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(GOV/2022/22 and Add.1)

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 Agreement¹ and the Additional Protocol² in the Islamic Republic of Iran (Iran). It contains information regarding the completion of the actions set out in the Joint Statement between the Director General and the Vice-President of Iran and Head of the Atomic Energy Organization of Iran (AEOI) of 5 March 2022 (see Annex), including the Agency's evaluation of the issues relating to the four locations and the Director General's conclusion envisaged in the Joint Statement.

B. Background

2. As previously reported, the comprehensive evaluation of all safeguards-relevant information available to the Agency is essential in ascertaining that there are no indications of the diversion of

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).

declared nuclear material from peaceful nuclear activities and that there are no indications of undeclared nuclear material and activities in a State with a comprehensive safeguards agreement.³

3. As a result of its evaluations, the Agency identified in 2019 a number of questions related to possible undeclared nuclear material and nuclear-related activities in Iran that had not been declared to the Agency and requested responses to these questions from Iran, pursuant to Article 69 of the Safeguards Agreement and Article 4.d. of the Additional Protocol. The Agency also provided Iran with detailed information upon which the Agency had made its requests for clarification.⁴

4. In his report to the Board of Governors in March 2021, the Director General presented the Agency's findings concerning four locations in Iran that had not been declared by Iran to the Agency, identified as Locations 1, 2, 3 and 4, and Iran's explanations regarding these locations.⁵ At three of these locations (Locations 1, 3 and 4) where the Agency conducted complementary access and location-specific environmental sampling, the Agency found multiple uranium particles of anthropogenic origin that required explanations by Iran.⁶ As Location 2 had undergone extensive sanitization and levelling in the past, the Agency assessed that there would be no verification value in conducting a complementary access at this location.⁷ The Agency's findings in relation to all four undeclared locations and Iran's responses to the Agency's requests for clarification were further summarized in the Director General's subsequent reports to the Board of Governors in June and September 2021, respectively.⁸

5. Technical discussions between the Agency and Iran in 2020 and 2021 did not yield results. In light of the lack of progress for more than two years in clarifying the safeguards issues mentioned above, the Director General had become deeply concerned that nuclear material had been present at undeclared locations in Iran and that the current location of this nuclear material was not known to the Agency. He reiterated the requirement for Iran to clarify and resolve these safeguards issues without further delay by providing information, documentation and answers to the Agency's questions.⁹

6. Following consultations between the Director General and the Vice-President of Iran and Head of the AEOI on 15 December 2021, Iran and the Agency agreed to continue to work on the remaining outstanding safeguards issues with the aim of resolving them.¹⁰ To this end, it was also agreed that Iran and the Agency would conduct a series of exchanges of information and assessments, including through meetings of experts.

7. In January 2022, the Agency, based on its evaluation of all safeguards-relevant information available to it, provided Iran with its technical assessment of the issue related to Location 2.¹¹

³ GOV/2020/15, para. 2.

⁴ GOV/2020/15, paras 3 and 4; GOV/2020/30, paras 3 and 4.

⁵ GOV/2021/15, paras 4-17.

⁶ GOV/2021/15, paras 4-17, 20-22.

⁷ GOV/2020/30, para. 4, first bullet.

⁸ GOV/2021/29, paras 2-12, 26 and 27; GOV/2021/42, paras 10-24.

⁹ GOV/2021/42, paras 28 and 30; GOV/2021/52, para. 14.

¹⁰ GOV/INF/2021/47, para. 3, first bullet.

¹¹ GOV/2022/5, para. 6.

Location 2 – Lavisian-Shian

7.1. As previously reported, in 2019, the Agency had indications of the possible presence of natural uranium in the form of a metal disc at an unknown location in Iran in 2003, and of it having undergone drilling and processing, which may not have been included in Iran's declarations.¹²

7.2. On this basis, in July 2019, the Agency asked Iran a number of questions, pursuant to its Safeguards Agreement and Additional Protocol, related to this possible undeclared nuclear material and nuclear-related activities, including the origin of this disc, the location of the processing and where such nuclear material was currently located. The Agency also provided Iran with supporting documents, including photographs, related to the Agency's questions. No response was received from Iran.¹³ Through continued analysis of all safeguards-relevant available information, the Agency subsequently identified the location in question – Location 2 – as Lavisian-Shian.

7.3. In September 2020, as part of its efforts to clarify the safeguards issues related to Lavisian-Shian, the Agency also conducted additional safeguards activities under the Safeguards Agreement at a declared facility in Iran – the Jabr Ibn Hayan Multipurpose Laboratory (JHL) – where similar uranium metal discs had been produced previously. The purpose of these additional safeguards activities was to verify whether the uranium metal disc that may have been used at Lavisian-Shian was present at this declared facility.¹⁴ However, the result of these verification activities was inconclusive.¹⁵

7.4. In November 2021, the Agency conducted further verification activities at JHL. As a result, in a letter dated 14 January 2022, the Agency informed Iran that while it had not been able to identify the disc from amongst those stored at JHL, it could not exclude that the disc had been melted, re-cast and was now part of the declared nuclear material inventory at JHL. Nevertheless, the Agency could not confirm the current location of this disc.

7.5. The Agency assessed that in 2003 at Lavisian-Shian, at least one natural uranium metal disc, out of ten such discs available (totalling approximately 10 kg), underwent drilling to produce metallic flakes. These flakes were subsequently subjected to chemical processing on at least two occasions at the same location. These activities and the nuclear material used therein at Lavisian-Shian were not declared by Iran to the Agency as required under the Safeguards Agreement.¹⁶

7.6. As a result of its verification and assessment, the Agency informed Iran that the Agency had no additional questions on the issue related to Lavisian-Shian and, therefore, that this issue was no longer outstanding at that stage.¹⁷ Since the previous report, there have been no developments that would have an impact on the Agency's assessment regarding Lavisian-Shian.

¹² GOV/2020/30, para. 4, first bullet.

¹³ GOV/2020/30, paras 3 and 5; GOV/2021/29, paras 6 and 24.

¹⁴ GOV/2020/30, para. 4, footnote 9.

¹⁵ GOV/2021/15, para. 16.

¹⁶ GOV/2022/5, para. 6.

¹⁷ GOV/2022/5, para. 7.

C. Joint Statement actions

8. At Iran's invitation, senior Agency and Iranian officials participated in technical discussions in Tehran on 9 February 2022, at which they considered possible ways forward aimed at clarifying and resolving the outstanding safeguards issues. Further to these discussions and subsequent consultations between the Agency and Iran, on 5 March 2022, the Director General and the Vice-President of Iran and Head of the AEOI agreed on a Joint Statement for the clarification of the issues mentioned in GOV/2021/52 of 17 November 2021.

9. Since the Director General's previous report and in line with the Joint Statement of 5 March 2022, on 19 March 2022, Iran provided written explanations to the Agency, including related supporting documents, in response to the questions raised by the Agency that had not been addressed by Iran on the issues related to Locations 1, 3 and 4.

10. The Agency reviewed the information provided by Iran on 19 March 2022 and found that it was predominantly information that Iran had previously provided to the Agency but also included new information, which was subsequently assessed by the Agency. The information provided by Iran did not address all of the Agency's questions. In line with the Joint Statement, on 4 April 2022, the Agency submitted questions to Iran on the information received, as well as the questions raised previously by the Agency that had not been addressed by Iran on the issues related to Locations 1, 3 and 4.

11. On 12 April 2022, 7 May 2022 and 17 May 2022, the Agency and Iran met in Tehran to address the aforementioned questions. The Agency notes that in the meeting on 17 May 2022, Iran provided separate videos and presentations expanding on its explanations related to Locations 1, 3 and 4.

12. The Agency's evaluation of the issues relating to Locations 1, 3 and 4 follows in Section D and the Director General's conclusion envisaged in the Joint Statement of 5 March 2022 is provided in Section E.

D. Agency evaluations related to each Location

D.1. Location 4 – 'Marivan'

13. The Agency has information, including photographs, indicating that Iran, in 2003, may have planned to use nuclear material at Location 4 (a location near Abadeh, known as 'Marivan'). 'Marivan' consists of two proximate areas. In respect of one area, including two bunkers, where outdoor testing of conventional explosive systems took place, the Agency has indications relating to the testing of shielding in preparation for the use of neutron detectors in that same area.¹⁸ In addition, the Agency has information that similar neutron detectors were calibrated at Lavisian-Shian some time before December 2002. In the second area at 'Marivan', 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 Location 1 (a warehouse in the Turqzabad district of Tehran (Turqzabad)).¹⁹

14. In August 2019, the Agency asked Iran a number of questions, pursuant to its Safeguards Agreement and Additional Protocol, related to possible undeclared nuclear material and nuclear-related activities at 'Marivan'. The Agency also provided Iran with supporting documents, including

¹⁸ GOV/2020/30, para. 4, third bullet; GOV/2021/15, para. 9, third bullet.

¹⁹ GOV/2020/30, para. 4, third bullet.

photographs, related to the Agency's questions. Iran provided no answers. In January 2020, the Agency requested complementary access to the location to carry out location-specific environmental sampling: Iran denied such access.²⁰ Following the issuance of the Joint Statement of 26 August 2020,²¹ Iran provided the Agency complementary access at the location. The Agency took location-specific environmental samples, the analytical results of which indicated the presence of anthropogenic uranium particles that required explanations by Iran. In January 2021, the Agency conveyed to Iran the results of the analysis of these samples and related Agency questions.²² Subsequent to the access, the Agency observed through the analysis of commercially available satellite imagery that the aforementioned bunkers had been removed.

15. In August 2021, Iran provided information to the Agency on the historic use of 'Marivan', as well as documentation aimed at substantiating that information. Iran explained that the second area of 'Marivan' was built to support a mine, managed by an organization from another Member State, which was active until 1994. Iran also stated that after 1994 the area became "uninhabited and abandoned". Iran also informed 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".

16. The Agency assessed that some of the information provided by Iran was inconsistent with other safeguards-relevant information available to the Agency. In particular, Iran's statement that "[t]here was no activity at this location [second area] between 1994 and 2018" was inconsistent with the Agency's observations through the analysis of commercially available satellite imagery. The Agency also requested clarification and confirmation from the Member State referred to by Iran. In October 2021, the Member State noted that the information provided by Iran had contained "no information indicating a link" between the cooperation provided by the aforementioned organization in Iran, mentioned in the information provided by Iran, "and the anthropogenic uranium particles found by the Agency".

17. During the process outlined in the Joint Statement of 5 March 2022, Iran stated that it had never produced nuclear material of the type identified in the environmental sample results. Iran explained that in 2019 the second area, which belonged to a government ministry, had been sold to a private individual who demolished the buildings in order to recover metal from the debris. Iran also explained that after the Agency's complementary access, the bunkers had been looted by persons unknown and subsequently demolished by Iran. The only additional explanation offered by Iran during the Joint Statement process for the environmental sample results was the possibility of an act of sabotage by a third party to contaminate the area. However, Iran has not provided any evidence to support this explanation.

18. Iran also stated during the meetings on 7 and 17 May 2022 that the photographs provided previously by the Agency of the bunkers at 'Marivan' were "fabricated". This is despite the photographs being consistent with the Agency's observations through the analysis of commercially available satellite imagery and visual observations during the complementary access at this location.

19. The Agency's analysis of commercially available satellite imagery indicates that trucks observed at 'Marivan' and Turquzabad between mid-July and mid-August 2018 had similar features. In the same period, the Agency also observed through the analysis of commercially available satellite imagery that items were being removed from Turquzabad.

²⁰ GOV/2020/30, para. 5.

²¹ GOV/2020/47, paras 10-12 and Annex.

²² GOV/2021/15, para. 17.

20. The analysis of all safeguards-relevant information available to the Agency related to ‘Marivan’ is consistent with Iran having conducted explosive experiments with protective shielding in preparation for the use of neutron detectors.

21. On the basis of the process conducted and the exchanges of information with Iran as described in the Joint Statement of 5 March 2022, the presence of anthropogenic uranium particles at ‘Marivan’ is not clarified.

D.2. Location 3 – Varamin

22. The Agency has information of the possible use or storage of nuclear material and/or conduct of nuclear-related activities, including research and development activities related to the nuclear fuel cycle, at Location 3 in Iran (a location known as Varamin). This location also underwent significant changes in 2004, including the demolition of most buildings.²³

23. The Agency first requested responses from Iran, pursuant to its Safeguards Agreement and Additional Protocol, regarding issues related to Varamin in August 2019. The questions were related to possible undeclared nuclear material and nuclear-related activities at this location. The Agency also provided Iran with supporting documents, including photographs, related to the Agency’s questions. Iran provided no answers.²⁴ In January 2020, the Agency requested complementary access to the location to carry out location-specific environmental sampling; Iran denied such access.²⁵ Following the issuance of the Joint Statement of 26 August 2020, Iran provided the Agency complementary access at the location. The Agency took environmental samples, the analytical results of which indicated the presence of anthropogenic uranium particles that required explanation by Iran. The Agency conveyed the analytical results, along with related questions, to Iran in January 2021.²⁶ Iran still provided no answers.

24. During the process outlined in the Joint Statement of 5 March 2022, Iran stated on 19 March 2022 that until 2004 the location had been used for the production of sodium sulphate. However, the Agency’s analysis of commercially available satellite imagery for the period from 1999-2004 and the results of the analysis of the environmental samples taken at Varamin do not support Iran’s statement. In addition, Iran’s statement does not explain the presence of the anthropogenic uranium particles found at Varamin. The only additional explanation offered by Iran during the Joint Statement process for the environmental sample results was the possibility of an act of sabotage by a third party to contaminate the area. However, Iran has not provided any evidence to support this explanation.

25. The analysis of all safeguards-relevant information available to the Agency related to Varamin, including the results of environmental samples, indicates the use and storage of nuclear material and/or conducting at this location of nuclear-related activities, including research and development activities related to the nuclear fuel cycle.²⁷ The Agency assessed that Varamin was an undeclared pilot-scale facility for the processing and milling of uranium ore and conversion into uranium oxide and possibly, at laboratory scale, into UF₄ and UF₆, used between 1999 and 2003. This location also underwent significant changes after 2003, including the demolition of most buildings, scraping and landscaping that was consistent with sanitisation, as well as the removal of containers.

²³ GOV/2020/30, para. 4, second bullet.

²⁴ GOV/2020/30, paras 3 and 5.

²⁵ GOV/2020/30, para. 5.

²⁶ GOV/2021/15, para. 17.

²⁷ GOV/2020/30, para. 4, second bullet.

26. The Agency has indications, supported by the results of the analysis of the environmental samples, that containers removed from Varamin at the time of the dismantlement of the buildings at the location were eventually transferred to Turqzabad.

27. On the basis of the process conducted and the exchanges of information with Iran as described in the Joint Statement of 5 March 2022, the presence of anthropogenic uranium particles at Varamin is not clarified.

D.3. Location 1 – Turqzabad

28. The Agency has information that in September 2018, Turqzabad, which had not been declared to the Agency, had allegedly been involved in the storage of nuclear material and equipment.²⁸ From early November 2018 onwards, the Agency observed, through the analysis of commercially available satellite imagery, scraping and landscaping activities at the location.

29. In accordance with the Safeguards Agreement and the Additional Protocol and further to the Agency's evaluation of safeguards-relevant information available to the Agency, in January 2019, the Agency requested Iran to clarify whether it had used or stored any nuclear material and/or had conducted any nuclear-related activity at the location. Iran replied that there was no undeclared nuclear material and/or undeclared activity at the location.²⁹

30. In February 2019, on the basis of the Agency's analysis of commercially available satellite imagery for Turqzabad, the Agency requested Iran to provide additional information on the movement of containers to and from this location during the period from 2010 to 2018 and the dismantlement of some containers in the second half of 2018. The Agency also requested information about the activities carried out at the location between November 2018 and January 2019, which the Agency considered as being consistent with the location's sanitization.

31. Later in February 2019, the Agency conducted a complementary access and took environmental samples at Turqzabad. The Agency detected the presence of multiple natural uranium particles of anthropogenic origin, the composition of which indicated that they might have been produced through uranium conversion activities.³⁰ The Agency, pursuant to Iran's Safeguards Agreement and Additional Protocol, requested Iran to provide clarifications and information, and to answer questions related to the Agency's findings regarding the presence of these particles.³¹ Subsequent analysis of these environmental samples also indicated the presence of isotopically altered particles,³² including low enriched uranium particles with a detectable presence of U-236, and particles of slightly depleted uranium.³³ Iran was informed of these new results and requested to provide clarification.

²⁸ Statement by the Deputy Director General for Safeguards to the Board of Governors, 7 November 2019, GOV/OR.1532, para. 11.

²⁹ Statement by the Deputy Director General for Safeguards to the Board of Governors, 7 November 2019, GOV/OR.1532, para. 14.

³⁰ GOV/2019/55, para. 29.

³¹ GOV/2020/51, para. 33.

³² These particles had been identified as a result of the Agency's further analysis of the samples it took in February 2019, which was conveyed to Iran for the first time in an Agency letter to Iran, dated 2 September 2020 (see GOV/2020/51, para. 33, footnote 52).

³³ GOV/2020/51, para. 33, footnote 53. The Agency noted in its letter to Iran dated 2 September 2020 that the compositions of these isotopically altered particles were similar to particles found in Iran in the past, originating from imported centrifuge components (see GOV/2008/4, para. 11).

32. During interactions between the Agency and Iran in relation to the particles of natural uranium of anthropogenic origin found at Turqzabad, including the taking of environmental samples by the Agency at two declared locations in Iran (the Bandar Abbas Uranium Production Plant and the Uranium Conversion Facility at Esfahan), Iran provided information and explanations. However, as reported to the Board of Governors in November 2020, the Agency assessed Iran's response to be unsatisfactory because it was not technically credible.³⁴ Moreover, Iran did not provide any explanation regarding the isotopically altered particles. The Agency requested Iran to provide a full and prompt explanation for the presence of uranium particles of anthropogenic origin, including isotopically altered particles, at Turqzabad.³⁵

33. During the process outlined in the Joint Statement of 5 March 2022, the only additional explanation offered by Iran for the environmental sample results was the possibility of an act of sabotage by a third party to contaminate the area. However, Iran has not provided any evidence to support this explanation. Iran also stated it was not able to identify the current location of the containers or their contents following the removal of the containers from Turqzabad in 2018.

34. The Agency has indications, supported by the results of the analysis of the environmental samples, that containers removed from Varamin at the time of the dismantlement of the buildings at that location were eventually transferred to Turqzabad. However, the nuclear activities assessed by the Agency to have been carried out at Varamin do not explain the presence of the isotopically altered particles found at Turqzabad. Those isotopically altered particles must have come from another unknown location. The Agency also assessed that while some of the containers stored at Turqzabad had been dismantled in the second half of 2018, others had been removed from the location intact and moved to an unknown location during the same period.

35. On the basis of the process conducted and the exchanges of information with Iran as described in the Joint Statement of 5 March 2022, the presence of anthropogenic uranium particles at Turqzabad is not clarified.

E. Summary

36. The following provides the Director General's conclusion envisaged in the Joint Statement of 5 March 2022 which completes the actions set out in that Statement:

Since the Agency identified uranium particles of anthropogenic origin at three undeclared locations in Iran – Turqzabad (2019), Varamin (2020) and 'Marivan' (2020) – it has provided Iran with numerous opportunities, in different formats through exchanges and meetings in Vienna and Tehran, to explain their presence. The Agency's present assessments as set out in this report were reached as a result of the completion of the actions of the Joint Statement of 5 March 2022.

Iran has not provided explanations that are technically credible in relation to the Agency's findings at those locations. Nor has Iran informed the Agency of the current location(s) of the nuclear material and/or of the equipment contaminated with nuclear material, that was moved from Turqzabad in 2018. In addition, nuclear activities and nuclear material used therein at Lavisian-Shian were not declared by Iran to the Agency as required under Iran's Comprehensive Safeguards Agreement.

³⁴ GOV/2020/51, para. 35.

³⁵ GOV/2020/51, para. 35; GOV/2021/15, para. 7.

Unless and until Iran provides technically credible explanations for the presence of uranium particles of anthropogenic origin at Turqzabad, Varamin and 'Marivan' and informs the Agency of the current location(s) of the nuclear material and/or of the contaminated equipment, the Agency cannot confirm the correctness and completeness of Iran's declarations under its Comprehensive Safeguards Agreement. Therefore, the safeguards issues related to these three locations remain outstanding.

37. As in the past, and in order for the Agency to be in a position to provide assurance that Iran's nuclear programme is exclusively peaceful, the Agency remains ready to engage without delay with Iran to resolve all of these matters.

Annex

Joint Statement

by HE Mr Mohammad Eslami, Vice-President and President of the Atomic Energy Organization of Iran, and HE Mr Rafael Grossi, Director General of the International Atomic Energy Agency

Tehran, 5 March 2022

The Vice-President of the Islamic Republic of Iran and President of the Atomic Energy Organization of Iran (AEOI) and the Director General of the International Atomic Energy Agency (IAEA) agreed on the following Joint Statement for the clarification of the issues mentioned in GOV/2021/52 of 17 November 2021.

The AEOI and the IAEA agreed, in continuation of their cooperation as stated in the Joint Statement of 26 August 2020, to accelerate and strengthen their cooperation and dialogue aimed at the resolution of the issues.

In this context, the AEOI and the IAEA agreed on the following:

1. The AEOI will provide to the IAEA no later than 20 March 2022 written explanations including related supporting documents to the questions raised by the IAEA which have not been addressed by Iran on the issues related to three locations.
2. Within two weeks after receiving the AEOI's written explanations and related supporting documents, the IAEA will review this information and will submit to the AEOI any questions on such information.
3. Within one week after the IAEA has submitted to the AEOI any questions on such information, the IAEA and AEOI will meet in Tehran to address the questions. Separate meetings will be held for each location.
4. Upon completion of the activities set out in paragraphs 1 to 3 above and following the corresponding evaluation by the Agency, the Director General will aim to report his conclusion by the June 2022 Board of Governors.