Agency has indications relating to the

¹⁵ GOV/2023/8, para. 34.

¹⁶ GOV/2023/8, para. 47.

¹⁷ GOV/2023/8, para. 48.

¹⁸ GOV/2020/30; GOV/2022/26, Section D.1.

testing of shielding in preparation for the use of neutron detectors in that same area.¹⁹ In the second area, from July 2019 onwards, the Agency observed, through the analysis of commercially available satellite imagery, the demolition of buildings immediately after the Agency had informed Iran of the results of the environmental samples taken by the Agency at Turqzabad.²⁰ During a complementary access conducted at ‘Marivan’ in August 2020, the Agency took location-specific environmental samples, the analytical results of which indicated the presence of anthropogenic uranium particles in the second area of the ‘Marivan’ location. The analytical results of the location-specific environmental samples taken in the first area of the ‘Marivan’ location did not show the presence of any particles of nuclear material.

16. Iran has not addressed the use of neutron detectors and the source of the neutrons, and has provided no evidence to support its responses to questions regarding the activities at the explosive test area at ‘Marivan’. While Iran did inform the Agency that the bunkers at the outdoor testing area at ‘Marivan’ were mainly “to shelter the bomb disposal unit during the deactivation of worn-out or mal-functioned munitions”,²¹ the Agency assesses that this explanation is not technically credible.

17. Senior Agency officials met senior Iranian officials in Tehran on 19 March 2023, to discuss the outstanding safeguards issues. During the meeting, specifically in relation to the second area at ‘Marivan’, Iran maintained its previous statements that this area of ‘Marivan’ had been a mine operated by an organization from another Member State in the 1960s and 1970s and provided additional information on the same lines. Iran informed the Agency, in a letter dated 20 March 2023, that, as part of this mine, a chemical laboratory was “located exactly in the building” from which the Agency had taken a sample, and that it was “possible that the source of the contamination of depleted uranium particles with uranium 236” was related to “laboratory instruments and equipment” used by miners at the location.

18. The Agency, in a letter dated 27 April 2023, informed Iran that, regarding the safeguards issue related to ‘Marivan’, and specifically the matter of depleted uranium particles detected at the location, it had reviewed the information on the matter provided by Iran and noted that this was a possible explanation for the presence of depleted uranium particles at ‘Marivan’. Therefore, the Agency at this time has no additional questions on the depleted uranium particles detected at ‘Marivan’ or on the location, and the matter is no longer outstanding at this stage.

19. The Agency’s assessment of the activities that were undertaken by Iran in the first area at ‘Marivan’, based on its analysis of all safeguards-relevant information available to it, remains as set out most recently in GOV/2022/26,²² namely, that Iran conducted explosive experiments with protective shielding in preparation for the use of neutron detectors and nuclear material. However, the Agency found no indication of the use of nuclear material in the first area at ‘Marivan’.

C.3. Further verification and monitoring activities

20. As agreed in the Joint Statement, Iran, on a voluntary basis has allowed the Agency to implement further verification and monitoring activities. Modalities for some of these verification and monitoring activities were agreed between Iran and the Agency during a technical meeting in Tehran on 14 March 2023.

21. On 2 and 3 May 2023, the Agency installed surveillance cameras at workshops in Esfahan where centrifuge rotor tubes and bellows are manufactured. The Agency informed Iran that for these activities

¹⁹ GOV/2020/30, para. 4, third bullet; GOV/2021/15, para. 9, third bullet.

²⁰ GOV/2020/30, para. 4, third bullet.

²¹ GOV/2022/26, para. 15.

²² GOV/2022/26, para. 20.

to be effective the Agency needs to re-establish a satisfactory understanding of Iran's inventory of centrifuge rotor tubes and bellows, including those in assembled centrifuges. In light of the prolonged period between February 2021 and June 2022 during which the data recorded by the cameras were not reviewed by the Agency, it is indispensable that the Agency and Iran should agree on an approach without delay that would provide the Agency with access to these data and to those since 2-3 May 2023.

22. In late April and early May 2023, in order to monitor the enrichment level of the HEU being produced by Iran at declared facilities, the Agency, for the first time, installed an enrichment monitoring device (EMD) at the Fordow Fuel Enrichment Plant (FFEP), and another EMD at the Pilot Fuel Enrichment Plant (PFEP) in Natanz. Although these two EMDs are functioning, they are still under commissioning and calibration.

23. The process of implementing the activities set out in the Joint Statement has begun, but there is a need to ensure that the process is sustained and uninterrupted in order that all of the commitments contained therein are fulfilled. As part of this process, the Agency expects to be able to start to address, without further delay, access to data recordings and the gaps in the recordings.

D. Modified Code 3.1

24. The Director General once again reminds Iran that implementation of modified Code 3.1 is a legal obligation for Iran under the Subsidiary Arrangements to its Safeguards Agreement which, in accordance with Article 39 of Iran's Safeguards Agreement, cannot be modified unilaterally and that there is no mechanism in the Safeguards Agreement for the suspension of implementation of provisions agreed to in the Subsidiary Arrangements.

E. Summary

25. The Director General reiterates that unless and until Iran provides technically credible explanations for the presence of the aforementioned uranium particles at undeclared locations in Iran and informs the Agency of the current location(s) of the nuclear material and/or of the contaminated equipment, the Agency will not be able to confirm the correctness and completeness of Iran's declarations under its Safeguards Agreement.

26. Some progress has been made in implementing the activities set out in the Joint Statement:

- Iran has provided a possible explanation for the presence of depleted uranium particles at 'Marivan' and, therefore, the Agency at this time has no additional questions on these particles or on the location, and the matter is no longer outstanding at this stage. The Agency stands by its assessment of the activities that were undertaken by Iran at 'Marivan'.
- Iran has allowed the Agency to install some additional surveillance cameras at workshops at one location where centrifuge rotor tubes and bellows are manufactured.
- Iran has allowed the Agency to install monitoring equipment at two declared enrichment facilities.
- Iran has provided information that is not inconsistent with its explanation for the origin of particles enriched up to 83.7% detected by the Agency at FFEP and the Agency has no further questions on this matter at this stage.

27. The Agency awaits Iran's engagement to address:

- the outstanding safeguards issues in relation to Turqzabad and Varamin, including informing the Agency of the current location(s) of nuclear material and/or of contaminated equipment.
- the discrepancy in the amount of nuclear material verified by the Agency at UCF originating from JHL compared to the amount declared by Iran.
- the completion of the installation of surveillance and monitoring equipment, access to data recordings and the gaps in the recordings.
- Iran's implementation of modified Code 3.1.

28. The Director General reiterates that the remaining outstanding safeguards issues stem from Iran's obligations under the Comprehensive Safeguards Agreement between Iran and the Agency and need to be resolved for the Agency to be in a position to provide assurance that Iran's nuclear programme is exclusively peaceful.

29. The Director General notes the starting of the implementation of the Joint Statement, in particular further verification and monitoring activities, while reiterating that the process needs to be sustained and uninterrupted in order that all of the commitments contained therein are fulfilled without further delay.

30. The Director General will continue to report as appropriate.