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IAEA Report on Iran Nuclear Weapons breakout capability achieved; Centrifuge numbers and low enriched uranium output steady; no progress on other safeguards issues

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The International Atomic Energy Agency (IAEA) released February 19, 2009 its [latest report](#) on the implementation of NPT safeguards in Iran and the status of Iran's compliance with Security Council Resolutions 1737, 1747 and 1803. The report includes three important findings. The first is that while Iran has dramatically increased its installation of centrifuges (now numbering more than 5,400) it has not increased the number of centrifuges enriching uranium, which is holding steady at just under 4,000. The second is that Iran has accumulated a total of 1,010 kg of low enriched uranium in the form of uranium hexafluoride (UF₆). The third concerns Iran's manufacture of uranium fuel rods for the Arak heavy water reactor and its continued refusal to allow IAEA inspection of the reactor under construction.

Breakout capability achieved

The report states that Iran has produced a total of some 1,010 kilograms of low enriched uranium hexafluoride as of January 31, 2009, which is sufficient for a nuclear weapons breakout capability. This total includes an additional 209 kilograms of low enriched material over what would have been expected based on the [November 2008 IAEA report](#). The increase is the result of the IAEA conducting a so-called physical inventory verification (PIV) of the actual enriched uranium stock at the Natanz enrichment plant and discovering a higher amount than expected. The LEU estimate in the previous IAEA report was based on an Iranian calculation of the LEU product, which turned out to be low by approximately 30 percent. The IAEA believes that Iran will correct this error for future calculations of LEU output and intends to work with Iran to ensure that it does so. A senior official close to the IAEA emphasized that officials do not believe that any of the LEU was at risk of diversion, noting that its containment and surveillance measures remained in place at the location of the LEU.

[Banner image credit: DigitalGlobe-ISIS]

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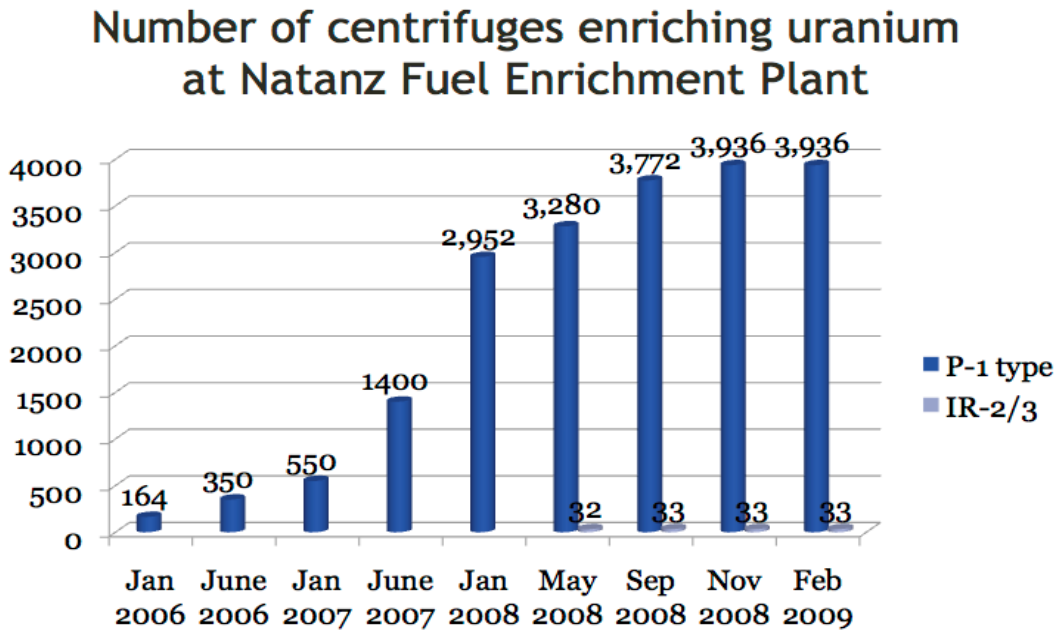
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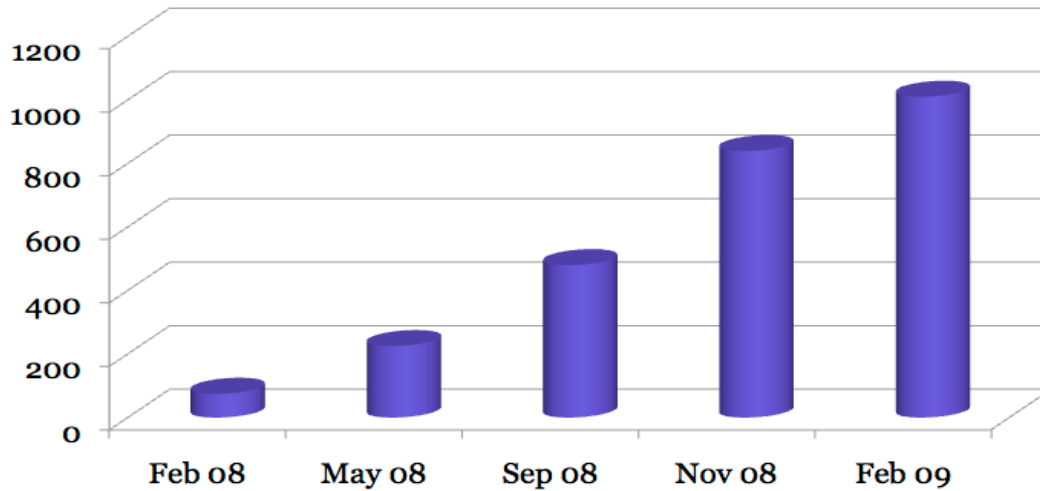
The quantity of LEU in the form of uranium hexafluoride accumulated by Iran, which equates to approximately 700 kg of low enriched uranium (where the uranium mass is given), is sufficient for the production of enough weapon-grade uranium for a single nuclear weapon, should Iran take the decision to further enrich its LEU stockpile. ISIS discusses the issue of breakout in further detail [here](#) and [here](#).

Iran continues to operate its next generation centrifuges, the IR-2 and IR-3 in research and development mode at the Natanz pilot fuel enrichment plant. Progress remains difficult to determine on the basis of the limited data available from the IAEA. At Esfahan, the conversion of uranium into uranium hexafluoride remains modest (ISIS discusses some of the reasons for this in a report [here](#)).

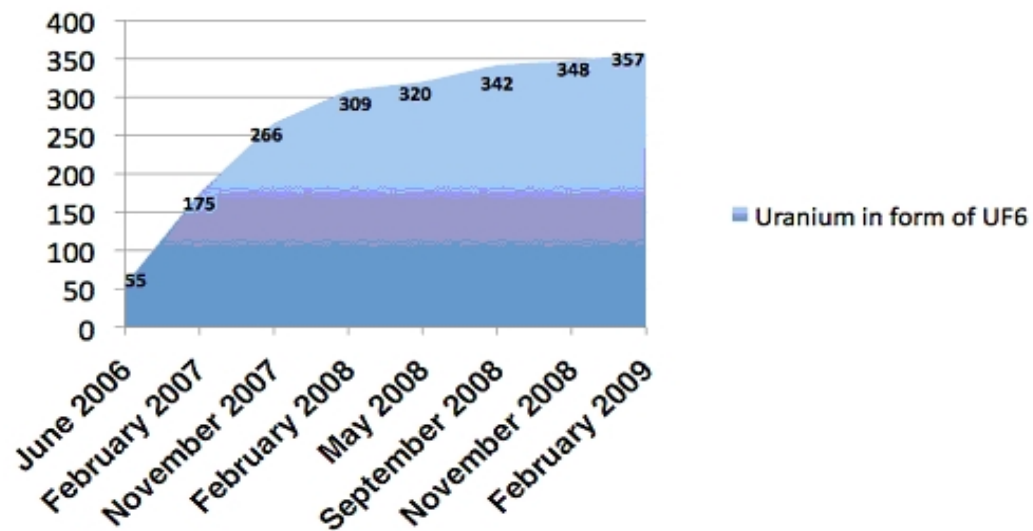
The following three charts illustrate Iran's progress in the area of enrichment areas to date:



Low enriched uranium hexafluoride product at Natanz FEP (in kg)



Cumulative UF6 production at Esfahan (in metric tonnes of uranium mass)



Fuel fabrication plant operating

Another interesting development concerns the IR-40 heavy water research reactor, which remains under construction, and a co-located fuel fabrication facility. A February 2009 inspection of the fuel manufacturing plant revealed that Iran had begun to produce fuel rods for the IR-40 reactor containing natural uranium pellets (the heavy water reactor at Arak does not require low enriched uranium fuel). In addition, the Agency sought and was denied permission by Iran to visit the reactor itself. Iran argued that as no nuclear material is present, there is no need for IAEA inspection. The IAEA noted that Iran's refusal "could adversely impact the Agency's ability to carry out effective safeguards at the facility...."

No progress on resolving alleged weaponization work

The IAEA reports no substantive progress in resolving issues about possible "military dimensions" to Iran's nuclear program, a reference to documents, or "alleged studies" indicating weaponization related research and development.