



## **Iran's NPT Violations – Numerous and Possibly On-Going?**

**By Jacqueline Shire and David Albright**

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**The Institute for Science and International Security (ISIS)**

Persuading Iran to halt or suspend temporarily its uranium enrichment activities continues to be the focus of intense diplomatic activity. Security Council members are now discussing what next steps, if any, the body will take as it seeks to give teeth to its calls on Iran to suspend enrichment and comply with both Security Council and International Atomic Energy Agency (IAEA) resolutions. It is useful in this context to understand clearly the substance of Iran's violations of the Nuclear Non-Proliferation Treaty (NPT), and to identify past violations and areas of continuing concern to the IAEA.

Despite several IAEA resolutions that found Iran in violation of the NPT and its related safeguards agreement, Iran's leadership has sought to underplay or deny outright these charges. As recently as September 21, on CNN, Iranian President Ahmadinejad denied Iran was guilty of violations of the NPT: "They have to tell us exactly what provisions of the NPT they're speaking of which they believe we have not abided by. There's no such case..."<sup>1</sup>

The history of Iran's nuclear program is a long one, dating to the 1950s, aimed at developing the full nuclear fuel cycle in Iran. Iran's main NPT and safeguards violations relate to undeclared activity dating from the mid-1980s into 2003.

In late 2002 or early 2003, under intense international pressure, Iran's leadership made the decision to issue extensive declarations to the IAEA and the public about its nuclear program. Its initial declarations to the IAEA revealed violations of its safeguards agreements and contained commitments to take corrective actions. At the same time, the Iranian Atomic Energy Organization (AEOI) tried to hide a number of past nuclear activities and sites, which the IAEA uncovered during the spring and summer of 2003. In October 2003, the Iranian leadership decided to provide a new corrected, more detailed declaration about its nuclear activities. Nonetheless, within a few months, the IAEA identified additional undeclared parts of the Iranian nuclear program and encountered problems in obtaining Iran's cooperation in resolving a number of issues. Over the following years the IAEA has continued to seek answers to these questions with mixed success, often raising new issues in the process. The purpose of this report is to explain Iran's violations of its safeguards agreement and major unresolved safeguards issues.

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<sup>1</sup> CNN, "Ahmadinejad: Why Is the U.S. So Pro-Israel?" September 21, 2006  
<http://www.cnn.com/2006/WORLD/meast/09/21/cnna.ahmedinejad/index.html>

## Specific NPT Violations

From the mid-1980s to 2003 Iran violated its safeguards agreement with the IAEA by failing to declare numerous activities required by Iran's safeguards agreement with the IAEA, **primarily involving experiments with nuclear material**. Though several IAEA reports describe these violations, the November 2004 report provides an especially detailed summary of Iran's overall nuclear program, including specific NPT violations.<sup>2</sup> According to the IAEA, Iran failed to declare the following major activities:

- **Uranium Imports:** Iran failed to report that it had purchased natural uranium (1,000 kg of UF<sub>6</sub>, 400 kg of UF<sub>4</sub>, and 400 kg of UO<sub>2</sub>) from China in 1991, and its subsequent transfer for further processing. Iran acknowledged the imports in February 2003.
- **Uranium conversion:** Iran did not inform the IAEA of its use of the imported uranium in tests of its uranium conversion processes, including "uranium dissolution, purification using pulse columns, and the production of uranium metal, and the associated production and loss of nuclear material." Iran acknowledged this failure in February 2003.
- **Uranium enrichment:** Iran failed to report that it had used 1.9 kg of the imported UF<sub>6</sub> to test P1 centrifuges at the Kalaye Electric Company centrifuge workshop in 1999 and 2002. In its October 2003 declaration to the IAEA, Iran first admitted to introducing UF<sub>6</sub> into a centrifuge in 1999, and into as many as 19 centrifuges in 2002. Iran also failed to declare the associated production of enriched and depleted uranium.
- **Hidden Sites:** Iran did not declare to the IAEA the existence of a pilot enrichment facility at the Kalaye Electric Company Workshop, and laser enrichment plants at the Tehran Nuclear Research center and at Lashkar Ab'ad. Because experiments at these sites involved the use of nuclear material in equipment, Iran was obligated to report them to the IAEA.
- **Laser Isotope Enrichment Experiments:** Iran failed to report that in 1993 it imported 50 kg of natural uranium metal, and that it used 8 kg of this for atomic vapor laser isotope separation (AVLIS) experiments at Tehran Nuclear Research Center between 1999 to 2000, and 22 kg of the metal for AVLIS experiments at Lashkar Ab'ad between 2002 to 2003.<sup>3</sup> These activities were ultimately acknowledged in an October 2003 declaration.
- **Plutonium Experiments:** Iran did not report to the IAEA that it had produced uranium dioxide (UO<sub>2</sub>) targets, irradiated them in the Tehran Research Reactor, and then separated the plutonium from the irradiated targets. Iran also failed to report the production and transfer of waste associated with these activities and that it had stored unprocessed irradiated targets at the Tehran Nuclear Research Center. In later meetings with the IAEA, Iran said that it conducted the plutonium separation experiments between 1988 and 1993 using shielded glove boxes at the Tehran Nuclear Research Center.

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<sup>2</sup> <http://www.iaea.org/Publications/Documents/Board/2004/gov2004-83.pdf>

<sup>3</sup> International Atomic Energy Agency, "Implementation of the NPT Safeguards Agreement in the Islamic Republic of Iran," GOV/2003/75, 10 November 2003, Annex 1, p. 2.

## Unresolved Issues

Although Iran has been candid about much of its work since 2003, there continue to be areas in which the IAEA has not received the cooperation it requires to understand fully Iran's nuclear program and thereby determine the extent of Iran's compliance or lack thereof with the NPT.

**Access to People and Places:** Iran continues to deny the IAEA access to equipment and areas of the Physics Research Center at Lavisan-Shian and elsewhere for environmental sampling, and despite repeated requests, has not made available for interview one of the center's former directors. IAEA entry to another site, Parchin, was granted only after repeated requests and under circumscribed conditions. Iran recently balked at a request by the IAEA to visit the underground halls at Natanz on grounds that the number of recent inspections was "excessive." As noted below, Iran has refused outright to discuss sensitive issues related to alleged high explosives testing, the design of a missile re-entry vehicle and apparent linkages between its nuclear program and Iran's military.

**P-1 Centrifuges and the Khan Network:** Iran showed the IAEA a copy of a hand-written one-page document dating from contacts with the Khan network in 1987, discussing the supply of 2000 centrifuges, drawings and specifications for a "complete plant" including a workshop for the manufacture of supporting equipment. Iran claims that it had no contact with the Khan network again until 1993 and that this single document is all that remains of the 1987 offer. Iran has refused to provide the IAEA with a copy of the document and insists that no additional documentation exists regarding those earlier exchanges. IAEA officials have interviewed members of the Khan network and reported that "statements made by Iran and key members of the network... are still at variance with one another."<sup>4</sup>

**P-2 Centrifuges:** Iran told the IAEA that it received drawings for P-2 components via the Khan network in 1995 but claims that it conducted no work on the machines until 2002, when it contracted for the local manufacture of at least seven P-2 rotors. In a discussion with IAEA inspectors, the Iranian engineer responsible for the rotors said that because the P-2 design required maraging steel cylinders with bellows, which Iran could not manufacture indigenously, he modified the design for carbon composite rotors. Other officials explain the seven year gap in conducting R&D by pointing to staffing shortages and a decision to pursue the P-1 program. The IAEA is struck, however, by the short time it took for engineers to make design modifications to the P-2 rotors after reportedly seeing the drawings for the first time, stating that Iran's reasons for the delay "do not give sufficient assurance that there were no related activities carried out during that period..."<sup>5</sup>

Iran has informed the IAEA that work on P-2 centrifuges amounts to "an ongoing and progressing R&D activity without using nuclear materials."

**Documents about Work with Uranium Metal:** The IAEA first reported the existence of this document in November 2005, describing it as containing "procedural requirements for the reduction of UF<sub>6</sub> to metal in small quantities, and on the casting and machining of enriched,

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<sup>4</sup> IAEA Report, GOV/2006/15, February 27, 2006, para 15.

<sup>5</sup> IAEA Report, GOV/2004/83, November 15, 2004, para 48.

natural and depleted uranium metal into hemispherical forms....”<sup>6</sup> Iran claims that it received this document, which concerns the process necessary to machine uranium metal into a form suitable for use in a nuclear weapon, unsolicited from the Khan network, and that it has not performed any such research. Though the document has been placed under IAEA seal, Iran has denied IAEA requests for a copy. Most recently IAEA inspectors were told they could not take notes from the document, and that some notes already taken must be destroyed.<sup>7</sup>

**HEU and LEU Contamination:** IAEA sampling has turned up evidence of LEU and HEU particles at several nuclear facilities, in particular the Kalaye Electric Company. The IAEA calls this a “long outstanding issue” and notes that Iran’s decision to stop adhering to the Additional Protocol (which allows IAEA inspectors access to Iran’s centrifuge manufacturing and storage facilities) makes it impossible to rule out Iran as the source for some of the particles found. Iran maintains that any HEU particles found are the result of cross contamination from its suppliers. Sample analysis by the IAEA “tends, on balance, to support Iran’s statement about the foreign origin of most of the HEU contamination....”<sup>8</sup>

- **Lavisan-Shian:** One outstanding issue of contamination involves the Physics Research Center at Lavisan-Shian. Environmental samples taken in January 2006 revealed a “small number of particles of natural and high enriched uranium.”<sup>9</sup> Iran has “not yet responded” to IAEA requests for further sampling or for an interview with one of the former directors of the center. Also in January, Iran was asked to explain documentation it provided the IAEA regarding procurement of specialized equipment related to uranium enrichment, including “balancing machines, mass spectrometers, magnets and fluorine handling equipment.”<sup>10</sup> The IAEA continues to await further information about this and related procurement.

**Experiments with Plutonium:** Like the matter of HEU and LEU contamination, this is a long outstanding issue with the IAEA, involving multiple iterations of IAEA requests for information, Iranian explanations and subsequent IAEA requests for clarification. The IAEA’s conclusion, expressed in its report of April 28, 2006, is that “the Agency cannot exclude the possibility— notwithstanding the explanations provided by Iran—that plutonium analysed by the Agency was derived from source(s) other than the ones declared by Iran.”<sup>11</sup> Simply stated, this could mean that Iran either acquired undeclared plutonium from foreign sources, or separated indigenously more than it has declared to the IAEA.

**Laptop Documents:** The existence of a laptop computer, reportedly containing extensive documentary evidence indicating Iranian work on a re-entry vehicle with a “black box” consistent with many of the technical parameters for a nuclear warhead, was first disclosed by the *Washington Post* and *Wall Street Journal*.<sup>12</sup> Also found on the computer were drawings for a

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<sup>6</sup> IAEA Report, GOV/2005/87, November 18, 2005, para 6.

<sup>7</sup> IAEA Report, GOV/2006/53, August 31, 2006, para 14.

<sup>8</sup> IAEA Report, GOV/2006/15, February 27, 2006, para 9.

<sup>9</sup> IAEA Report, GOV/2006/53, August 31, 2006, para 24.

<sup>10</sup> IAEA Report, GOV/2006/15, February 27, 2006, para 34.

<sup>11</sup> IAEA Report, GOV/2006/27, April 28, 2006, para 17.

<sup>12</sup> Carla Anne Robbins, “Atomic Test: As Evidence Grows Of Iran's Program, U.S. Hits Quandary,” *Wall Street Journal*, March 18, 2005, A1

Dafna Linzer, “Nuclear Disclosures on Iran Unverified,” *Washington Post*, November 19, 2004, A1.

part of a uranium conversion facility involved in producing uranium tetrafluoride, or “green salt,” documents about high explosive work, and what appears to be a test shaft, possibly for a nuclear device. According to media reports, the laptop was acquired through an intelligence operation and its contents forensically analyzed by experts at the U.S. Department of Energy, who have deemed them credible. The IAEA has sought to question Iranian officials about the programs, entities and individuals mentioned in the documents. Iran denies outright the existence of any such programs, claims the documents are forgeries, and refuses to discuss the matter further with IAEA inspectors.

## **6 Months Notice? Clarifying Iran’s Obligations to Report to the IAEA**

Iranian officials and experts have often claimed that under Iran’s safeguards agreement with the IAEA, it is only obligated to disclose nuclear activities six months prior to the introduction of nuclear material into a facility. This is a reference to Article 42 of Iran’s safeguards agreement and a secondary document known as a “subsidiary arrangement.” Language in the Subsidiary Arrangement required notice to the IAEA of new facilities “no later than 180 days before the introduction of nuclear material into the facility, and the provision of information on a new LOF (Location Outside of Facilities where nuclear material is used)....”<sup>13</sup> Iran is correct therefore, in arguing that at the time, it was not obligated to notify the IAEA of its construction of the Natanz facilities for uranium enrichment.

In 1992, however, the IAEA Board called on member states to accept the updated Subsidiary Arrangement which would require such notice as soon as the decision to construct or modify nuclear facilities was made. Iran was the last NPT member to agree to the revised Subsidiary Arrangement on February 26, 2003, thereby closing a potential loophole for the construction of fuel cycle-related facilities outside of IAEA safeguards.

It is important to note that the Subsidiary Arrangement in effect at the time has no bearing on Iran’s longstanding obligation to report to the IAEA its acquisition and use of nuclear material, which constitute the bulk of Iran’s safeguards violations. So while Iran was not obligated to report Natanz (it would be today), it was certainly obligated to report its activities at Kalaye Electric and other sites.

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<sup>13</sup> IAEA Report, GOV/2003/40, June 6, 2004, para 15.