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IAEA Iran latest—A Balanced Safeguards Report

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Two items stand out in the [latest IAEA report](#) on Iran's nuclear program. The first is that in all but two areas, Iran made progress in addressing unresolved issues outlined in the so-called [Workplan](#) agreed upon in August 2007. In the IAEA's assessment, Iran has provided plausible explanations for sources of uranium contamination found on equipment at a technical university, its research into Polonium-210 and activities at the Gchine uranium mine.

“Verification” needed on procurements

Iran also insists that procurement by the Physics Research Center for items such as balancing machines, magnets, fluorine handling equipment, and mass spectrometers, which could be useful in uranium enrichment or conversion activities, **was all intended for other purposes, primarily educational**. The IAEA reports that it “took note” of the information provided by Iran substantiating its claims, concluded that it was “**not inconsistent**” with the stated use of the equipment, but acknowledged in a discussion with reporters that “**verification of completeness**” was still necessary. This is safeguards-speak for saying that while the IAEA is, for now, accepting Iran's statements, it is continuing to evaluate them against other information to determine if the Iranian information is the complete truth. Traditionally this step is the more important and far more difficult one, particularly if the country is not cooperating adequately, as is the case with Iran.

No progress on “Alleged Studies”

A bigger issue identified in the report is Iran's continued stonewalling on the information contained in the “laptop documents” and from other member states, referred to by the IAEA as the “alleged studies.”

According to the IAEA, when confronted with information contained in the documents, Iran insists that the information is either fabricated outright or relevant to conventional weapons or civilian applications.

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The IAEA makes a pointed observation in paragraph 39 in support of U.S. intelligence assessments of the documents. In describing a computer image made available to Iran showing “a schematic layout” of the inner cone of a re-entry vehicle, the report states that the **“layout has been assessed by the Agency as quite likely to be able to accommodate a nuclear device.”**

The report also provides some insight into the type of information being shared with Iran regarding the level of procurement that could relate to the “alleged studies.”

“These included training courses on neutron calculations, the effect of shock waves on metal, enrichment/isotope separation and ballistic missiles. Efforts to procure spark gaps, shock wave software, neutron sources, special steel parts and radiation measurement equipment, including borehole gamma spectrometers, were also made.” (Paragraph 40) Iran replied to the IAEA that the shock software related to studies of aircraft and automobile collisions, “airbags and the design of safety belts.”

The IAEA’s overall conclusion is that the issue of the alleged studies is a “matter of serious concern and critical to an assessment of a possible military dimension to Iran’s nuclear program.”

Underperforming P1s, but testing more advanced centrifuges

The second important finding is that Iran’s P-1 centrifuges are performing at lower than estimated levels. According to the latest report, since February 2007, Iran has introduced 1,670 kilograms of uranium hexafluoride gas into the centrifuge cascades at the Natanz Fuel Enrichment Plant, or 430 kg of UF₆ since the last report of November 2007. (The November report indicated that over the prior three month period, Iran introduced 550 kg of UF₆).

The latest report also states that only 75 kg of low-enriched uranium (“product”) has been produced by the cascades. The average enrichment of the uranium was 3.8 percent.

In a conversation with a senior IAEA official, ISIS learned more about the P1 centrifuges’ underperformance. Apparently, of the 1,670kg of uranium hexafluoride introduced into the cascade, some 400 kilograms remains in a “process buffer” between the initial feed location and the cascades, with the result that the natural uranium has not yet entered the actual cascades. **This reduces the actual feed for the purposes of estimating the amount of low enriched uranium produced over the last 12 month period to 1,270 kg.** Based on Iran’s stated values for the P-1’s performance, one would expect a product of approximately 10 percent of the UF₆ feed, or 130 kg of LEU. The 75kg LEU that Iran has produced indicates that the centrifuges continue to operate at below capacity, where partially enriched uranium is going into waste or otherwise being lost during the enrichment process, according to this official. Overall, Iran is learning the difficulties of operating centrifuges in large numbers and continues to encounter inefficiencies with the P-1 centrifuge.

Installation of next generation centrifuges, the IR-2, discussed by ISIS previously [here](#), continues at the Natanz pilot fuel enrichment plant. Only a single IR-2 has been operated with nuclear material, though this work is expected to expand gradually. Iran has also installed a ten-machine cascade of IR-2 centrifuges at the pilot plant. These developments show that Iran appears determined to advance its centrifuge program.