

CONCERNS ABOUT A REDUCTION OF TRANSPARENCY IN IAEA REPORTING ON IRAN'S NUCLEAR PROGRAM

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INTRODUCTION

While the U.S. administration maintains that Iran has thus far complied with the nuclear deal, the recent International Atomic Energy Agency (IAEA) report¹ indicates that for the second time, Iran has exceeded the Joint Comprehensive Plan of Action's (JCPOA) limit for its inventory of heavy water. Its heavy water inventory is now slightly greater than permitted quantities, though it does not at this stage, and in itself, materially impact on the breakout time under the agreement. Still, this is concerning due to the fact that Iran exceeded the limit intentionally.² And while Iran stated that it is planning to ship out five tons of material at a later date, it shows disrespect for the nuclear terms of the agreement.

Iranian officials have also continued to flaunt their nuclear ambitions, raising questions about whether Iran is violating the spirit of the agreement. As recently as August 2016, Mohammad-Javad Larijani, a foreign affairs adviser to Supreme Leader Ali Khamenei, called for building a "massive institute for nuclear research" and said that to deter a Western attack, Iran must convince the world that it can build a bomb within 48 hours.³

To assess statements of this nature, transparency is critical, especially as Iran seeks to persuade the world that its nuclear program is and will continue to be strictly peaceful. Part of the JCPOA's limit to ensure a one-year breakout time – time to produce enough high-enriched uranium for one nuclear weapon – was to push Iran back from crossing that nuclear threshold and build confidence through verification on the scope of the Iranian

1. International Atomic Energy Agency, "Verification and monitoring in the Islamic Republic of Iran in light of United Nations Security Council resolution 2231 (2015)," November 9, 2016. (<https://www.iaea.org/sites/default/files/16/11/gov2016-55.pdf>)

2. Mark C. Toner, "Daily Press Briefing – November 10, 2016," *U.S. Department of State*, November 10, 2016. (<http://www.state.gov/r/pa/prs/dpb/2016/11/264237.htm#WESTERNHEMISPHERE>)

3. (We must establish a new nuclear organization/The foreign minister fears filing a complaint against America/The enemy has an appetite for military attack after the JCPOA)," *Tasnim News* (Iran), August 16, 2016. (<https://www.tasnimnews.com/fa/news/1395/05/26/1159334-بایده-سازمان-جدید-هسته-ای-تاسیس-کنیم-وزارت-خارج-از-شکایت-علیه-آمریکا-هراس-دارد-دشمن-پس-از-برجام-برای-تعرض-نظامی-خوش-اشتهاتر-شده>)

nuclear program until the IAEA draws a “broader conclusion.”⁴ Since Implementation Day,⁵ however, the IAEA has reduced the level of transparency and details in its reporting. This makes serious quantitative assessments on the progress of verification activities by member states practically impossible. Clarifications are also needed on the type, level, and frequency of all aspects of monitoring and verification work that both the IAEA and the United Nations Security Council are undertaking on a sustained basis to provide a full and unbiased picture of Iran’s current nuclear activities.

1. GAPS IN IAEA REPORTING ON IRAN’S NUCLEAR PROGRAM

Several member states have continued to state at the IAEA Board of Governors meetings that they would like to see more detailed reporting on Iran’s implementation of the JCPOA than they currently receive. Detailed reporting such as quantitative data on Iran’s uranium and centrifuge stocks, information on the IAEA’s efforts to find reasons for uranium contamination found in Parchin, and questions pertaining to possible military-related activities, which Iran left unanswered in December 2015, would aid the board as it follows the IAEA’s progress toward a “broader conclusion.” These gaps should be addressed now and on a continuing basis in advance of any broader conclusion to be reached.

The following is a sample list of what the IAEA has not reported:

- Iran continues to enrich uranium at the Natanz site, but the IAEA does not provide the amount of enriched uranium produced. The monthly production rate of uranium hexafluoride (UF₆) with 5060 IR-1 centrifuges prior to the JCPOA was above 100 kilograms of UF₆.⁶ The IAEA should explain the reasons why the inventory would still be, after eight months of operation, below 300 kilograms UF₆.
- The IAEA does not provide the quantitative data it used to conclude that the low-enriched uranium inventory in Iran is within the 300 kilograms UF₆ cap stipulated in the JCPOA.
- The IAEA has not reported the amount of uranium ore concentrate (yellow cake) produced from ores mined in Gacchine and Saghand mines. This is an important parameter in confirming the absence of undeclared nuclear activities.
- The IAEA has not reported on natural uranium hexafluoride feed material stocks of Iran and verification activities, including the inspection frequencies, to monitor them. This is important because it impacts breakout times and is an important parameter in confirming the absence of undeclared enrichment activities.
- The IAEA reports state repeatedly that technical discussions between the Agency and Iran, relating to the quantity of enriched uranium in the process lines at the Enriched UO₂ Powder Plant (EUPP) at Esfahan, remain ongoing but does not provide any indication of how large the differences are. The IAEA does not provide data

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4. A broader safeguards conclusion that all nuclear material has remained in peaceful activities in a State is based on the Agency’s finding that there are no indications of diversion of declared nuclear material from peaceful nuclear activities and no indications of undeclared nuclear material or activities in the State as a whole. The Agency draws such a conclusion only where a State has both a comprehensive safeguards agreement and an additional protocol in force.

5. January 16, 2016, the date when the IAEA confirmed that Iran had completed the necessary preparatory steps to start the implementation of the Joint Comprehensive Plan of Action.

6. David Albright, Serena Kelleher-Vergantini, Andrea Stricker, and Daniel Schnur, “ISIS Analysis of IAEA Iran Safeguards Report,” *Institute for Science and International Security*, May 29, 2015. (http://isis-online.org/uploads/isis-reports/documents/ISIS_Analysis_IAEA_Report_May_29_2015_Final.pdf)

on its accounting of Iran's inventory in comparison to Iran's statement of enriched uranium. This could indicate that there might be undeclared nuclear material in Iran.

- Iran is allowed to keep its R&D program and extension of testing of more advanced IR-2, IR-4, IR-5, IR-6, IR-7, and IR-8 machines, but the IAEA reports do not provide any details on those activities. Iran insists that such information is highly confidential. Yet, Iran itself has publicly stated that it has continued R&D activities by feeding a single IR-5 centrifuge as well as 10-centrifuge cascade of IR-6s with UF₆, revealing that such R&D facts are not of a proprietary or sensitive nature.⁷ Transparency is important here because Iran's progress on R&D enrichment has to match with agreed upon stated uranium enrichment plans submitted under the JCPOA. Accelerated R&D progress will also have an impact on breakout times.
- The IAEA states that Iran has resumed the production of centrifuges. While production of centrifuge rotors is permitted by the JCPOA provided such production is in line with its enrichment and research and development commitments, the concern is that Iran may seek to build advanced centrifuge rotors beyond what is permitted under the JCPOA, which would increase its advantage in quickly building an advanced centrifuge enrichment plant if it chose to leave or disregard the JCPOA over the next few years.⁸
- The recent IAEA reports state that "evaluations regarding the absence of undeclared nuclear material and activities for Iran remained ongoing."⁹ From a technical perspective, the appropriate time for such an evaluation is when the actual investigation and verification of Iran's declaration has been completed. Does this mean that the IAEA, for example, has finished its investigations of the possible military dimensions (PMD) of Iran's nuclear program and is to a great extent satisfied with the declarations given with regard to historical production of nuclear materials by Iran? How has the IAEA satisfied itself on these issues?

IAEA reports have also omitted detailed information about the types and frequencies of inspections.

- Is the IAEA conducting short-notice inspections, which are an important part of the IAEA safeguards approach at enrichment facilities worldwide?
- If so, what is the frequency of those inspections?

Such information is essential to determine the IAEA's capability to detect at an early stage any deviation from the agreed implementation parameters of the JCPOA.

Policymakers and the public should ask why the IAEA has reduced the amount of information it has provided in its reports since Implementation Day and should quickly seek to restore full reporting. Reduced information from IAEA reports do not necessarily mean that the secretariat is hiding something, but it does mean that the lack of transparency in its reports cannot provide the kind of open confidence necessary over an extended period of time to justify a "broader conclusion" that Iran's nuclear program is exclusively for peaceful purposes. Moreover, the Iranian Parliament released a report in October on the implementation of the JCPOA nuclear deal, which referenced Iran's provision of information on the exemptions of nuclear material from its Safeguards Agreement.

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7. "Parl. JCPOA Supervising Cmte. releases report," *Mehr News Agency* (Iran), November 6, 2016. (<http://en.mehrnews.com/news/120932/Parl-JCPOA-Supervising-Cmte-releases-report>)

8. David Albright and Andrea Stricker, "Iranian Atomic Energy Organization Attempted Carbon Fiber Procurement," *Institute for Science and International Security*, July 7, 2016. (http://isis-online.org/uploads/isis-reports/documents/AEOI_Attempted_Carbon_Fiber_Procurement_7Jul2016.pdf)

9. International Atomic Energy Agency, "Verification and monitoring in the Islamic Republic of Iran in light of United Nations Security Council resolution 2231 (2015)," September 8, 2016, page 5. (<https://www.iaea.org/sites/default/files/16/09/gov2016-46.pdf>)

This is an issue which warrants further clarification. Since the AP is a binding document – even as provisionally carried out by Iran while withholding ratification – it cannot be implemented *la carte*.¹⁰

2. A WORK PLAN ON THE “BROADER CONCLUSION” OF IRAN’S NUCLEAR PROGRAM

Iran is publicly pushing for an early determination of a “broader conclusion,”¹¹ reportedly in just three to four years.¹² The “broader conclusion” would determine that Iran’s program is for peaceful purposes and would result in the lifting of many non-nuclear sanctions, such as the ban on ballistic missile testing and the conventional arms embargo, as detailed in Annex B of the UN Security Council Resolution 2231.¹³ These nuclear “sunset” provisions leave Iran as a threshold nuclear power with a potential to grow its uranium enrichment, and later plutonium programs, together with advanced ballistic missile and ICBM activities and access to advanced conventional heavy weaponry.

It has taken up to five years for the IAEA to reach a “broader conclusion” for other countries with large nuclear programs that are in good standing under the Non-Proliferation Treaty. As part of the process toward reaching a “broader conclusion,” the IAEA drafted verification plans jointly with those countries to ensure cohesive and effective work toward a conclusion. The IAEA should report on the following:

- Is the IAEA secretariat negotiating with Iran a “road map” or work plan on how to reach a “broader conclusion” about its nuclear program? Has it already concluded one?
- If a road map or a work plan has been drafted or agreed upon, what is the timeline for its execution and completion? What is the target date for assessing the “broader conclusion?”

3. IRAN’S OTHER NUCLEAR INVENTORIES

The IAEA has stated that Iran has complied with the restrictions imposed by the JCPOA for its inventories of enriched uranium, hot cells, and heavy water. The secretariat should provide clarification on how it reached those determinations.

Enriched uranium

- When the IAEA states that Iran has an inventory of 300 kilograms or less of low-enriched uranium (LEU) UF₆ or equivalent,¹⁴ does this statement include not only pure UF₆, but also nuclear material in “holdup” in process equipment, wastes including so-called “dump material” (arising from malfunctioning of the enrichment process) and sludges, retained wastes, and scrap? Excluding these other forms of LEU from an accounting of Iran’s stocks would indicate a change from the letter of the JCPOA and affect calculations of Iran’s breakout time.
- If they are not included, what is the total inventory of nuclear materials for those categories, broken down with enrichments below and above 3.67-percent Uranium-235 (U-235)?

10. “Parl. JCPOA Supervising Cmte. releases report,” *Mehr News Agency* (Iran), November 6, 2016. (<http://en.mehrnews.com/news/120932/Parl-JCPOA-Supervising-Cmte-releases-report>)

11. Vice-president of the Islamic Republic of Iran and Head of Atomic Energy Organization of Iran Ali Akbar Salehi, Statement 60th Regular Session of the IAEA General Conference, September 2016. (https://www.iaea.org/sites/default/files/16/09/iran2016_fn.pdf)

12. Deputy President of the Atomic Energy Organization of Iran Behrooz Kamalvandi, “Iranian Nuclear Program: Heavy Water & JCPOA,” *Presentation before the 60th General Conference IAEA in Vienna*, September 28, 2016.

13. United Nations Security Council, Resolution 2231, July 20, 2015, Annex B, pages 98-103. (http://www.securitycouncilreport.org/atf/cf/%7B65BFCF9B-6D27-4E9C-8CD3-CF6E4FF96FF9%7D/s_res_2231.pdf)

14. International Atomic Energy Agency, “Verification and monitoring in the Islamic Republic of Iran in light of United Nations Security Council resolution 2231 (2015),” November 9, 2016, page 3. (<https://www.iaea.org/sites/default/files/16/11/gov2016-55.pdf>)

- Has Iran been granted any exemptions under the provisions of a safeguards agreement for low-enriched uranium? If so, how big are those exemptions and what are the terms?

Hot cells

- There is concern that Iran is exploiting an exemption provided in the JCPOA that allows it to operate or build hot cells if they are used for medical or industrial isotope production. The concern is that Iran is seeking to win approval to operate *more* as well as larger hot cells than permitted under the JCPOA. This is a potentially serious exemption because plutonium-separation experiments (banned by the JCPOA for the next 15 years) could be done in such hot cells, which are not monitored by the IAEA. This raises the following questions:
- How many hot cells – shielded chambers used to handle radioactive substances – that exceed the six-cubic-meters limit specified in the JCPOA are in Iran?
- Since some of the hot cells in Iran are not covered by the safeguards associated with the Teheran Research Reactor or its MIX facility (Molybdenum, Iodine and Xenon Radioisotope Production Facility), how is the IAEA monitoring the use of those hot cells?
- If hot cells beyond six cubic meters are approved but are not subject to IAEA monitoring, who made the decision not to monitor them – the IAEA or the Joint Commission, which the JCPOA established?
- If all hot cells are not monitored, Iran could once again irradiate natural uranium to produce plutonium or use previously irradiated natural uranium stored at the Karaj nuclear waste storage. Does the IAEA monitor irradiated natural uranium at Karaj? If so, what is the frequency of inspections? What are the reasons that these activities and irradiated uranium are not included in the IAEA reports, which are essential in confirming the absence of unreported reprocessing activities?

Heavy water

- The IAEA's February 2016 report states that the IAEA verified the shipment of excess heavy water from Iran.¹⁵ To confirm the actual shipment is in accordance with its standard safeguards practices, did the IAEA verify the receipt of the shipment in Oman, and did the IAEA monitor its temporary storage there until the shipment was in the custody of the U.S., which according to the statements by Ali Akbar Salehi, head of the Atomic Energy Organization of Iran, took place much later?¹⁶
- According to the latest IAEA report of November 9, 2016, Iran is again exceeding the limit set for the heavy water stocks in Iran.¹⁷ Unless Tehran succeeds in selling heavy water to a new owner, and does not park it in nearby overseas storage as now appears to be the case,¹⁸ the heavy water technically remains in Iran's inventory in safeguards terms. If the stockpiling continues to increase, this has implications should Iran decide one day to "reclaim" its stockpile if it no longer feels bound by the JCPOA for whatever reason.

15. International Atomic Energy Agency, "Verification and Monitoring in the Islamic Republic of Iran in light of United Nations Security Council Resolution 2231 (2015)," February 26, 2016, page 5. (<https://www.iaea.org/sites/default/files/gov-2016-8-derestricted.pdf>)

16. "Nuclear Chief: Iran Starts to Supply Heavy Water to US in Coming Weeks," *Fars News Agency (Iran)*, June 5, 2016. (<http://en.farsnews.com/newstext.aspx?nn=13950316001097>)

17. International Atomic Energy Agency, "Verification and monitoring in the Islamic Republic of Iran in light of United Nations Security Council resolution 2231 (2015)," November 9, 2016, pages 2-3. (<https://www.iaea.org/sites/default/files/16/11/gov2016-55.pdf>)

18. "Heavy water surplus shipped to Oman," *Mehr News Agency (Iran)*, November 21, 2016. (<http://en.mehrnews.com/news/121470/Heavy-water-surplus-shipped-to-Oman>)

actual uranium enrichment needs that will exist when the sanctions associated with the broader conclusion are lifted. Such an agreement should also include provisions built into all nuclear contracts with Iran, whereby any separation of plutonium from spent fuel would require prior consent from uranium suppliers. This requirement should also be extended to cover any enrichment of uranium above 5-percent U-235 by Iran.

These negotiations should take place now, rather than after the “broader conclusion” is determined, which Iran is pushing to take place earlier than the JCPOA’s stipulated maximum of eight years from Adoption Day, which was October 18, 2015.