

Strong Leads and Dead Ends in Nuclear Case Against Iran

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Iranian engineers have completed sophisticated drawings of a deep subterranean shaft, according to officials who have examined classified documents in the hands of U.S. intelligence for more than 20 months.

Complete with remote-controlled sensors to measure pressure and heat, the plans for the 400-meter tunnel appear designed for an underground atomic test that might one day announce Tehran's arrival as a nuclear power, the officials said.

By the estimates of U.S. and allied intelligence analysts, that day remains as much as a decade away -- assuming that Iran applies the full measure of its scientific and industrial resources to the project and encounters no major technical hurdles. But whether Iran's leaders have reached that decision and what concrete progress the effort has made remain divisive questions among government analysts and U.N. inspectors.

In the three years since Iran was forced to acknowledge having a secret uranium-enrichment program, Western governments and the United Nations' nuclear watchdog, the International Atomic Energy Agency, have amassed substantial evidence to test the Tehran government's assertion that it plans to build nothing more than peaceful nuclear power plants. Often circumstantial, usually ambiguous and always incomplete, the evidence has confounded efforts by policymakers, intelligence officials and U.S. allies to reach a confident judgment about Iran's intentions and a diplomatic solution to the crisis.

Drawings of the unbuilt test site, not disclosed publicly before, appear to U.S. officials to signal at least the ambition to test a nuclear explosive. But U.S. and U.N. experts who have studied them said the undated drawings do not clearly fit into a larger picture. Nowhere, for example, does the word "nuclear" appear on them. The authorship is unknown, and there is no evidence of an associated program to acquire, assemble and construct the components of such a site.

"The diagram is consistent with a nuclear test-site schematic," one senior U.S. source said, noting that the drawings envision a test control team parked a safe 10 kilometers -- more than six miles -- from the shaft. As far as U.S. intelligence knows, the idea has not left the drawing board.

Other suggestive evidence is cloaked in similar uncertainty. Contained in a laptop computer stolen by an Iranian citizen in 2004 are designs by a firm called Kimeya Madon for a small-scale facility to produce uranium gas, the construction of which would give Iran a secret stock that could be enriched for fuel or for bombs. Also on the laptop -- obtained by U.S. intelligence -- were drawings on modifying Iran's ballistic missiles in ways that might accommodate a nuclear warhead. Beyond the computer files, an

imprisoned Pakistani arms dealer recently offered uncorroborated statements that Iran received several advanced centrifuges, equipment that would vastly improve its nuclear knowledge.

U.S. intelligence considers the laptop documents authentic but cannot prove it. Analysts cannot completely rule out the possibility that internal opponents of the Iranian leadership could have forged them to implicate the government, or that the documents were planted by Tehran itself to convince the West that its program remains at an immature stage.

CIA analysts, some of whom had been involved only a year earlier on the flawed assessments of Iraq's weapons programs, initially speculated that a third country, such as Israel, may have fabricated the evidence. But they eventually discounted that theory.

British intelligence, asked for a second opinion, concurred last year that the documents appear authentic. German and French officials consider the information troubling, sources said, but Russian experts have dismissed it as inconclusive. IAEA inspectors, who were highly skeptical of U.S. intelligence on Iraq, have begun to pursue aspects of the laptop information that appear to bolster previous leads.

"There is always a chance this could be the biggest scam perpetrated on U.S. intelligence," one U.S. source acknowledged. "But it's such a large body of documents and such strong indications of nuclear weapons intent, and nothing seems so inconsistent."

Bush administration officials, convinced that Iran has a weapons program, believe that the body of documentation is the nearest anyone can expect to "smoking gun" evidence. But even in the U.S. government, the predominant interpretation is more complex. And any step toward uranium enrichment, experts said, is consistent with three competing explanations -- that Iran's program is peaceful, that it aims for a weapon, or that the Tehran government is still keeping its options open.

A presidential commission found in 2004 that U.S. intelligence knows "disturbingly little" about Tehran's capabilities. And at a congressional hearing last Thursday, Director of National Intelligence John D. Negroponte described Iran as a "hard target" to penetrate.

While it is unknown whether Iran would ultimately decide to build a nuclear bomb, it is clear from evidence gathered by U.S. and foreign intelligence and through U.N. inspections that Iran, mostly through its energy program, is acquiring and mastering technologies that could be diverted to bombmaking.

Mohamed ElBaradei, the director general of the IAEA, said that after three years of investigation, he still cannot judge Iran's program "exclusively peaceful." At the same time, Iran is "not an imminent threat," he said in a recent interview. "To develop a nuclear weapon, you need a significant quantity of highly enriched uranium or plutonium, and no one has seen that in Iran."

U.S. intelligence experts who helped craft an assessment of Iran's program last year have based their judgments on just that. Until Iran is able to operate an industrial-scale centrifuge cascade for the production of bomb-grade uranium, the country will remain as much as 10 years away from a weapon.

Those experts have said that none of the drawings -- for the test shaft, the conversion facility or Iran's missile program -- alters those projections. Negroponte made that carefully hedged assessment public last Thursday when he said: "Iran, if it continues on its current path . . . will likely have the capability to produce a nuclear weapon within the next decade."

That assessment, by an intelligence community determined not to repeat the embarrassments of Iraq, is more conservative than views expressed by some policymakers. Some in the Bush administration have begun pushing back, suggesting that the CIA is demanding an unrealistically high standard of evidence before reaching conclusions that the White House believes are obvious.

"Taking into account the assessments made by the intelligence community, and others, I just don't have a lot of confidence in the assessments," said a senior administration official who was heavily involved in guiding the White House's use of intelligence on Iraq's weapons programs.

This examination explores the intelligence and evidence that helped form such judgments, and the gaps in understanding that obscure a full portrait of the program. It draws on interviews with senior Bush administration officials, as well as with government and intelligence sources grappling with the accumulating data and their counterparts from U.N. agencies and governments in Europe and the Middle East. Most of those interviewed would discuss the confidential information on Iran's program only on the condition of anonymity.

Green Salt

In the spring of 2001, a small design firm opened shop on the outskirts of Tehran to begin work for what appears to have been its only client -- the Iranian Republican Guard. Over the next two years, the staff at Kimeya Madon completed a set of technical drawings for a small uranium-conversion facility, according to four officials who reviewed the documents.

Iran has one such conversion plant and opened it to IAEA inspectors, but Tehran has not disclosed or produced the blueprints of a second one.

Over coffee in December in ElBaradei's Vienna office, Iran's chief nuclear negotiator was asked about the drawings, sources said. Ali Larijani called them "baseless allegations."

When IAEA inspectors went to Iraq last month, the CIA agreed to let them confront Iran with some of the evidence. Iranian officials dismissed the material but said they would follow up with clarifications at a later date, according to an IAEA report issued yesterday.

Several sources with firsthand knowledge of the original documents said the facility, if constructed, would give Iran additional capabilities to produce a substance known as UF₄, or "green salt," an intermediate product in the conversion of uranium to a gas. Further refined in a large-scale enrichment plant, such as the one Iran says it intends to build for its energy program, the material could become usable for the core of a bomb.

Some of those who described the documents said senior Bush administration officials believe that they offer proof of a covert Iranian effort, under the direction of the military, to acquire nuclear weapons. The documents were found with design modifications for Iran's ballistic missile program, suggesting a link between potential weapons material and delivery systems. "We see this as pretty compelling evidence that they were trying to get a clandestine uranium-conversion facility," said one U.S. official. "At the very least, the Iranians should have reported the work" to IAEA inspectors, the official said.

Other sources with equal access to the same information, which went through nearly a year of forensic analysis by the CIA, were more cautious.

A second facility for uranium gas could have been envisioned as a replacement in the event the United States or Israel bombed the existing one in the city of Isfahan. "It was either their fallback in case we take out Isfahan," one U.S. analyst said. "Or maybe they considered an alternative indigenous plan but they realized it wasn't as good as what they already have, and so they shelved it."

As with the test-shaft drawings, those for the conversion facility were on the laptop allegedly stolen from an Iranian whom German intelligence tried, unsuccessfully, to recruit as an informant. It was whisked out of the country by another Iranian who offered it up to foreign intelligence officials in Turkey as evidence of a nuclear weapons program. Nowhere on any of the laptop documents, however, does the word "nuclear" appear.

"It's a complex-looking thing. You see the drawings but nothing beyond them, and you wonder, 'Can we be sure?'" a foreign official said.

Nowhere are there construction orders, payment invoices, or more than a handful of names and locations possibly connected to the projects. It remains unclear on whose authority the conversion work was done. Fueling suspicion, however, is the fact that the offices mentioned on the laptop documents are connected to an Iranian military officer, Mohsen Fakrizadeh.

Fakrizadeh is believed by U.S. intelligence to be the director of Project 111, a nuclear research effort that includes work on missile development. For years, U.S. intelligence knew of an Iranian endeavor that the Iranians code-named Project 110, believed to be the

military arm of the country's nuclear program. U.S. officials believe its sequential successor may be the link between the country's nuclear energy program and its military, but they cannot be certain without more information from Fakrizadeh. "We want him produced for U.N. inspectors," said one U.S. source.

According to information on the laptop, Kimeya Madon appears to have ceased operation in the early spring of 2003, leading U.S. and allied intelligence services to suspect that it was a front company for the Iranian military. The last set of known drawings for the conversion facility are dated February 2003, as U.N. inspectors were making their first trip to Iran and U.S. troops were poised to invade neighboring Iraq.

Shooting Star

When the CIA began poring over thousands of pages of drawings contained in the laptop, the ones that garnered immediate attention were the schematics for Iran's most famous missile, the Shahab -- Persian for "shooting star."

Experts at Sandia National Laboratories in New Mexico ran the schematics through computer simulations. They determined two things: The drawings were an effort to expand the nose cone of the Shahab-3 to carry a nuclear warhead, and the modification plans, if executed, would not work.

Negroponte appeared to hint as much in his public briefing when he said Iran had not yet acquired the ability to integrate a nuclear weapon into its ballistic missiles.

The missile modifications, at first thought to have been based on a North Korean design, are now believed to be the handiwork of Iranian engineers. "This clearly wasn't done by the A-team of Iran's program," said one nuclear expert who has analyzed the documents. "It might have been given to an outside team or subcontracted out as an assignment or project for the military, though."

The laptop also includes 18 different attempts to perfect the size, weight and diameter of the nose cone in ways that could accommodate an implosion device. There are accompanying scientific notes describing experiments in the detonation of conventional explosives, suggesting to Western analysts that the author was working through the steps required to compress uranium into a critical mass for an atomic explosion.

"It's not hard evidence, but if you want to bring a building down, you don't need this kind of detonation," said one investigator. "So it's either for missiles or for a nuclear detonation."

In a recent meeting with IAEA inspectors, Iranian officials -- who learned 14 months ago that the United States had the documents on the laptop -- dismissed accusations that they reflect planning for a weapons program.

The Khan Network

In a brightly lighted office at police headquarters in the Malaysian capital, Bukhary Syed Tahir sat down recently for his second round of talks with CIA officers since his arrest 20 months ago on the streets of Kuala Lumpur.

Tahir is held in a high-security prison, without charges, for his alleged role as a manufacturer, salesman and partner in Pakistani scientist Abdul Qadeer Khan's nuclear network, which supplied materials to Libya, Iran and North Korea. After more than a year of denials about shipments to Iran in the 1990s, Tahir has changed his story and now claims to have recalled a previously forgotten sale, according to U.S. sources.

In addition to supplies Iran purchased from the network in the late 1980s to begin its nuclear program, Tahir said, Iran was sent in the mid-1990s three advanced, Pakistani-made centrifuges that could be used as models for manufacturing more. Thousands of properly constructed and assembled P-2 generation centrifuges could improve Iran's ability to make bomb-grade uranium. If the P-2s exist in Iran, as Tahir asserted, intelligence officials said the centrifuges could shorten the time needed for Iran to build a weapon.

Iran has told inspectors that it received only drawings of the P-2s, not the centrifuges themselves, and that it did not build any. A recent IAEA report determined that Iran has not been forthcoming on the P-2s or its dealings with Tahir and Khan, who led Pakistan to nuclear success.

Two sources with direct knowledge of Tahir's recent claims said they did not know what led him to offer a new account. They had no information on whether his new claims were made under duress or came after promises of release.

"Some of the individuals involved" in supplying Iran's program, "like Tahir, provide different accounts at different times, which only adds to the confusion," said a Bush administration official.

A 1987 meeting in a dusty Dubai office kick-started Tehran's nuclear efforts and a side business for Khan that made him rich and ultimately infamous. Iran, at war with Iraq then, bought from Khan centrifuge designs and a starter kit for uranium enrichment. The package included instructions for shaping uranium metal into "hemispherical forms," a process that has no other known use except to shield the core of a nuclear bomb.

"I haven't heard -- even from defenders of Iran -- an explanation for a peaceful purpose, that's not a weapons-related purpose," for the uranium metal, a U.S. official said. Iran contends that the uranium metal instructions were thrown in as a freebie and never used.

Khan, who is under house arrest in Islamabad, Pakistan, has provided few details to U.S. intelligence through his Pakistani handlers.

With Khan's help, Iran spent much of the 1990s secretly constructing a facility, partially underground, to house 50,000 centrifuges that it planned to build. That facility in Natanz is the only such known plant, and U.S. intelligence considers it unlikely that Iran has a hidden duplicate. Natanz was exposed in August 2002, at a time when the Bush administration was building support for war with Iraq. The revelations launched an investigation that took IAEA inspectors through Natanz for the first time three years ago this month.

Since then, they have uncovered matters of concern large and small. Some, such as traces of highly enriched uranium once feared to have been produced by Iran, are now known to have come from Pakistani equipment. Other areas of interest include suspicions of military involvement in uranium mining and plutonium tests.

But the history of Iran's P-2s, the laptop documents and the metal casting stand out as the most troubling for IAEA inspectors, the U.S. government and its allies.

For two years, the White House has sought to convince allies of Iran's guilt. "They say, 'Yes, we agree Iran's activities violate treaties, and, yes, it does seem like they are interested in nuclear weapons,' " a senior administration official said. The differences still to be worked out, between Washington and the world, are over "the proper course of action," the official said.

Researcher Julie Tate contributed to this report.

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