



The IAEA's Iran NPT Safeguards Report - September 2021

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“The Director General remains deeply concerned that nuclear material has been present at undeclared locations in Iran and that the current locations of this nuclear material are not known to the Agency. The Director General is increasingly concerned that even after some two years the safeguards issues...in relation to the four locations in Iran not declared to the Agency remain unresolved.”

-IAEA Director General Rafael Grossi

This analysis summarizes and assesses information in the International Atomic Energy Agency's (IAEA's) periodic safeguards report, *NPT (Nuclear Non-Proliferation Treaty) Safeguards Agreement with the Islamic Republic of Iran*, the most recent of which was issued on September 7, 2021. The IAEA report presents a picture of near total Iranian stonewalling of the IAEA's investigation into Iran's undeclared nuclear material and activities, an inquiry that began anew in 2018. Since the last report, Tehran continues to obfuscate or not respond to IAEA requests for documentation, information, and explanations. As a result, the IAEA again issued a condemnation of Iran's cooperation: “The lack of progress in clarifying the Agency's questions concerning the correctness and completeness of Iran's safeguards declarations seriously affects the ability of the Agency to provide assurance of the peaceful nature of Iran's nuclear program.”

The IAEA Board of Governors will next meet from September 13 to 17. Since June 2020, the Board has not passed a new resolution demanding Iran's cooperation, which would provide the IAEA with needed support to pursue Tehran's compliance with its legal non-proliferation obligations. The Director General underscores this, noting the Board's previous support in the report and adding: “More than one year later, Iran has still not provided the necessary explanations for the presence of the nuclear material particles at any of the three locations (Locations 1, 3 and 4) where the Agency has conducted complementary accesses. Nor has Iran answered the Agency's questions with regard to the other undeclared location (Location 2), or clarified the current location of natural uranium in the form of a metal disc.” Director General

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Grossi also sought to engage Iran prior to the release of this safeguards report, but Iran denied his request to travel to Tehran to meet with Iranian officials.²

New Developments

The IAEA describes its repeated attempts to engage Iran during the summer of 2021 to resolve outstanding questions related to its detection of undeclared uranium particles at three Iranian sites and its questions about activities at a fourth site. Locations 1, 2, 3, and 4 are described below.³

In June, the IAEA expressed desire to continue discussions with Iran and finalize a date for a new meeting in Tehran, but Iran did not reply. At a meeting in Vienna on June 26 to discuss “arrangements for future technical discussions,” Iran proposed that the agency conduct additional verification activities at a declared facility related to uranium particles found at Location 2. Iran demanded that the agency close the probe relating to Location 2 “regardless of the outcome of the additional verification activities,” but the IAEA countered that it “could not accept such a condition.”

The IAEA wrote a letter to Iran dated July 9, expressing “regret that the Agency and Iran had not held further technical discussions” since May 26. At this meeting, Iran had provided the IAEA with unsubstantiated, written information relating to Location 4. In a letter dated August 24, Iran finally responded to a series of IAEA questions from the May meeting “aimed at substantiating that written statement.” In the letter, Iran “included reference to activities conducted at Location 4 in the past by an organization from another Member State.” The report does not explain which member state or organization Iran was referencing. Iran told the agency that “there was no activity at this location [second area] between 1994 and 2018.” Iran further insisted that “the IAEA is highly expected to announce that the issue is resolved and no further action is required.”

The IAEA replied in a letter dated August 27 that it would analyze the information Iran provided and reminded Iran that it had yet to provide explanations for the presence of anthropogenic uranium particles at Location 4. In a letter dated September 2, the IAEA informed Iran that it had conducted a preliminary assessment of the information Iran provided on August 24, and found it to be “inconsistent with other safeguards relevant information...including commercial satellite imagery...” The agency provided Iran with technical details of the inconsistencies and asked for explanation and reminded Tehran that it had yet to answer the agency’s original questions relating to Location 4.

² Laurence Norman, “Iran Blocking IAEA Access to Nuclear-Related Sites,” *The Wall Street Journal*, September 8, 2021, <https://www.wsj.com/articles/iran-blocking-u-n-atomic-agency-access-to-nuclear-related-sites-iaea-says-11631033269>.

³ For fuller descriptions of these four locations and their relationship to today, see David Albright with Sarah Burkhard and the Good ISIS Team, *Iran’s Perilous Pursuit of Nuclear Weapons* (Washington, D.C.: Institute for Science and International Security Press, 2021).

Overall, Iran has shown a consistent unwillingness to comply with its safeguards obligations. Moreover, the evidence of the existence of undeclared materials and equipment has continued to increase, as have the IAEA's statements of concern. Instead of showing a willingness to compromise, Iranian government officials have now issued threats to the IAEA and to the Board if it takes action, steps that have been routinely applied to other member states which violate their safeguards obligations or refuse to cooperate with the IAEA.

Before discussing a course of action, we first summarize new developments at the four sites at issue.

Location 1: Turqz-Abad warehouse

The IAEA reports that Iran "has provided no further information on, or relevant to, Location 1 since October 2020."

Location 1 is an open-air warehouse in the Turqz-Abad district of Tehran which held cargo containers and other items that purportedly contained nuclear-related equipment and material.⁴ In 2018, the IAEA observed activities consistent with sanitization of the site. Commercial satellite imagery confirms this activity and documents Iran's earlier, speedy removal of all shipping containers and scraping of the grounds.⁵

The IAEA requested access to the site and took environmental samples in February 2019, nevertheless detecting processed natural uranium particles that Iran had potentially produced through undeclared uranium conversion activities. Through additional analysis, and as conveyed to Iran in September 2020, traces of isotopically altered uranium particles were detected as well, including "low enriched uranium with a detectable presence of U-236, and of slightly depleted uranium." A footnote in the IAEA report states that "that the compositions of these isotopically altered particles were similar to particles found in Iran in the past, originating from imported centrifuge components."

The latest IAEA report adds more detail about the containers once present at the site, including that there are indications that "containers that had been stored at this location had contained nuclear material and/or equipment that had been heavily contaminated by nuclear material. The Agency also assesses that while some of the containers at Location 1 were dismantled,

⁴ John Irish and Arshad Mohammed, "Netanyahu, in U.N. Speech, Claims Secret Iranian Nuclear Site," Reuters, September 27, 2018, <https://www.reuters.com/article/us-un-assembly-israel-iran/netanyahu-in-un-speech-claims-secret-iranian-nuclear-site-idUSKCN1M72FZ>.

⁵ The IAEA's report again indicates that the agency only began observing Iran's relocation of cargo containers and sanitization activities in November 2018. Yet, the agency was informed of these activities prior to the summer of 2018 and did not request to visit the site until Iran had completely emptied and sanitized it. See: David Albright, Sarah Burkhard, Olli Heinonen, and Frank Pabian, "Presence of Undeclared Natural Uranium at the Turqz-Abad Nuclear Weaponization Storage Location," *Institute for Science and International Security*, November 20, 2019, <https://isis-online.org/isis-reports/detail/presence-of-undeclared-natural-uranium-at-the-turqz-abad-nuclear-weaponiza>.

others were removed from the location intact in 2018 and moved to an unknown location.” This finding corresponds with evidence in commercial satellite imagery.

Location 2: Lavizan-Shian

The IAEA reports that “Iran has not responded to the Agency’s questions of July and August 2019” related to undeclared nuclear materials and activities at Location 2. As described, Iran demanded the IAEA artificially close the probe following additional verification activities at a declared site, likely the Jabr Ibn Hayan Multipurpose Laboratory (JHL) at the Tehran Nuclear Research Center, which the IAEA previously visited in connection with questions about Location 2.

Location 2 is Lavizan-Shian, a former headquarters of Iran’s nuclear weapons program. Iran razed the site in 2003 and 2004 as the IAEA’s investigation into its covert nuclear program intensified.⁶ The IAEA seeks information from Tehran about “the possible presence at this site between 2002 and 2003 of natural uranium in the form of a metal disc, with indications of it having undergone drilling and processing...” This metal disc is apparently part of nuclear weapons related work detailed in Iran’s Nuclear Archive, portions of which were seized in 2018 by Israel and turned over to the IAEA. Among the files was information about Iran’s work on producing uranium deuteride for a neutron initiator used in nuclear weapons. The information detailed procedures Tehran used to make uranium deuteride, including drilling into a piece of uranium metal.⁷ A photo from Iran’s nuclear archive obtained by the media and shared with the Institute shows a glove box containing a drilling machine, with what appears to be a black object that could be the uranium metal disc at issue. However, from the archive files and information available to the Institute, the location for this work could not be pinpointed, but there are files Israel could not share publicly due to their proliferation-sensitive nature.

To conduct additional verification activities related to this matter, in September 2020 the IAEA visited a separate, declared facility “where uranium metal had been produced previously,” which the Institute identified as the JHL at Tehran Nuclear Research Center. According to the previous report, “The purpose of these additional activities was to verify whether the natural uranium in the form of a metal disc identified at Location 2 was present at this declared facility.” The IAEA’s findings from its visit were inconclusive and Iran has yet to provide answers to the agency’s questions.

⁶ David Albright, Paul Brannan, and Andrea Stricker, “The Physics Research Center and Iran’s Parallel Military Nuclear Program,” *Institute for Science and International Security*, February 23, 2012, https://isis-online.org/uploads/isis-reports/documents/PHRC_report_23February2012.pdf. See also *Iran’s Perilous Pursuit of Nuclear Weapons*.

⁷ A slide from an Iranian presentation in the archive lists subproject 3/20 (alternatively 3.20) as in charge of manufacturing UD3, where, according to the design, this type of source is to be used in the “main system,” code for a nuclear weapon. The slide summarizes in a credible manner how to make UD3, starting with uranium metal chips and deuterium gas. See: “Neutron Source: Iran’s Uranium Deuteride Neutron Initiator,” *Institute for Science and International Security*, May 13, 2019, <https://isis-online.org/isis-reports/detail/neutron-source-irans-uranium-deuteride-neutron-initiator-1/> and *Iran’s Perilous Pursuit of Nuclear Weapons*.

Location 3: Tehran Site

The IAEA reports no new effort by Iran to answer its questions about undeclared nuclear material and activities at Location 3. Its previous answers were inadequate.

Location 3 is identified in Iran’s nuclear archive as the Tehran site, a secret former pilot uranium conversion plant under the Amad Plan, Iran’s pre-2003 crash nuclear weapons program.⁸ The IAEA corroborated archive evidence that Iran may have used the site for “possible use or storage of nuclear material and/or conducting of nuclear-related activities, including research and development activities related to the nuclear fuel cycle. This location may have been used for the processing and conversion of uranium ore, including fluorination, in 2003,” the IAEA added. Iran demolished the site in 2004.

The IAEA originally asked for access to the site in January 2020, but Iran refused until August 2020. The IAEA took environmental samples, indicating the presence of undeclared man-made uranium particles.

In this report, the IAEA provides new information, including that Iran removed containers from the site in 2004 and that “there are indications, supported by the results of the environmental samples analysis, that containers moved from Location 3 were subsequently also present at Location 1.” It further reports that the results of the samples from Location 3 “would not explain all of the particles identified by the analytical results of the environmental samples taken at Location 1.” This finding is in line with Israel’s claim that Location 1 was a storage location for a wide variety of equipment related to Iran’s undeclared nuclear activities.

Location 4: Marivan Site

The IAEA reports that in addition to explaining the presence of uranium, Iran must also provide answers regarding “the source of the neutrons that the neutron detectors were to measure” at Location 4. As described earlier, Iran provided unsubstantiated information about activities at Location 4, which the IAEA dismissed.

Location 4 is the formerly secret Marivan site, near Abadeh, another Amad Plan facility identified in the Nuclear Archive.⁹ The IAEA for the first time noted in this report that Location 4 “consists of two proximate areas where the Agency found indications that Iran had, in 2003, planned to use and store nuclear material.” In one area, “where outdoor, conventional explosive testing may have taken place,” the agency found “indications relating to the testing of shielding in preparation for the use of neutron detectors in that same area.” In the second area,

⁸ David Albright, Sarah Burkhard, and Frank Pabian, “The Amad Plan Pilot Uranium Conversion Site, Which Iran Denies Ever Existed,” *Institute for Science and International Security*, November 9, 2020, <https://isis-online.org/isis-reports/detail/the-amad-plan-pilot-uranium-conversion-site/8>.

⁹ David Albright, Sarah Burkhard, and Frank Pabian, “Abadeh is Marivan: A Key, Former Secret Nuclear Weapons Development Test Site,” *Institute for Science and International Security*, November 18, 2020, <https://isis-online.org/isis-reports/detail/abadeh-is-marivan-irans-former-secret-nuclear-weapons-development-test-site>.

from July 2019 onwards, “the Agency observed via commercial satellite imagery, activities consistent with efforts to sanitize the area, including the demolition of buildings.”

Along with the Tehran site, the IAEA sought access to Marivan in January 2020, but Iran refused. Iran finally granted access in August 2020, and the IAEA took environmental samples that revealed the presence of uranium particles.

Modified Code 3.1

The IAEA reports no new progress on Iran’s pledge to work toward a solution over its unilateral decision to stop implementing Modified Code 3.1 of the subsidiary arrangements to its Comprehensive Safeguards Agreement. Iran informed the IAEA in February 2021 that it had stopped the implementation of Modified Code 3.1, which entails notifying the IAEA as soon as a decision is taken to build a new nuclear facility. The IAEA reminded Iran that modified Code 3.1 is a legal obligation that 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.” Iran informed the agency that it “does not have a plan to construct a new nuclear facility in the near future.”

IAEA Condemnation of Iran’s Lack of Cooperation

The IAEA’s latest report strikes a continued, condemnatory tone regarding Iran’s lack of cooperation. It states, “The Director General remains deeply concerned that nuclear material has been present at undeclared locations in Iran and that the current locations of this nuclear material are not known to the Agency. The Director General is increasingly concerned that even after some two years the safeguards issues...in relation to the four locations in Iran not declared to the Agency remain unresolved.”

The IAEA also acknowledges the IAEA Board of Governors’ June 2020 resolution demanding Iran’s cooperation, noting that “More than one year later, Iran has still not provided the necessary explanations for the presence of the nuclear material particles at any of the three locations (Locations 1, 3 and 4) where the Agency has conducted complementary accesses. Nor has Iran answered the Agency’s questions with regard to the other undeclared location (Location 2), or clarified the current location of natural uranium in the form of a metal disc.”

Board Must Hold Iran to Account

The Board of Governors should seek a new resolution at the upcoming September meeting to condemn Iran’s lack of cooperation with the IAEA’s investigation. At the March 2021 Board meeting, a condemnatory resolution was pulled at the last minute because Iran agreed to make progress on these safeguards issues, something that has not occurred. A resolution was not put forth at the June meeting due to Iran’s threats to stop engaging in nuclear talks to revive the 2015 Joint Comprehensive Plan of Action (JCPOA), a step it effectively took anyway due to the election of a new president.

Due to Iran's threatening nuclear advances, reduced IAEA monitoring, attempted intimidation of the agency,¹⁰ and failure to comply with the June 2020 resolution, at this Board meeting, IAEA member states should also include a provision in the resolution indicating that Iran's further non-compliance will result in a referral to the UN Security Council at the next Board meeting.

Critical to these efforts is U.S. and European backing, typically the guardians of the non-proliferation regime. The regime stands to be seriously weakened by Iran's refusal to cooperate with the IAEA's attempts to determine if Iran's declaration under the Comprehensive Safeguards Agreement is both complete and correct.

Although Iran claims the JCPOA ended the IAEA's inquiry into its past nuclear activities, the IAEA never agreed to that condition, nor could it. The IAEA stated that new information would lead to the re-opening of the investigation. According to Director General Grossi in an interview with *The Guardian*,¹¹ "We found traces of uranium that has been subject to industrial processing in different places, which had not been declared by Iran. That is a big problem. Some people banalise this and say 'this is old stuff'. We have to get to the bottom of this, not for any academic obsession of the director general but because it is non-proliferation relevant." He added, "My responsibility is the credibility and integrity of the non-proliferation regime. I could say 'don't say anything', but then five years down the line something happens, and then it is a dereliction of duty on our part." He concluded, "We know that something happened here. There is no way round it. We have found this. There was material here. When was this? What has happened with this equipment? Where is the material? They have to answer."

Unless the Board acts decisively, Iran will likely remain unresponsive to agency concerns and continue to augment its nuclear program under reduced IAEA monitoring, while failing to account for undeclared nuclear material and activities. Taken together, this stalemate could seriously undermine the integrity of the NPT and create dangerous precedents sure to be imitated by other states seeking to defy IAEA access or resist providing the IAEA with complete nuclear declarations. It would also signal to other states that after months of nuclear stonewalling, the United States and European countries will continue to offer sanctions relief and permit Iran to maintain its enrichment activities, while the international community fails to redress Tehran's safeguards breaches. The IAEA's integrity is at stake in a very real sense if the Board does not support its investigation.

Under the present circumstances, any re-establishment of the JCPOA will be under a very dark cloud, signaling that the United States and the E3 favor temporary nuclear limits on Iran's nuclear program more than preventing the erosion of IAEA inspections or insisting on Tehran providing the necessary cooperation for the IAEA to determine if Iran's safeguards declaration

¹⁰ Described in an upcoming Institute report.

¹¹ Patrick Wintour, "Iran's failure to explain uranium traces is 'big problem', says IAEA chief," *The Guardian*, May 26, 2021, <https://www.theguardian.com/world/2021/may/26/iran-failure-explain-uranium-traces-big-problem-iaea-un>.

is correct and complete. World leaders, in essence, would choose convenience rather than doing the difficult but critical work to determine if Iran's nuclear program is peaceful.