



The Tinner Case: Time for a Frank, Open Evaluation

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Summary and Findings

The busting of the A.Q. Khan network in 2003 and 2004 was a major accomplishment for the Bush administration. But this success story, much of which remains clouded in secrecy, also contains serious after-effects for which greater independent scrutiny is long overdue. One now visible deleterious effect is the complicated drama that has played out in Switzerland. It is centered on the Tinnings, a Swiss family with deep roots in the business of illicit nuclear trade that turned on the Khan network and became Central Intelligence Agency (CIA) informants.

That meritorious work for the CIA should not overshadow, or invalidate, the need for the Swiss judicial system to hold accountable the father Friedrich Tinner and his two sons Urs and Marco. Swiss federal prosecutors believe that the Tinnings should be brought to justice for illegally supporting Libya's nuclear weapons program, regardless of their assistance to the CIA. They believe that this assistance was probably forced, and Swiss courts are the rightful place to determine their guilt or innocence and decide on any extenuating circumstances.

The Conflict

The CIA, backed by the Bush administration, did not want the Swiss prosecutors to succeed. In particular, the CIA wanted to avoid a trial where the Tinnings' lawyers would defend their clients by revealing details about the CIA's involvement and illegal activities on Swiss soil. To the CIA, the Tinnings provided a valuable service and deserved special consideration in any prosecution. The CIA also wanted to stem disclosures exposing past and possibly on-going activities, preventing a further "tuning of the horn," according to one senior CIA official. Revelations could raise questions about its dealings with nuclear smugglers and negatively impact the recruitment of future agents.

The Swiss federal prosecutors, who gathered evidence and interviewed the Tinner family, concluded that the Tinnings' actions for the CIA did not put them above Swiss laws—particularly anti-proliferation and money laundering laws—any more than mafia informants are exempt from punishment for the laws they break. In addition, the situation was not akin to the CIA being like U.S. federal prosecutors involved with mafia informants. CIA operatives could apply only limited leverage to ensure they received a complete confession of the Tinnings' past crimes, as prosecutors would have done. They also could not enforce a commitment by the Tinnings not to break any Swiss laws in the future, except under the supervision of the CIA. To the CIA's regret, it was also unable to ensure that the Tinnings maintained their commitment to remain silent. Since their arrest over five years ago, the United States has refused Swiss requests for legal assistance in obtaining evidence key to their investigation into the Tinnings' suspected violations of Swiss anti-proliferation laws. The United States' refusal to provide any assistance to Swiss prosecutors in investigating anti-proliferation law violations put it in the awkward position of favoring state secrets over these laws, a position it has accused many other foreign governments of occupying.

Beyond not cooperating with the prosecutors, the United States exerted pressure on the Swiss government, in essence interfering in the Swiss judicial system. With U.S. support, the Federal Council, Switzerland's highest executive body, secretly ordered in November 2007 the destruction of key evidence in the Tinner case, an act intended to make trying the Tinnings all but impossible. This evidence included documentation on the Tinnings' nuclear proliferation activities, sensitive gas centrifuge and nuclear weapons designs, and documents showing the Tinnings worked for the CIA. To justify the broad and secret destruction order, the Federal Council invoked emergency powers in the Swiss constitution. By doing so, it provoked a confrontation with the Swiss Parliament's powerful national security and intelligence oversight committee. After a thorough review, the committee concluded that the Federal Council overstepped its constitutional authorities and should not have destroyed the documents until at least the end of the judicial process.

As a central defense against the accusations, the Tinnings played up their work for the CIA. In the process, they revealed sensitive information about clandestine U.S. intelligence operations. Understanding their work for the CIA remains difficult. One storyline that now appears to be true is that the three Tinnings began contributing importantly to the effort to bust the Khan network when they signed a contract with the CIA in June 2003 (see for more information a companion ISIS report, [CIA Recruitment of the Three Tinnings: A Preliminary Assessment](#)). Whether Urs was a CIA contractor earlier than 2003 is in dispute.

The long conflict between the U.S. government and the Swiss judicial system led to further disclosures of the CIA's activities, several of which are detailed in documents seized from the Tinnings or contained in statements made by the Tinnings to prosecutors. These disclosures exposed significant CIA operations in Switzerland and elsewhere, including the revelation that certain CIA actions within Switzerland violated anti-espionage laws. Because Switzerland is a neutral state, its laws expressly ban Swiss citizens from cooperating with foreign intelligence services and forbid foreign intelligence services from working against another country in Switzerland.

The Tinnings' revelations and U.S. unwillingness to provide legal assistance to the Swiss prosecutors increased the chance of anti-espionage prosecutions of U.S. intelligence agents and the Tinnings. Only an extraordinary U.S. diplomatic initiative involving many top Bush administration officials prevented the prosecutors from pursuing these anti-espionage charges. In 2007, the Federal Council ruled that the prosecutors could not pursue such agents.

Despite all the obstacles created by the Federal Council and the United States, the Swiss judicial system is still weighing whether or not to charge the Tinnings with violations of anti-proliferation and money laundering laws. Furthermore, the Federal Council's destruction order did not eliminate all evidence as hoped. With the likelihood growing that the Tinnings will face charges for violating Swiss anti-proliferation laws, the United States is long overdue for reassessing its policy on the Tinner case.

Findings

An overarching finding of this report is that after 2003, U.S. actions and policies with regard to the Tinner case were often counterproductive. U.S. actions were poorly executed and created a negative precedent for stopping nuclear proliferation. The U.S. government unwisely interfered in the Swiss legal proceedings against the Tinnings. It inadvertently contributed to the release of more revelations about CIA operations and, as a result, Urs and Marco spent about as much time in jail awaiting trial as they would have spent if convicted of violating anti-proliferation and money laundering laws. To set a positive example, the United States should have cooperated with the Swiss government in the same manner that the United States expects cooperation from other governments.

The role of the CIA and the U.S. government in the Tinner case requires greater public and congressional scrutiny. Some of this scrutiny would necessarily be classified, but a public accounting is long overdue.

There is no doubt that the CIA accomplished an important success in recruiting the Tinnings, despite violating Swiss laws. The Tinnings performed an important service to the United States and the international community. In return, they were well compensated and perhaps overcompensated.

The Tinnings had little choice but to cooperate with the CIA in busting the Khan network. In 2004, however, they would have been better advised to cooperate with the Swiss authorities rather than try to use their work for the CIA as an excuse to ward off a prosecution. In effect, the Tinnings' actions forced the United States to seek their freedom, feeding on the desire of the CIA to keep its operations in Switzerland secret and protect its agents against exposure and prosecution. But it remains unknown why the Bush administration decided to weigh in so heavily in favor of the Tinnings, given the risks.

An unanswered question is why the CIA left the Tinnings in possession of so much sensitive gas centrifuge and nuclear weapons documentation, much of which was digitized and easy to disseminate? The Tinnings were contractors of the CIA; they should have given the CIA all their printed and digital copies. That they continued to possess them and may have hidden copies either in Switzerland or overseas contributes to the belief that detailed nuclear weapon designs are on the black market and available for purchase. As a result, the CIA will need to monitor the Tinnings for years.

Despite all the actions of the CIA, the three Tinnings may still go to trial. A drawn-out trial would likely lead to the release of even more information about the CIA. A better way to avoid a lengthy trial is for the US government to encourage the Tinnings to settle with the Swiss prosecutors and the court. The U.S. government should recommend that the Tinnings seek a settlement whereby they would serve no additional jail time and receive reduced fines. Given the complexity of this case, Swiss prosecutors and the court would likely be interested in such an arrangement.

On the Swiss side, there were many failures and a few successes in the Tinning case. The first failure is that the Swiss government failed to prevent the Tinnings and other Khan network members from operating for years relatively freely in Switzerland to outfit clandestine nuclear weapons programs.

After the Khan network was shut down and revelations were made about the Tinnings' activities, the Swiss government was justified in launching a government wide investigation of the activities of the Khan network in Switzerland. The resulting criminal investigation of the Tinnings was fully warranted and was a welcome sign that the Swiss government was taking its non-proliferation responsibilities seriously.

For its part, the Swiss Federal Council overreacted to the sensitivity of the nuclear related documents seized from the Tinnings. Moreover, many of these documents were potentially invaluable to other states and the International Atomic Energy Agency (IAEA) in their investigations of the Khan network and to current and future assessments of proliferation threats.

The Federal Council erred in claiming that the Swiss government could not possess these documents as a signatory to the Nuclear Non-Proliferation Treaty (NPT). The Federal Council's non-proliferation and anti-terrorism rationales for destroying the documents lacked credibility. The possession of centrifuge documents is well within a non-nuclear weapons state's rights under the NPT. Even the possession of nuclear weapon designs is not a violation under the conditions faced by Swiss prosecutors. In criminal cases where nuclear weapons documents are seized from individuals, a non-nuclear weapon state can retain such documents until it has finished a criminal investigation and prosecution. After the judicial process is over, the Federal Council could destroy the nuclear weapons documents or turn them over to a nuclear weapon state for safekeeping.

One of the Federal Council's unstated rationales for destroying so many documents appears to be assuaging CIA concerns while preserving Swiss national sovereignty and its perceived sense of its neutrality. This reasoning ended up injuring both Swiss and U.S. interests.

Despite the destruction order, the Swiss government and the court system retained copies of many of these documents. The Federal Council should refrain from destroying any more documents related to the case, pending a final resolution of the legal issues. Following resolution, the government would be better advised to consult with other nations and the IAEA about the value of turning the documents over to a nuclear weapon state for safekeeping and further analysis.

Within Switzerland, the focus on the constitutional aspects of the Tinner case has also served to deflect attention from Switzerland's need to improve its trade and anti-proliferation controls. The Khan network used Switzerland effectively for over two decades with little fear of being stopped by Swiss authorities. The Swiss government must better analyze its woeful lack of export controls during that period and concentrate on ensuring that such lapses do not happen again.

The Tinner case highlights the need for universal rules and guidelines on the handling, destruction, and admission as evidence of sensitive nuclear information in prosecutions of suspected nuclear smugglers. This need is most acute in non-nuclear weapon states, which are frequently exploited by nuclear smugglers. If the Federal Council's destruction order serves as a guide or becomes an international precedent, it would become nearly impossible to prosecute a member of a transnational nuclear smuggling network in a non-nuclear weapon state that is peddling components of gas centrifuges or nuclear weapons.

In the conflict over the Tinnings' fate, a casualty was the IAEA's investigation of the Khan network. To answer a range of questions about the Khan network, the IAEA needed the Tinnings' cooperation. A senior official close to the IAEA said that "the Tinnings could have shed a lot of light on the whole situation." Despite the difficulties, obtaining the Tinnings' cooperation should remain a priority of the IAEA.

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* *The Tinner Case* is supplemental to *Peddling Peril: How the Secret Nuclear Trade Arms America's Enemies* by David Albright, released in March 2010. In addition, this report has a companion report titled [CIA Recruitment of the Three Tinnors: A Preliminary Assessment](#) by Albright and Brannan. For more information about the Khan network and illicit nuclear trade, please refer to this book or to the ISIS web site.

The Tinner Case: Time for a Frank, Open Evaluation

Full Report

Introduction

A high point of the Bush administration's anti-proliferation efforts was the disruption of the notorious Khan network in 2003 and 2004. Spread across three continents and led by Pakistan's national hero, A.Q. Khan, this criminal network had been outfitting Libya, North Korea, and Iran with the wherewithal to make nuclear weapons using Pakistan's nuclear weapons complex as a private warehouse.¹

Yet this success story also contains sobering after-effects, for which greater independent scrutiny is long overdue. One now-visible deleterious side effect is the complicated legal and political drama that has played out in Switzerland over the activities of Swiss agents of the Khan network, the Tinner family, which fabricated equipment for Khan's customers. The Tinner family had deep roots in the business of illicit nuclear trade, and they turned on the Khan network to become Central Intelligence Agency (CIA) informants and contractors.²

In 2004, shortly after shutting down the Khan network, the CIA became concerned that Swiss federal prosecutors would order the arrest of their informants in the Tinner family— Friedrich, the patriarch, and his two sons, Marco and Urs—for allegedly supplying gas centrifuge components to Libya's nuclear weapons program. The U.S. government worried about a prosecution exposing CIA operations in Switzerland and elsewhere and potentially resulting in the punishment of the Tinners and other CIA assets in Switzerland. A prosecution could also have a negative impact on recruiting future CIA agents.

Three events in late 2004 made an investigation inevitable, putting the Tinners on a collision course with Swiss judicial authorities and launching the U.S. government's attempt to protect the Tinners and the CIA. The first was the unexpected arrest of Urs Tinner in Germany in October 2004. The second was a Swiss banking law that automatically required the Swiss Attorney General to open prosecutions against persons suspected of misusing Swiss banks. The third was suspicious export-related activities uncovered by Swiss export control authorities that occurred after the Tinners' nuclear smuggling role became publicly known in February 2004.

Swiss federal prosecutors opened a criminal investigation of the brothers on October 13, 2004, aimed at determining whether to charge the Tinners with violations of Swiss anti-proliferation laws. On August 18, 2005, the investigation was expanded to include Friedrich Tinner, along with the charge of money laundering.

Urs Tinner was extradited from Germany to Switzerland in May 2005, and Swiss authorities arrested Friedrich and Marco in September 2005. After about six months of imprisonment, Friedrich was released on bail due to his advanced age. Urs and Marco, known in intelligence circles as "the Brothers," remained imprisoned for several more years.

¹ For more information see Albright, *Peddling Peril* (New York: Free Press, 2010).

² The exact role and timing of the Tinners' work for the CIA remains shrouded in secrecy. The CIA refuses to say anything publicly, and the Tinners' revelations should be considered skeptically as self-serving. For more information about what is known, see Albright and Brannan, "[CIA Recruitment of the Three Tinners: A Preliminary Assessment](#)," ISIS, December 21, 2010.

Part I: After the Busting of the Khan Network

What the Tinnners did for the Khan network

Friedrich Tinner and members of his family played a key role in outfitting Khan's nuclear weapons efforts in Pakistan since the mid-1970s, and later helped Khan sell Libya the wherewithal to make gas centrifuges for nuclear weapons.³ Along the way, the Tinner family also sold equipment to the unsafeguarded, secret nuclear programs in Iraq and Iran.⁴ Until finally realizing that the Tinnners had betrayed him by becoming CIA informants, Khan often expressed his fondness for the Tinner family and the important role they played in outfitting Pakistan's nuclear weapons program.⁵

During the Libyan affair, according to Khan's chief aide B.S.A. Tahir in a [South African court deposition](#) and according to Swiss federal court records, the Tinnners were in charge of producing gas centrifuge components under the Khan network's lucrative contract with Libya. To manufacture and order needed parts, the Tinnners received complete sets of centrifuge drawings and manufacturing manuals from Tahir.⁶ They digitized these drawings in order to produce computer-aided design (CAD) drawings. This step allowed the Tinnners to produce digital engineering drawings, which were easier to change and share among themselves and manufacturers. Because modern machine tools, which produce centrifuge parts, are automatic, and depend upon computers programmed with precise instructions to function, the Tinnners needed to produce digitized engineering drawings for manufacturers of the components.

Digitized drawings had other advantages. Storage and dissemination was far easier. The Tinnners could easily change the drawings to erase any traces on the original drawings that could expose Pakistan or Khan as the source. Between 1998 and 2000, Marco's company made modifications to the drawings aimed at simplifying the manufacture of specific parts.⁷ In the process, the Tinnners established a new numbering system for each centrifuge component, in which part numbers started at 9001. This helped to conceal the true purpose of the components from manufacturers because they only saw a number on a drawing. Unless the manufacturers were centrifuge experts, they would not be able to identify the true purpose of the component they had contracted to make.

Despite their extensive experience, the Tinnners were not centrifuge experts. They likely had an incomplete understanding of centrifuges, though they possessed the knowledge and skills to make individual components. As a result, each time they changed a centrifuge drawing, they sent the new drawing to Khan for approval.⁸

³ *Peddling Peril*, op. cit.; and Albright, [Libya, A Major Sale at Last, ISIS Special Report, November 9, 2010](#)

⁴ Much less is known about Tinnners' involvement with Iran. That Iran was a Tinner customer is indicated in a chart prepared by the IAEA entitled, "Nuclear Proliferation Network, Technology and Equipment Procurment." The chart states that Desert Electrical Equipment Factory, a Dubai company owned and operated by the Tinner family, "Manufactured centrifuge components and arranged the transfer of sensitive equipment to Libya and Iran." In addition, the table states, "Companies owned and operated by the Tinner family in Europe were used as a front for the transfer of sensitive material and equipment to Libya and Iran."

⁵ Khan himself testifies indirectly to their importance and his disbelief about their recruitment. In 2008, Khan told the Italian journalist Stefania Maurizi that the "claims that Urs Tinner had become a CIA agent do not ring true." He added that the Tinnners were a "proud, educated family and Urs would never have betrayed his father, brother, and other friends."

⁶ Interview with a senior official close to the IAEA, February 20, 2004 and August 21, 2008.

⁷ German Prosecutor, *Preliminary Proceedings Against Anonymous on Suspicion of Treason by Delivering Gas Ultracentrifuge Technology to Libya*, Interview of Olli Heinonen, Trevor Edwards, and Mrs. Yonemara, Karlsruhe, July 2, 2004.

⁸ Interview with a senior official close to the IAEA, August 21, 2008.

Friedrich's sons, Urs and Marco, were the foot soldiers for their operation. In 2001, Urs settled in Malaysia and Marco stayed in Switzerland, concentrating on fulfilling their new order to build components for Libya's gas centrifuge program, which was slated to receive enough components for 10,000 P2 centrifuges.⁹ Organizing the production of 10,000 of each of about 100 major components was a massive undertaking.

To this end, Urs and his family acquired raw materials, including aluminum "pre-forms," and manufacturing equipment in Europe. Hundreds of thousands of aluminum pre-forms were purchased from Bikar Metal Asia, based in Singapore, which acquired them in Europe and Russia.

In 2001, Urs based himself at a workshop in Malaysia charged with making many of the centrifuge parts using the Tinnerns' centrifuge drawings and the imported equipment and pre-forms. Figure 1 shows a few of the components made in Malaysia. After manufacturing, the parts were shipped to Dubai and then on to Libya. Some of the components were those seized on the *BBC China* in October 2003.

Back in Switzerland, in a parallel effort, the Tinner family arranged for centrifuge components to be made by an unsuspecting Swiss company, Kirag AG. The Tinnerns gave Kirag centrifuge drawings, although without informing Kirag of their true purpose. Urs and Marco arranged for the [delivery of aluminum pre-forms acquired by Bikar Metal Asia](#).

Swiss authorities learned important details about this order when in 2004, they seized roughly 30 centrifuge subcomponent drawings from Kirag AG. One of these subcomponents, numbered 9003, was called the motor housing (see figure 2). Like most of the components, the Tinnerns ordered 10,000 copies of the motor housing. After manufacturing, the Tinnerns arranged for most of 9003 parts to be sent to the Turkish company Tekno Elektrik Sanayi ve Ticaret Ltd. in Istanbul. Shipments of this part began in 2002 and ended in 2004. In Turkey, another key member in the Khan network integrated them with a stator motor into a centrifuge motor assembly. From Turkey, these parts were shipped to Dubai and then onward to Libya on the *BBC China*. In this case, U.S. intelligence agents were apparently unaware that these parts were onboard the ship. They eventually arrived in Libya, which notified the United States and the IAEA. Figure 3 shows a schematic of the supply chain of this component, beginning with aluminum pre-forms acquired in Italy by Bikar Metal Asia, manufacturing at Kirag, final assembly in Turkey, and shipment to Dubai and Libya. Figure 4 shows President George W. Bush holding a motor assembly when he visited Oak Ridge in 2004 to view the items removed from the Libyan nuclear weapons effort.

The Tinnerns also bought electrical goods for Tekno Elektrik. A proforma invoice dated February 1, 2001 shows a delivery from Traco Schweiz to the Turkish company of electrical goods in quantities of 10,000 at a total price of 100,500 Swiss francs. The fact that Traco sent 10,000 pieces is a good indication that the goods were related to the Libyan order.

The Tinnerns produced or acquired about 1,500 specialized control and isolation valves for the centrifuge cascades and the feed and withdrawal systems used in the Libyan centrifuge plant. Originally, the Tinnerns should have sent these valves to South Africa, where a Khan network agent would install them in the piping and feed and withdrawal systems it was producing for the Libyan plant. However, Tahir was behind in his payments to the Tinnerns, and they refused to send the valves, except for one, which arrived June 2002 (see figure 5). It was used to test computerized control equipment for the Libyan centrifuge plant,¹⁰ The South African agent was forced to put in surrogate or "spool" pieces in place of the valves. The Tinnerns were expected to ship the valves directly to Libya once they resolved their financial dispute with Tahir.

⁹ *Peddling Peril*, op. cit.

¹⁰ The Tinnerns supplied a valve that was used in South Africa by members of the Khan network as part of testing of programmable logic controllers used to maintain computerized control of the Libyan centrifuge plant. The Tinnerns also provided written answers to questions raised in connection with the valve. *Plea and Sentence Agreement, State vs. Geiges, Wisser, and Krisch Engineering*, Pretoria, South Africa, Case No. CC332/2005, September 2007.

The Tinnners were also involved in a range of other activities related to the Libyan order. Several years earlier, Friedrich Tinner manufactured feed and withdrawal equipment for Libya's centrifuge pilot program based on the P1 centrifuge. At the Tinner family owned company Desert Electrical Equipment (DEE) Factory in Dubai, the family had a small workshop that was involved in manufacturing centrifuge components and in assembling and testing centrifuge parts.¹¹ Their Dubai company further received goods, serving as a false end user, and arranged their transfer to Libya.¹² DEE also organized the training of Libyans in the manufacturing of centrifuge components and the balancing of centrifuge rotors.¹³

According to Tahir's deposition in the South African case, the three Tinnners were fully aware that the equipment that they were supplying was for Libya's gas centrifuge program.¹⁴ In addition, the Tinner family's long association with Khan and their possession of centrifuge documents and nuclear weapons designs added further proof that they knew the intended purpose of the goods they supplied.

Tinnners' Alleged Violations of Swiss Anti-Proliferation Laws

The Swiss federal prosecutors have focused on trying the Tinnners for their alleged support for Libya's illegal nuclear weapons program between 1997 and 2003. The potential charges against the Tinnners center on their manufacture of centrifuge components in Switzerland and Malaysia. In addition, the charges could include the illegal supply of gas piping systems for centrifuges and the transfer of centrifuge technology during training sessions and through the provision of centrifuge drawings. Money laundering through Swiss banks could also be a charge.

The Swiss investigators learned that the Libyan deal went back even further than the Tinnners had originally admitted. Initially, the prosecutors believed the agreement with Libya was concluded in 1997. Later, they learned that Khan's offer to Libya reached back to the late 1980s or early 1990s. The Tinnners had tried to hide their family's involvement in the initial Libyan deal, likely to avoid further implicating themselves. They also did not reveal this information to their own lawyer or to the IAEA. In 2004, the Tinnners agreed to cooperate with the IAEA's investigation into the Khan network, but they only revealed certain portions of their activities. They discussed their subterfuge amongst themselves in private correspondence seized from their computers by Swiss authorities. Dated November 21, 2004, and written by a certain "M" (established to be Marco by the Swiss court), one memo mentions that Marco's lawyer only has the incomplete story told to Olli Heinonen, then the IAEA's chief investigator of the Khan network.¹⁵ Marco did not tell either Heinonen or his lawyer that "even back in the early 1990s, they already did business with Silver and Boss," their cover names for Tahir and Khan. At first, Swiss investigators wondered if the Tinnners' customer at the time was Iran, because the Tinnners were also suspected of hiding their involvement with Iran and perhaps North Korea as well.¹⁶ The Swiss investigators and the IAEA finally learned in 2007 that the customer from that time was Libya, after the IAEA received a tip from another network member.

Lack of Cooperation Keeps Tinner Brothers in Jail

¹¹ Interview with a senior official close to the IAEA, June 26, 2004.

¹² *Nuclear Proliferation Network, Technology and Equipment Procurement*, undated chart produced by the IAEA.

¹³ Interviews with a senior official close to the IAEA, May 13 and June 26, 2004.

¹⁴ "Extract from Statement of Sayed Abu Tahir Bin Bukhary," (Tahir Statement) Managing Director of SMB Group of Companies, Kuala Lumpur, Malaysia, June 7, 2006. Annexure L in *Plea and Sentence Agreement, State vs. Geiges, Wisser, and Krisch Engineering*, September 2007.

¹⁵ Swiss Federal Court (Supreme Court), *Judgment*, Lausanne, October 9, 2007, translated from German; and interview with knowledgeable Swiss official, August 2007.

¹⁶ Interview with a senior official close to the IAEA, December 2, 2005.

Both Urs and Marco were living overseas before their arrest. Urs was living in Malaysia with his girlfriend. Fearful of being arrested after his brother was arrested while traveling through Germany in October 2004, Marco moved to Thailand, where he married and tried to establish a business. However, the Swiss authorities learned where he was and moved to extradite him. Rather than spending time in a harsh Thai jail awaiting transfer to Switzerland, he returned in September 2005 and surrendered to the police.

From the start, the Tinnners have maintained their innocence. In addition, they have claimed that their work for the CIA mitigates any possible charges. The prosecutors decided to keep the brothers isolated from one another in custody so that they could not coordinate their cover stories. Given that the brothers could easily flee, perhaps with the help of the CIA, the prosecutors and the court viewed them as a flight risk. They stayed in jail.

The detention had especially harsh consequences for Marco. Shortly before returning to Switzerland, his new wife had become pregnant with a daughter. He was not allowed to see his baby daughter in person.

Of all of Khan's accomplices, except perhaps B.S.A. Tahir, Urs and Marco Tinner spent the most time in jail. Urs spent four years in solitary confinement in a high-security jail in Bern located next to the Swiss Attorney General's office. Marco spent over three years isolated in a jail in Zurich. A Swiss federal criminal court ordered Urs released in December 2008 and Marco freed in January 2009. The court worried that they had been imprisoned for almost as long as they would have been if ultimately convicted of the charges under consideration by Swiss federal prosecutors. However, they were only freed on bail.

Urs stayed in Switzerland and remains close to his father. Marco returned to Thailand, where he had another daughter. He has lived off his savings, according to one Swiss official.

The brothers' long confinement in jail led them to file a complaint in late 2008 with the European Court of Human Rights that Switzerland had violated their rights. In a statement to the court in 2010, the Swiss government denied violating the Tinnners' rights. The statement cited the federal courts, including the Swiss Supreme Court, which ruled that their detention was legal. The government also stated that there remains significant suspicion about the Tinnners' actions based on remaining evidence.¹⁷ It is unclear when the human rights court will issue a ruling. If the Tinnners win their case, Switzerland would likely pay compensation. If such a ruling occurs before they go to trial in Switzerland, it could also complicate the prosecution.

U.S. Refusal to Cooperate with Swiss Federal Prosecutors

One expects that the Tinner case would expose conflicts between the interests of U.S. intelligence agencies who want to protect the Tinnners and those of Swiss federal prosecutors who want to bring Swiss members of the Khan network to justice. In the end, both parties seek the same goal, namely the detection, destruction, and prosecution of illicit nuclear trade networks, but they viewed the culpability of the Tinnners differently.

In 2004 and 2005, the conflict appeared difficult, but manageable. The CIA likely expected a plea bargain that would quickly end the case, particularly after quietly informing key sympathetic members of the Swiss government about the Tinnners' helping the CIA. However, the Swiss judicial system does not allow such deals during the period when prosecutors are investigating whether to charge defendants. Since the United States refused to cooperate, the preliminary investigation took much longer than expected.

In 2005 and early 2006, the Swiss prosecutors appealed to the U.S. government on multiple occasions for legal assistance in obtaining evidence key to their investigation. Each request was ignored. As part of ISIS's work to assist prosecutions of members of the Khan network and those who conduct illicit nuclear trade, ISIS helped

¹⁷ Lukas Haeuptli, "Die Schwiez vor Gericht." *NZZ am Sonntag*, May 30, 2010.

them write a letter, dated February 24, 2006, to then Under Secretary of State Robert Joseph, asking for evidence related to the Tinnners' suspected violations of Swiss war materiel and goods control legislation. At ISIS's suggestion, the prosecutors agreed not to ask for any evidence about the CIA's role, and nothing was requested that could assist in the prosecution of any CIA agent or the Tinnners for cooperating with the CIA. The prosecutors focused only on evidence necessary to investigate violations of Swiss anti-proliferation laws.

Although some U.S. officials were sympathetic to granting the requests, the prosecutors did not receive a positive response to their letter. The United States did not even grant the prosecutors' requests to access centrifuge-related items stored at Oak Ridge National Laboratory that the United States had removed from Libya. The refusal to allow a visit to Oak Ridge was particularly galling. The United States had allowed other governments, and once even the media, access to several of these centrifuge components at Oak Ridge. It was during this effort that a U.S. official told ISIS about the picture on the White House web site of President George W. Bush at Oak Ridge holding a centrifuge motor housing ordered by the Tinnners (see figure 4). Yet, the prosecutors were not even allowed to inspect this part.

Albright [testified in the spring of 2006 before Congress](#) and recommended that the United States grant the prosecutors' requests for evidence. The *Washington Post* and other media [covered](#) this testimony. The media and congressional attention helped the prosecutors to get a meeting with CIA officials to discuss the case, which was held in August 2006.

Unfortunately, the meeting did not settle the issue. The CIA proposed using the IAEA as a way for the prosecutors to obtain their evidence, preserving the U.S. position not to provide the evidence directly. In the end, the IAEA did not possess enough of the evidence and the compromise did not work. Moreover, the U.S. government started to seek new ways to thwart the prosecution of the Tinnners.

Part II: Attempt to Make the Tinner Case Disappear

Seized Documents and Hard Drives

As part of their investigation into the Tinnners' activities, Swiss federal investigators seized a sizeable quantity of information from the Tinnners' homes in November 2004, including many computer files. Much of the information was encrypted, such as emails between the Tinnners and the CIA. The Tinnners would not provide the keys or passwords to their encrypted files. The Swiss police were able to decrypt only about 10-20 percent of these encrypted files.

The Tinnners were adept at encrypting their electronic communications, even double coding their messages. Part of the reason for this was that family members were dispersed, often traveled, and wanted a secure way to communicate. Some insight into their encryption methods was gained by IAEA officials during interviews with the Tinnners in early 2004. The IAEA had contacted many members of the Khan network for interviews, and the Tinnners were cooperative. During a meeting in Malaysia, the Tinnners asked a senior IAEA official to encrypt future communications with them. They told him to buy a new novel by Robert Goddard, *Play to the End*, a crime novel set in Brighton, England about a local businessman whose wealth might be from shady practices conducted by his family business in the past. The IAEA official received instructions to go to a certain page, line, and character in the book, and build up an encryption key. This method, which dates to World War II, was just the first level of encryption. The text was further encoded using well-known, commercially available PGP (pretty good protection) encryption software. The Tinnners were also early users of the internet for storing secret data and important documents on remote internet servers. They also used complicated passwords and account names to further protect their data.

Despite their encryption skills, they did not encrypt a large number of documents. Surprisingly, one set they did not encrypt was some of the most sensitive information from a proliferation standpoint. Investigators

found complete sets of drawings and manufacturing books of P1 and P2 centrifuges, details about contracts with Tinner-owned companies to make centrifuge components, procurement and shipping information, a variety of valuable correspondence among the family, and information on the Tinnings' work with the CIA. According to a senior official close to the IAEA, the set of information about the P1 and P2 centrifuges was almost identical to what Libya had in its possession.¹⁸

Confronted with so much technical information, the Swiss government turned to the IAEA for assistance. During this process, the IAEA received a range of centrifuge documentation from the Swiss government.

Unexpectedly, in the early spring of 2006, IAEA inspectors found drawings of nuclear weapon components within the documentation.¹⁹ The first IAEA team that visited Bern as part of the investigation had missed these drawings. They were not encrypted, but they did not have any identifying labels on them. They were simply labeled drawing number 1, 2, 3, etc. Back in Vienna, the first IAEA team mentioned viewing these odd drawings to colleagues, and the second team that visited Switzerland a month later realized what they were and told the Swiss. See also appendix, **More on the Bomb Documents**.

In the spring 2006, the United States somehow learned of the cache of sensitive nuclear weapons documents that were in the hands of the Swiss government. It likely already knew about documentation linking the Tinnings to the CIA. Throughout the spring of 2006, U.S. officials secretly pressed Swiss government officials to turn over all of the sensitive nuclear weapons documents.²⁰ They argued that as a non-nuclear weapon state party to the NPT, Switzerland should not possess the documents. In the summer of 2006, Attorney General Alberto Gonzales specifically asked the Swiss Minister of Justice and Police, Christoph Blocher, to turn them over to the United States. It is suspected that during this meeting, Gonzales also conveyed U.S. concerns about potential revelations about the CIA's activities.

In the fall of 2006, Swiss investigators returned to the Tinnings' homes and offices to seize the original versions of the sensitive documentation they had uncovered. On October 27, 2006, new searches of the homes and offices of members of the Tinner family were conducted to seize the entirety of the computer hard drives and documentation related to nuclear proliferation. The Swiss authorities also obtained hard drives in the United Arab Emirates (UAE) and perhaps Malaysia. Yet, the prosecutors could not exclude the possibility that the Tinnings had hidden copies of gas centrifuge and nuclear weapons documentation elsewhere in Switzerland or abroad.

The prosecutors collected an immense amount of data, including 36 hard drives, containing about 1.5 terabytes of data. Although the data set was huge, there were many duplicates or even triplicates, which is not surprising given that all the family's computers were searched. The most sensitive nuclear weapon information, which was composed of component drawings and "recipe" manuals, comprised about 200 pages.²¹

In total, the Swiss investigators determined that the Tinnings possessed an extensive set of sensitive documents on producing centrifuges and nuclear weapons. The Tinnings apparently had no hesitation in distributing the material within the family and did not protect it well from access by outsiders.

Federal Council Seeks to Satisfy the Bush Administration

¹⁸ Interview with a senior official close to the IAEA, August 2010.

¹⁹ *Peddling Peril*, op. cit. and [Swiss Smugglers Had Advanced Nuclear Weapons Designs](#), David Albright, ISIS, June 16, 2008:

²⁰ *Fall Tinner: Rechtmässigkeit der Beschlüsse des Bundesrats und Zweckmässigkeit seiner Führung*, Geschäftsprüfungskommission der Eidgenössischen Räte, January 19, 2009.

²¹ *Fall Tinner: Rechtmässigkeit der Beschlüsse des Bundesrats und Zweckmässigkeit seiner Führung*, Geschäftsprüfungskommission der Eidgenössischen Räte, op.cit.

Despite the lack of U.S. cooperation, the federal investigation of the Tinnings proceeded throughout 2004 and 2006. They focused on new information in the seized documents and documents and statements obtained from witnesses and experts. The potential allegations were expanded in April 2006 when the Swiss federal prosecutors asked their government to consider also filing charges against the Tinnings and possibly CIA agents for violating Swiss anti-espionage laws.

The on-going Swiss investigation increasingly alarmed the George W. Bush administration. The United States had requested the Swiss government not to prosecute the Tinnings in early 2004 but had done little further in 2005. However, U.S. concern escalated in 2006, resulting in an avalanche of protests from U.S. government officials.

A host of senior U.S. officials appealed to senior Swiss government officials not to pursue any charges against the Tinnings. These officials included Secretary of Homeland Security Michael Chertoff and his department's undersecretary for intelligence Charles Allen, Secretary of Defense Robert Gates, Secretary of State Condoleezza Rice, Federal Bureau of Investigation Director Robert Mueller, and Director of National Intelligence Michael McConnell. The U.S. message was uniform; the Swiss government should not charge the Tinnings with any crime.

Swiss Drop Any Prosecution of CIA Agents

Few in the Swiss government had any desire to pursue the anti-espionage charges against the Tinnings or other CIA agents. The federal prosecutors believed that these charges would be difficult to prove in any case. In addition, such charges could seriously harm Switzerland's relations with the United States. Prosecuting CIA agents would risk making it appear as though Switzerland opposed the efforts of the international community to stop proliferation, and the publicity of such a proceeding could compromise CIA efforts to dismantle the Khan network. Moreover, it would feed anti-Americanism, which was high at the time because of controversy over the Iraq war and CIA extraterritorial rendition of terrorist suspects.

A more disturbing rationale was that prior to 2004, the Swiss domestic intelligence service had not pursued the Tinnings and another Khan network member, Gotthard Lerch, who were both well-known in Switzerland for working with Khan. Government ministers felt that it could not justify a prosecution against a foreign intelligence agency, which was doing the job that the state failed to do. The Bush administration was relieved when on August 29, 2007, the Federal Council decided not to allow the prosecutors to pursue charges against CIA agents.

Federal Council Orders the Secret Destruction of Evidence

Although the priority was preventing the prosecution of the Tinnings, the United States continued pressing for the nuclear weapons documents. In November 2006, Gonzales wrote to the Swiss government indicating that the United States would grant it access to documents it turned over during a judicial procedure. However, some Swiss officials worried that they would not provide access. The United States had denied the Swiss prosecutors access to the items at Oak Ridge that were either unclassified, such as valves, or far less sensitive, such as non-rotating centrifuge components like the motor housing.

Justice Minister Blocher worried about another issue. Would handing over the documents to the United States violate Switzerland's perceived sovereignty and neutrality? As events unfolded, the chance that Switzerland would turn over the documents diminished. The Federal Council still felt pressure to do something, and the Bush administration continued to insist that the Swiss government hand over the documents.²² Minister Blocher, with the agreement of the Federal Council, developed the idea of destroying all the documents rather

²² Swiss Supreme Court Decision, January 25, 2010

than handing them over to another nation. Although likely preferring to take all the documents, U.S. officials went along with, and in some cases advocated, the destruction of almost all of the evidence in the Tinner case.²³

On November 14, 2007, the Federal Council formally decided to destroy all the documents seized from the Tinnings. Because the destruction of evidence in a federal prosecution was so unprecedented, the Federal Council invoked emergency powers under the constitution to justify such a draconian step. The Federal Council argued that the set of documents posed a grave, imminent proliferation and terrorism risk and that their possession violated the Nuclear Non-Proliferation Treaty (NPT). The Federal Council claimed it had no choice but to invoke emergency powers in the Swiss constitution and destroy the documents. The actual destruction of the documents was carried out under IAEA supervision and was not completed until June 6, 2008. This long period allowed the IAEA to continue examining the documents in Switzerland.

Blocher was highly sympathetic to not prosecuting the Tinnings. As a result, the destruction order was likely aimed at disrupting the Tinnings' prosecution while avoiding the appearance of doing the bidding of the United States by turning over the documents. At the time of the decision to destroy the Tinner documents, the Federal Council understood that the destruction of the evidence would seriously threaten the prosecution of the Tinnings.²⁴ In fact, it assumed that the prosecutors would likely give up. This was of course the outcome favored by the CIA. Defendants can reasonably expect to have access to all evidence in constructing their defense. Any destruction of evidence requires the agreement of the defendants, which was not given in this case. Once evidence is destroyed, the state would have a more difficult time guaranteeing a fair trial, a fundamental right in an open, democratic society like Switzerland. The prosecutors would be left to ask whether they could prosecute at all.

Public Revelation of the Destroyed Evidence

The Federal Council fully expected to keep its destruction decision secret and the Tinner case to simply die away. But it was seriously mistaken.

It failed to realize that the prosecutors were bound to continue the investigation of the Tinnings and the difficulty of destroying all the evidence in this case. Instead of giving up, the prosecutors sent the remaining decimated case file of evidence to the federal magistrate, a judge who is assigned to review prosecutors' evidence and issue an opinion on the merits of filing charges. In this type of judicial system, which also exists in France, the magistrate has the duty to balance the evidence, considering both sides equally, before making a recommendation on whether to charge the defendants. The magistrate opened his preliminary investigation on March 7, 2008.²⁵

The magistrate, Judge Andreas Mueller, was perplexed by the missing files and clearly understood that the case was in serious jeopardy. He noted that the destruction of the files was unique in Swiss history.

Judge Mueller felt he had no choice but to try to re-collect the destroyed evidence. This was possible because copies of some of the key, now destroyed, documents had been introduced in court proceedings and still existed. Although it is possible that the Federal Council was unaware of the number of key documents still

²³ *Fall Tinner: Rechtmaessigkeit der Beschluesse des Bundesrats und Zweckmaessigkeit seiner Fuehrung*, Geschaefspruefungsdelegation der Eidgenoessischen Raete, op. cit.

²⁴ *Fall Tinner: Rechtmaessigkeit der Beschluesse des Bundesrats und Zweckmaessigkeit seiner Fuehrung*, Geschaefspruefungsdelegation der Eidgenoessischen Raete, op. cit.

²⁵ The magistrate is investigating the three Tinnings and Max Schmid for offenses against the war materiel and goods law. Schmid ran a company which worked with the Tinnings. He is being investigated for making electronic control software for the Libyan centrifuge project. Friedrich's wife, their daughter, and her husband are not being investigated because of a lack of evidence that they were knowingly involved in the Libyan contract.

held by the courts, it is more likely that it dared not ask the judicial branch to destroy sensitive Tinner documents. In addition, many documents were provided to other governments and experts in routine efforts to gather more evidence or in seeking overseas witnesses and assessments.

The government, however, was so determined to prevent the magistrate from reassembling evidence that it took the unusual step in 2008 of refusing its direct request for police assistance in re-acquiring the destroyed records. Under Swiss legal rules, the magistrate is guaranteed police assistance from the Justice Minister. Mueller did not obtain a pledge of police support until early 2009 after the Swiss Parliament intervened. The new Justice Minister, Eveline Widmer-Schlumpf, promised that the magistrate would receive police assistance. However, this assistance did not materialize. Later, the Federal Council, with the support of Widmer-Schlumpf, would again block the magistrate in his attempts to obtain critical evidence.

With such controversy brewing secretly inside the government, it was inevitable that the Swiss public would learn about it. The government had simply miscalculated that it could keep such a far-reaching decision secret, and in early 2008 the media caught wind of the missing documents. The resulting controversy grew so heated that on May 23, 2008, Switzerland's president had to announce that the government had secretly destroyed many files relating to the case.

The Parliament's Critique of the Swiss and U.S. Governments' Actions

The Federal Council further erred by not fully informing the oversight committee of Parliament, which is charged with overseeing the Federal Council on national security and intelligence matters. In particular, it did not inform the committee about its November 2007 decision to destroy all the documents until several months later in February 2008. This committee had extensive constitutional powers to investigate and review the actions of the Federal Council with regard to national security and intelligence matters.

Earlier, the committee had learned on its own of the existence of nuclear weapons related evidence and wrote a letter in August 2007 to Minister of Justice and Police Blocher asking for clarification about the fate of those documents. The minister briefed the committee on September 13, 2007, but he did not inform them of his intention to seek the documents' destruction without further consultation with the oversight committee. Members of the committee believed that if the committee had not asked for the September briefing, the Minister of Justice would not have informed them at all about the documents or the upcoming decision, according to a knowledgeable Swiss official.²⁶

Because the oversight committee believed that the government had acted inappropriately by not properly informing the committee, it decided to conduct its own investigation. In January 2009, it released a highly critical, 57-page report of the Swiss government's handling of the Tinner affair.²⁷ For the first time, details about internal Swiss government deliberations on the Tinner case and the government's exchanges with U.S. officials were publicly available.

The oversight committee openly challenged the Federal Council's decision about the destruction of the Tinner documents. It challenged the argument that that the set of documents posed a grave, imminent proliferation and terrorism risk and that their possession violated the NPT. It also disagreed with the Federal Council's claim that it had to invoke emergency powers under the constitution.

In contrast to the dire warnings of the Federal Council, the oversight committee concluded that the destruction of the records was unnecessary, that the records posed no danger to Switzerland's national

²⁶ Interview, January 2009.

²⁷ *Fall Tinner: Rechtmässigkeit der Beschlüsse des Bundesrats und Zweckmässigkeit seiner Föhrung*, Geschäftsprüfungsdelegation der Eidgenössischen Räte, op. cit.

security, and their possession did not violate the NPT, as the government claimed. Even the sensitive nuclear weapon documents could have been justifiably possessed and adequately protected until the judicial process was completed, at which time the Swiss government, under IAEA supervision, could have destroyed them or turned the information over to a nuclear weapon state for safe-keeping or ultimate destruction. Such a course of action would have preserved the ability of the Swiss government to prosecute major crimes and learn valuable insight into weaknesses of its own export control system. Just as important, other countries and the IAEA could have used the valuable information in their own investigations of the Khan network, or what might remain of the network.

The committee concluded that when individuals bring sensitive nuclear weapons designs and manufacturing manuals into a non-nuclear weapon state, the state has the duty to seize that information and reserves the right to prosecute those individuals. To do that, the state must maintain possession temporarily of that information, with IAEA supervision, until the judicial process is completed. In this case, the IAEA had earlier told the Swiss government that it did not want to bear the burden of taking possession of the nuclear weapons design records; doing so would require implementing expensive security to control and protect the information adequately and possibly creating unprecedented arrangements to allow access by Swiss judicial officials and defendants.

Although the committee recognized that a state under the NPT has an obligation to ultimately destroy that information or transfer it to a nuclear weapon state, the committee concluded that the government was incorrect to use the NPT to justify immediate destruction of this evidence. The NPT is not intended to undermine states' prosecution of individuals who are intent on using sensitive information to cause proliferation to other countries. Later, the IAEA would agree with the committee's interpretation of the NPT.

The precedent created by the Swiss government's destruction order is also troubling. What if there is a repeat situation in the future? Given the fact that many non-nuclear weapon states are targeted by illicit trade networks, how can future smugglers ever be prosecuted if such a destruction order serves as a guide?

The committee also criticized the government's overly broad destruction order. It concluded that the government destroyed far too many of the records of the Tinners. In addition, the destruction order was exceeded. For example, the stated purpose was to destroy items seized from the Tinners, but many other items were destroyed as well. For example, documents provided by ISIS to the prosecutors, which [detailed Urs' purchase of aluminum materials to make centrifuge components](#), were destroyed, according to a knowledgeable Swiss official. ISIS later provided the magistrate with another set.

Likewise destroyed were centrifuge component drawings seized at Kirag AG in 2004, along with Marco's explanation of the fate of these components. However, as part of gathering evidence overseas, these two documents along with many others had been distributed to the IAEA and other governments. Moreover, the Swiss courts had received a range of documents during hearings deciding on whether to release Urs and Marco from pre-trial imprisonment. Thus, despite the destruction order, the magistrate retrieved several key documents.

In addition to criticizing the Federal Council's overly broad destruction order, the committee exposed the arbitrary criteria that the government had used to justify destroying so many documents. One particularly bizarre criteria was that sorting the documents was too time consuming and resource intensive, even though the Federal Council took over a year to actually decide to destroy the evidence. It could have used that time to sort the documents.

Another especially questionable rationale, which was used to help justify the wholesale destruction of centrifuge documents, came from the United States, according to the committee's report. The United States had argued that the process of uranium enrichment can lead to the construction of "dirty bombs," or devices

that disperse radioactive materials. Therefore, the United States argued that all centrifuge related information would pose a terrorist risk to the international community. Setting aside that Switzerland is fully entitled under the NPT to have centrifuge design information and can adequately protect it, as the Committee notes, the claim itself is deeply flawed and suggests a different motivation. Even natural uranium can be used in a dirty bomb and would be far easier to obtain than building a centrifuge plant to produce enriched uranium. Furthermore, several non-nuclear weapon states which are party to the NPT possess not only centrifuge drawings but also operational centrifuge plants for various civilian applications. This rationale has to be seen as a convoluted attempt to rationalize the destruction of all the key evidence in the prosecutors' central accusations against the Tinnens--suspected violations of war materiel and goods control legislation and money laundering.

Another case developing at the same time adds to the impression that the United States' true goal was to disrupt the prosecution. In 2006, the United States Department of State and U.S. intelligence community became aware of [sensitive centrifuge component design blueprints leaking out of the Indian uranium enrichment program](#). In this case, and perhaps due to the pending U.S.-India nuclear deal, [there was little high-level concern or action by U.S. government officials](#) to stop the leakage or to warrant any public or private condemnation.

Absent from any discussion by the Federal Council was that the documents showed a connection between the Tinnens and the CIA. The Swiss government could hardly argue that these documents posed a proliferation risk while in their possession. Their destruction, rather, was a key unstated goal of the Federal Council in alleviating CIA concerns without violating the Federal Council's perceptions of Swiss neutrality.

The role of the United States is not expressly criticized in the oversight committee's report. However, the report cites documents produced by the Federal Council that describe U.S. pressure to hand over or destroy the nuclear weapon-related documents. The Federal Council's reaction to this pressure, namely the destruction of prosecution's records, was understood to threaten the prosecution of the Tinnens and hide the CIA's role. The committee report indicates that the Federal Council assumed the prosecutors would very likely give up.

One section of the report that the committee considered secret and did not publish, as noted in the report, concerns contacts between U.S. and Swiss officials where both sides expressed an interest in having all of the evidence destroyed. Although initially the United States asked to take possession of these documents, this section evidently shows that in the end key U.S. officials did not object to the destruction of all evidentiary records. U.S. acquiescence to such a radical path might suggest that the United States had already obtained the same information, but Swiss government officials state that the United States did not receive a copy of all of the records. If it did not obtain copies, it must have decided that complete destruction was the only way to obtain its objectives. The latter possibility, however, implies that the U.S. government went beyond the relatively narrow goal of protecting its own agents from prosecution and not cooperating with Swiss prosecutors on Tinnens' suspected violations of anti-proliferation laws, seeking instead to prevent prosecutions of the Tinnens on any charge.

Part III: Will Justice be Done?

New Set of Documents Found

Adding fodder to the view that the Federal Council acted unwisely, it emerged that the government had not conducted a systematic search for all copies of the evidence. In December 2008, about a year after the destruction order was given, copies of many of the destroyed documents appeared in the archive of the Attorney General's building. Officials discovered a copy of the final police report on the Tinner case, dated May 30, 2006, which contained 39 folders of supporting information and documentation.²⁸ An extra copy of the police report was made during the first half of 2006 and set aside without notifying the prosecutors or other senior justice department officials of this additional copy. The copy was made before the November 2007 destruction order, and the personnel involved in storing the copy were not informed of the subsequent destruction order. Later, a copy was placed in the building's official archives, again without notifying the prosecutors or other senior officials. By chance, senior officials learned of this copy at the end of 2008 and immediately notified the Justice minister and the Federal Council. Fortunately, the documents remained under heavy security because the Attorney General building itself was well protected. After the discovery, the Ministry of Justice and Police took possession of the documents.

The parliamentary oversight committee learned of the newly-discovered records in late January 2009 about a week after it issued its report criticizing the Federal Council. It insisted that the Federal Council not destroy any of them before the conclusion of the criminal proceedings. In response, and under increasing criticism for its destruction decision, the Federal Council decided not to destroy them, at least for the time being.

In February 2009, the Federal Council decided to rely upon IAEA specialists to segregate the documents on nuclear weapons and gas centrifuges. The inspectors completed their survey over two days in late March 2009 and identified the nuclear weapons and centrifuge documents.

As it had done earlier, the Federal Council tried to pass the problem over to the IAEA. . It decided in February 2009 that the IAEA should take the sensitive documents for safekeeping. The IAEA would then have the responsibility for granting Swiss judicial authorities access to the nuclear weapons related documents. The IAEA once again indicated it would not take custody of the documents.

Although the set of records found in the Attorney General's building included many folders, they are by no means complete. Anything that was only available electronically was destroyed; this portion comprises the largest fraction of the documents. However, the documents contain information critical for the prosecution. The set contained almost 60 pages of unique, sensitive nuclear weapons information, although not the most sensitive. Over 40 pages were duplicates, bringing the total to 103 pages. This set also contained important centrifuge drawings and other evidence relevant to pursuing anti-proliferation charges against the Tinnings, such as the centrifuge documents seized at Kirag AG. One folder, referred to as "folder no.10," contained documents showing the Tinnings' work with U.S. intelligence.

Federal Magistrate Andreas Mueller learned about the new sets of documents in April 2009 only from media reports following the Federal Council's decision to reveal publicly the existence of the documents. He immediately sought possession of the new evidence in order to fulfill his mandate to review all the available evidence against the Tinnings. He subsequently received over half of the folders, but not the folders that the Federal Council considered too sensitive to hand over, such as the uranium enrichment, nuclear weapons related documentation, and folder 10

Constitutional Crisis

²⁸ Jahresbericht 2009 der Geschäftsprüfungskommissionen und der Geschäftsprüfungsdelegation der eidgenössischen Räte, January 22, 2010.

With debate intensifying over the fate of the newly discovered documents, Switzerland was about to enter a constitutional crisis over the Tinner case. On one side was the Federal Council; pitted against it was Parliament and the judicial branch.

Over the protests of the Parliament and the court, the Federal Council decided once again to destroy the nuclear weapons documents. On June 24, 2009, the Federal Council ordered the removal of the 103 pages relating to nuclear weapons designs and replace them with placeholders describing their contents. In response, the federal criminal court that day issued its own demand that these documents not be destroyed until the end of the judicial process. A week later, Parliament's oversight committee described the Federal Council's June 24 action as illegal and undue interference in the independence of the judicial branch. It called for the Federal Council to provide the documents to the magistrate.²⁹

According to Parliament's oversight committee, the June 24 announcement of the Federal Council's decision repeated the dubious claim that the NPT did not allow Switzerland to possess sensitive nuclear weapons related information.³⁰ The Federal Council's interpretation of the NPT ignored the IAEA's own, more nuanced legal opinion, which the Federal Council had itself sought and received two weeks earlier on June 10.³¹ In its letter, the IAEA recognized the need for a non-nuclear weapon state to possess such documents while it investigated and prosecuted offenses against anti-proliferation laws. It urged that access to the documents be severely restricted to only those who have an imperative need to consult them, and, once their goal was achieved, no other access should be allowed and destruction would at that point become useful.³² The IAEA did not call for the immediate destruction of the documents or say that temporary possession was a violation of the NPT.³³

The IAEA also made clear in its letter that it would not take custody of the documents. After failing to convince the IAEA to take the documents and apparently ignoring the IAEA's legal opinion, the Federal Council stuck stubbornly to its own misinterpretation of the NPT.

Under intense pressure, the Federal Council did budge on the centrifuge documents. The Federal Council decided on June 24 that the centrifuge documents, comprising about 1,000 pages, would be conditionally available to the magistrate, the courts, and the defendants, pending their final destruction after the completion of the criminal proceedings. Until that time, they must be viewed in a specially guarded room in the building controlled by the Ministry of Justice and Police, where they had been taken several months earlier. Persons viewing them can only take notes by hand and cannot make any copies.

Despite that partial success, the magistrate still did not have possession of this vital evidence, and the Federal Council's procedure for access was too cumbersome for a judicial process. It needlessly burdens all the parties in the trial as they assemble and assess evidence. In addition, the decision, if maintained, would require the unusual step that a portion of the trial of the Tinnings would need to be held in the same room as the documents.

²⁹ Geschäftsprüfungsdelegation der Eidgenössischen Räte, "Der Bundesrat kann den Fall Tinner nur in Zusammenarbeit mit den Justizbehörden rechtmässig abschliessen," June 30, 2009.

³⁰ Ministry of Justice and Police announcement, June 24, 2009.

³¹ Jahresbericht 2009 der Geschäftsprüfungskommissionen und der Geschäftsprüfungsdelegation der eidgenössischen Räte, op. cit.

³² Jahresbericht 2009 der Geschäftsprüfungskommissionen und der Geschäftsprüfungsdelegation der eidgenössischen Räte, op. cit.

³³ Jahresbericht 2009 der Geschäftsprüfungskommissionen und der Geschäftsprüfungsdelegation der eidgenössischen Räte, op. cit.; and interview with Swiss official knowledgeable about the letter, August 4, 2009.

The Parliament's intelligence oversight committee was particularly critical of the Federal Council's view that Swiss judicial authorities could not possess centrifuge documents, a view also rejected by the IAEA.³⁴ The committee asked the Swiss export control agency (SECO) for an opinion. In response, SECO noted that Switzerland, under the NPT, had the inalienable right to nuclear energy for peaceful purposes, including to uranium enrichment. Consequently, individuals or companies in Switzerland have the legal right under international law to possess sensitive gas centrifuge information if used for peaceful purposes. According to the Parliament, the Federal Council took the absurd position that the magistrate cannot possess gas centrifuge documents, although under the NPT and Swiss law, individuals and companies in Switzerland can possess such documents.³⁵

Folder 10

The Federal Council did not include anything in its June 24 public announcement about "folder no. 10," containing information on the CIA. It also initially failed to inform the oversight committee that it had secretly decided to withdraw folder no.10 from the body of evidence and intended to destroy it as well. The Federal Council's several day delay in informing the parliamentary committee raised the question inside the oversight committee of whether the CIA had influenced the June 24 decision. If this interference occurred, it could signify that President Barack Obama's administration has continued the Bush Administration policy of interfering in Swiss affairs to complicate any prosecution of the Tinnners.

Concerned that the destruction of the folder could happen at any time, the committee requested a copy of folder no. 10 on July 3. After being refused, the vice chairman of the committee and staff demanded to see the documents at the Justice ministry's building holding the documents. At first, federal police refused to grant them entry unless they showed an order from the Minister of Justice and Police. Reminded of the committee's constitutional authorities to view all secret information maintained by the Federal Council, the police reversed themselves and allowed entry without the approval of the Minister. The committee member and staff could read the contents of folder no. 10, but the police would not allow them to take copies from the room. Committee members concerned about the destruction of the nuclear weapons documents also went subsequently to see the folder containing the nuclear weapons documents. Although the committee did not obtain copies of the documents, it did accomplish one of its goals. If the committee had not intervened so firmly, the Federal Council would have carried out its order to destroy folder 10, further interfering in the Swiss judicial process.

The Magistrate Seeks the Documents

To the federal magistrate, the Federal Council's June 24 decision to include only placeholders for the nuclear weapons related documents and restrict access to centrifuge documents appeared an unreasonable attempt to block the judicial branch from doing its duty. On July 2, 2009, the magistrate ordered the seizure of the documents that were held under the control of the Ministry of Justice and Police. The Federal Council argued that since it was using its emergency powers, it was not bound by the magistrate's order. A few days later, the federal criminal court ruled in favor of the magistrate.

On July 9, the magistrate, backed by the local Bern police, went to the Ministry of Justice building holding the documents. The federal police would not permit him to enter the room containing the documents. Unlike the case involving the Parliament, the federal police showed no willingness to back down. Wanting to avoid an escalation between the police officers, which could perhaps lead to the drawing of guns, Mueller decided to seize and seal a safe that held the keys to the room.

³⁴ "Der Bundesrat kann den Fall Tinner nur in Zusammenarbeit mit den Justizbehoerden rechtmaessig abschliessen," op. cit.

³⁵ Jahresbericht 2009 der Geschäftsprüfungskommissionen und der Geschäftsprüfungsdelegation der eidgenössischen Räte, op. cit.

In August 2010, the federal criminal court ruled again that the magistrate could inspect the files. However, the ruling did not support the magistrate's right to seize the documents by force. This decision meant in fact that the magistrate lost the fight over taking possession of the sensitive documents. Despite the court siding with the magistrate about his right to review the documents, it only allowed this to the extent that the Federal Council would allow it. The magistrate could not use force to acquire the documents. In effect, the court backed down in its showdown with the executive branch. Other than delaying the destruction of the documents, the Federal Council has not changed its June 2009 decision, and continues to refuse to release the documents in their entirety to Judge Mueller.

As a result of the intervention of the Swiss parliamentary oversight committee, folder 10 was not destroyed and the magistrate gained access to this folder in the fall of 2009. However, he can inspect this folder only under the same onerous rules as he can see the centrifuge documents.

The Prosecutor Appeals the Court Decision

Although the magistrate accepted the federal criminal court's new ruling, the federal prosecutor did not. He appealed part of the decision to the Supreme Court, which ruled in January 2010 that the prosecutor could not demand access to documents under the control of the Federal Council in the same manner as the police would from a private citizen. The alternative favored by the court would require the Federal Council to approve the release of the documents, which as seen above, would be a fruitless effort.

The Supreme Court also did not overturn the Federal Council's decision to destroy the documents. However, it opened one door to undoing this decision based on a consideration of international law. Under the Convention of Human Rights, the Tinnens have a right to a fair trial. Since evidence was destroyed without the permission of the defendants, the court stated that it might have ruled differently if the Tinnens had filed a complaint against the destruction order. As the Tinnens had not joined the prosecutor's complaint, it remains unknown whether the Supreme Court would have ruled against the application of the Federal Council's emergency powers.³⁶

Status of the Swiss Legal Case

The current fate of folder no. 10 and the folder containing nuclear weapons documents remains uncertain, although the Federal Council is believed to still possess them. In January 2010, a Ministry of Justice and Police spokesperson said that the documents had not yet been destroyed.³⁷ However, he noted, the decision to destroy the documents remains valid. He added "the date is yet to be decided," given the Federal Council's desire to agree to a solution in concert with the parliamentary oversight committee.

Despite the obstacles, the magistrate has reassembled a considerable amount of evidence. He decided that he had acquired enough evidence to make a decision and he cannot acquire additional evidence because of the decisions of the Federal Council to destroy so much evidence. Urs objected to the magistrate closing off the search for more evidence, particularly evidence about the role of the CIA and any evidence that could shed light on his dubious claim that he sabotaged centrifuge parts (for information challenging the alleged sabotaging see, [CIA Recruitment of the Three Tinnens: A Preliminary Assessment](#)). However, in August 2010, the federal criminal court ruled against Urs and supported the magistrate's decision. Whether he will appeal to the supreme court is unknown, as of August 2010.

³⁶ Jahresbericht 2009 der Geschäftsprüfungskommissionen und der Geschäftsprüfungsdelegation der eidgenössischen Räte, op. cit.

³⁷ Denis Masméjan, "Affaire Tinner, Les juges perdent leur combat contre la raison d'Etat." *Le Temps*, January 29, 2010.

After the magistrate concludes his investigation in late 2010, he is expected to recommend charging the Tinnings. Afterwards, the federal prosecutors will decide whether to charge the three Tinnings. As dogged as the prosecutors have been so far, one would expect them to charge the Tinnings and mount a rigorous prosecution.

Any resulting court case is expected to be complicated. One issue is whether the defendants can receive a fair trial as a result of the destruction of so much evidence. One can expect the defendants to raise this defense in any trial. A decision in the Tinnings' favor at the European Court of Human Rights could further complicate this issue.

One defense argument that the Tinnings may use is that they are not guilty because they did not know that they were assisting Libya's nuclear weapons program until the CIA contacted them in 2003. In this version, the CIA agents were supposedly the first to tell them about the Libyan gas centrifuge and nuclear weapons programs. This strategy is helped by the lack of any evidence on Urs' claim that he worked for the CIA earlier than 2003. The police investigation did not uncover evidence of an earlier start date, other than Urs' statements, and none exists in folder no. 10.³⁸ If Urs maintains he worked for the CIA starting in 2000, or if Friedrich and Marco claim an earlier start date than 2003, this line of defense could collapse.

Any trial is not expected until 2010 at the earliest. If it happens, many new revelations about this complex case could emerge.

Lessons and Going Forward: A Fresh Look is Needed

The Tinner case continues to pose difficult challenges. It is long overdue for independent scrutiny in the United States.

The CIA likely believed they had little choice but to work secretly in Switzerland against Khan's agents without consulting the Swiss government. The Swiss domestic intelligence agency was ill-prepared to help the CIA. This finding was backed up by the Swiss oversight committee's report in January 2009.³⁹ Moreover, Swiss authorities took no special interest in checking deeper into the Tinnings' exports. Across the board prior to 2004, the Swiss government demonstrated little willingness to take action to disrupt the Tinnings or other Khan agents in Switzerland.

The CIA has rightly wanted to protect the Tinnings and keep their cooperation secret. Certainly, the Tinnings significantly improved the CIA's understanding of the Khan network; their insider status was almost unrivaled. For their help in stopping the Khan network, the Tinnings deserve credit.

On the Swiss side, the government had little interest in being perceived as not supporting the busting of the Khan network. After the Khan network was shut down and revelations were made about the Tinnings' activities, the Swiss government was justified in launching a government wide investigation of the activities of the Khan network. The resulting criminal investigation of the Tinnings was fully warranted.

Costs to Switzerland

³⁸ Interviews with Swiss officials knowledgeable about the Tinner case, 2008, 2009, 2010.

³⁹ *Fall Tinner: Rechtmaessigkeit der Beschluesse des Bundesrats und Zweckmaessigkeit seiner Fuehrung, Geschaeftspruefungsdelegation der Eidgenoessischen Raete*, op. cit.

In Switzerland, the Tinner case has had several negative consequences. This issue has resulted in a constitutional confrontation and exposed ineffective government and lax export controls, poorly configured to handle difficult cases like that of the Tinnings. If the prosecution of the Tinnings for illegally supplying Libya's nuclear weapons program cannot proceed, the Swiss will face harsh criticism. Those advocating prosecution will feel that justice has not been served, and the CIA has unduly interfered in Switzerland's internal affairs. Those believing the Tinnings were undeserving of prosecution in the first place would likewise raise several criticisms about the length of Urs' and Marco's incarceration. The government might have to pay compensation to the Tinnings. If the court does not decide whether the Tinnings are guilty of nuclear proliferation crimes, this could negatively affect Switzerland's ability to prosecute others for illicit nuclear trade. With Switzerland's sophisticated industries still frequent targets of countries such as Iran, such an outcome is not in the interest of Switzerland or the United States.

For its part, the Swiss Federal Council overreacted to the sensitivity of the nuclear related documents in the Tinner case. It erred in claiming that the Swiss government could not possess them as a signatory to the NPT. The Federal Council's non-proliferation and anti-terrorism rationales for destroying the documents are unconvincing. The possession of centrifuge documents is well within a non-nuclear weapons state's rights under the NPT. Even the possession of nuclear weapon designs are not a violation under the conditions faced by Swiss prosecutors. In criminal cases where nuclear weapons documents are seized from individuals, a non-nuclear weapon state can retain such documents until it has finished a criminal investigation and prosecution.

The Federal Council should refrain from destroying any more documents related to the case, pending a final resolution of the legal issues. Following resolution, the government would be better advised to consult with other nations or the IAEA about the value of turning the documents over to a nuclear weapon state for safekeeping and further analysis. One exception is folder no. 10, which requires special consideration. Nonetheless, the Swiss government should make this file available to the magistrate, prosecutors, and the defendants, destroying it only after the judicial process is over.

Within Switzerland, the focus on the constitutional aspects of the Tinner case has also served to deflect attention from Switzerland's need to improve its trade and anti-proliferation controls. The Khan network used Switzerland effectively for over two decades with little fear of being stopped by Swiss authorities. The Swiss government must better analyze its woeful lack of export controls during that period and concentrate on ensuring that such lapses do not happen again.

Costs to the United States and the Way Forward

The inevitable controversy, which has included Urs periodically proclaiming his link to the CIA, and the Swiss government's decision to destroy the records, has undermined the CIA's twin goals of protecting the Tinnings and keeping its operations secret. The United States could have far better accomplished its goals in Switzerland and avoided several negative outcomes. Urs and Marco have already served about as much time in jail as they would have if convicted. Many CIA operations in Switzerland are now widely known. Only high level U.S. diplomacy ensured that the prosecutors would not file anti-espionage charges against CIA operatives in Switzerland. The IAEA lost the cooperation of the Tinnings in its investigation of the Khan network. A senior official close to the IAEA said the Tinnings "could have shed a lot of light on the whole situation." The Tinner case should remind of the damage that can occur when intelligence and law enforcement work against each other.

U.S. actions to influence the Swiss government appear, in their totality, to have interfered in Switzerland's judicial system. The U.S. government itself would never tolerate this from another government. In addition to breaking Swiss laws to disrupt the Khan network, an action that in hindsight most accept as necessary, the United States government subsequently engaged in actions aimed at preventing any prosecution of the Tinnings, a dubious action at best.

U.S. actions that invested so much in shielding the Tinnings against prosecution have also sent a message to would-be smugglers that the U.S. government might be willing to intervene to mitigate prosecution if there is information to be gained. This creates, in essence, an escape from prosecution, which is unlikely to help deter smuggling, although it might produce more informants.

The Tinnings' work for the CIA should not make them immune to prosecution under Swiss anti-proliferation laws anymore than mafia informants are exempt from punishment for the laws they break. The Tinnings are alleged to have engaged in illegal activities for many years before they became agents for the CIA

Instead of trying to block the Tinnings' prosecution, the CIA should have sought to cooperate with the Swiss government and recommend to the Tinnings that they should plead guilty to anti-proliferation charges. If the Tinnings had agreed to such a strategy in 2004, the U.S. government could have reasonably expected that the Tinnings would have received lenient treatment and leaks would have been kept to a minimum. The three Tinnings may still go to trial despite the actions of the CIA. A trial could lead to the release of even more information about the CIA.

The United States government and Congress should review what has happened in order to determine lessons and recommendations for the future. This review should include an evaluation of how the U.S. government balances the competing demands of intelligence operations and judicial enforcement in stopping those engaged in supplying the wherewithal to make nuclear weapons. The review should also recognize that stopping illicit nuclear trade is an international effort requiring cooperation and close coordination among many countries.

The Obama administration should consider a different approach to the Tinner case. It should adapt a new policy of cooperation with the Swiss legal system. The U.S. government should encourage the Tinnings to settle with the prosecutors and the court. It should recommend that the Tinnings seek a settlement whereby they would suffer no additional jail time and receive reduced fines. Given the complexity and ongoing controversy of this case, the Swiss prosecutors and courts would likely be interested in finding a way to settle with the Tinnings.⁴⁰

At first look, seeking a settlement might seem counterintuitive. Some would argue it would discourage others from aiding the CIA and convince smugglers that they can avoid significant penalties. But in addition to helping restore the credibility of the Swiss judicial process, such an approach would strengthen precedents worldwide that those who engage in nuclear smuggling will be prosecuted.

The United States, as a matter of policy, should seek to cooperate with authorities in their efforts to prosecute nuclear smugglers, while working if necessary to ensure minimal legal consequences for informants who provide information that helps stop nuclear proliferation. The U.S. intelligence community must continue its efforts to disrupt illicit nuclear trade, but it should do so with an eye towards working with other U.S. government entities such as the Justice Department, State Department, and Immigration and Customs Enforcement (ICE) with a goal of more effectively liaising and more openly working with other countries to help disrupt smuggling networks and prosecute criminals.

The Khan network, including the Tinnings, was composed of individuals who profited from nuclear smuggling for decades and were encouraged by little risk of being caught or prosecuted. If the international community hopes to prevent other transnational nuclear smuggling networks, a special emphasis on prosecuting smugglers and deterring new ones will go a long way towards doing so.

⁴⁰ See for example, *Blick*, "Bewegung im Fall Tinner," October 25, 2010. Here, the Swiss prosecutor points out that under a new Swiss criminal code that takes effect next year, a type of plea bargaining can occur. If the Tinnings pled guilty, the court could decide on a reduced sentence and limit the public release of evidence.

Mitigating Proliferation Risk

Doubts remain that the United States and Switzerland obtained all sensitive documents the Tinnings possess. The information on the Tinnings' computers would certainly speed a country's or a terrorist group's acquisition of a nuclear weapon. The United States would undoubtedly have preferred taking possession of those documents, allowing it to search for clues about missing documentation. Given what has happened, is the United States able to ensure that the Tinnings will not contribute to proliferation in the years to come? They still might have or be able to re-acquire from a hidden storage site gas centrifuge and nuclear weapons drawings and manufacturing instructions; and if so, there remains a risk that these could fall into nefarious hands. Friedrich, Urs, and Marco were fairly adept at their business of proliferating. The United States and Switzerland will need to ensure that the Tinnings do not contribute to proliferation in the years to come.

The Tinner case highlights the need for universal rules and guidelines on the handling, destruction, and admission as evidence of sensitive nuclear information in prosecutions of suspected nuclear smugglers. This need is most acute in non-nuclear weapon states, which are the most exploited by nuclear smugglers. If the handling of the Tinner affair were to become international precedent, it would become much more difficult to prosecute a member of a transnational nuclear smuggling network in a non-nuclear weapon state.

In the conflict over the Tinnings' fate, a casualty was the IAEA's investigation of the Khan network. To answer a range of questions about the Khan network, the IAEA needed the Tinnings' cooperation. A senior official close to the IAEA said that "the Tinnings could have shed a lot of light on the whole situation." Despite the difficulties, obtaining the Tinnings' cooperation should remain a priority of the IAEA.

SIDEBAR: More on the Bomb Documents

Khan likely planned to sell Libya and other countries the wherewithal to make a nuclear warhead. He himself gave a bag full of bomb drawings and instruction manuals to the Libyans in late 2001 or early 2002 at a meeting in Dubai. In that meeting, Khan told a senior Libyan official that when Libya progresses further with enrichment, the documents would become very helpful.⁴¹ The documents described in detail how to make a nuclear warhead and the designs that Pakistan acquired from China in the early 1980s.

Khan also appeared willing to go considerably further than just supplying drawings and technical documents for the Chinese-origin warhead; he appears to have sought to lay the basis for a second wave of assistance—the actual construction of nuclear weapons using weapon-grade uranium produced in the Libyan enrichment plant.

The files seized from the Tinnens contained a digitized and more thoroughly documented version of what Khan handed that Libyan official in Dubai. But the set also contained drawings for the components of two smaller, more advanced nuclear weapons. One was much more modern than the other two, dating to the 1990s, although only a few drawings for this design were on the computers. Although Pakistan developed its first nuclear weapons from the Chinese-supplied design, it had gone further in designing warheads that were lighter and smaller than the Chinese design.

After learning about the discovery of the hard copies of the Pakistani bomb design in Libya in 2004, Pakistani officials asserted categorically that Khan did not sell their nuclear weapon designs. If true, this would mean that Khan sold other countries' bomb designs but did not sell Pakistan's. Soon after learning about the more advanced weapon drawings found in Switzerland, a senior IAEA official told Pakistani government officials. They were upset realizing that the designs had to be from their nuclear weapons arsenal. The officials were genuinely shocked; Khan may have transferred his own country's most secret and dangerous information to foreign smugglers so they could together sell it for a profit. The advanced nuclear weapons designs may have long since been sold off to other, treacherous regimes.

During subsequent questioning by Pakistani authorities, Khan acknowledged the existence of the nuclear weapons drawings, saying that he "may have had such stuff" in Dubai. According to a senior official close to the IAEA, Khan likely brought the drawings to Dubai in order to arrange the manufacturing of certain parts for Pakistan's own nuclear weapons using his procurement network. This could help explain why the designs were not complete for the two newer designs; he only needed certain parts built overseas.

Yet Pakistan's own procurement efforts for the designs likely dated to the 1980s and 1990s. Why then did the Tinnens have the drawings on so many computers that were seized in 2006? The Tinnens were not interested in nuclear weapons designs per se; they only made components for a profit. According to a senior official close to the IAEA who viewed the drawings, the Tinnens' work on the drawings appeared to be aimed at selling finished drawings and accompanying manufacturing instruction manuals. The plan might have gone further. It might have included selling the equipment and materials necessary to make the warhead itself. Such sales would be far more lucrative, involving much larger contracts and commissions than just selling the designs.

The Tinnens were scanning these drawings onto hard discs in preparation for turning them into computer-aided design (CAD) drawings and developing manufacturing instructions for each part, according to a senior official close to the IAEA. The original drawings, some quite large, were hard copies produced by draftsmen;

⁴¹ Olli Heinonen, Deputy Director General, IAEA, in interview with Swiss national television program, **SF DOK**, by Hansjuerg Zumstein, "Wie ein Schweizer Mechaniker die Welt Veraenderte," Swiss National Television, January 22, 2009 (in German).

some even had the draftsmen's initials on them. The process of producing CAD drawings was laborious and not likely to be done without a specific purpose in mind.

The Tinnars worked on the drawings whenever they had a chance. Since they often traveled to UAE, Malaysia, and Switzerland, they worked on the drawings on several different computers. They worked on the drawings on a specific computer and then left the work there when they departed that location. They did not appear to have a set schedule for completing the work. They also did not archive the drawings in a centralized location and left them unencrypted. The absence of encryption eased the IAEA's task of discovering the drawings but increased the chance that others could recognize them and take them.

Missing in the set of the more advanced drawings were those for high explosive and uranium metal components. Other experts would have had to digitize these drawings and develop their manufacturing instructions. Marco and Urs appeared to be working on the electronic and metal parts that they were competent in dealing with. Who might have worked on other components is not known.

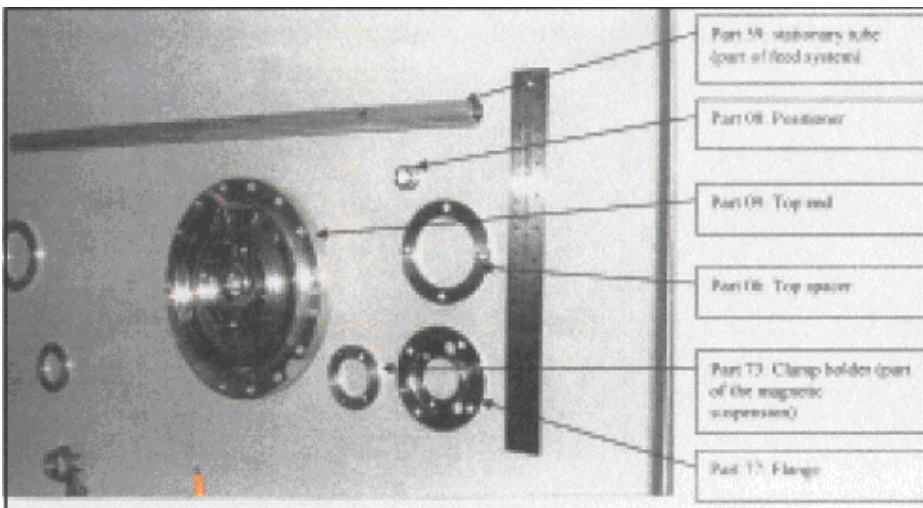


Figure 1: Top image is the outer casing of a centrifuge. The bottom image shows various other centrifuge components made in Malaysia at SCOPE.

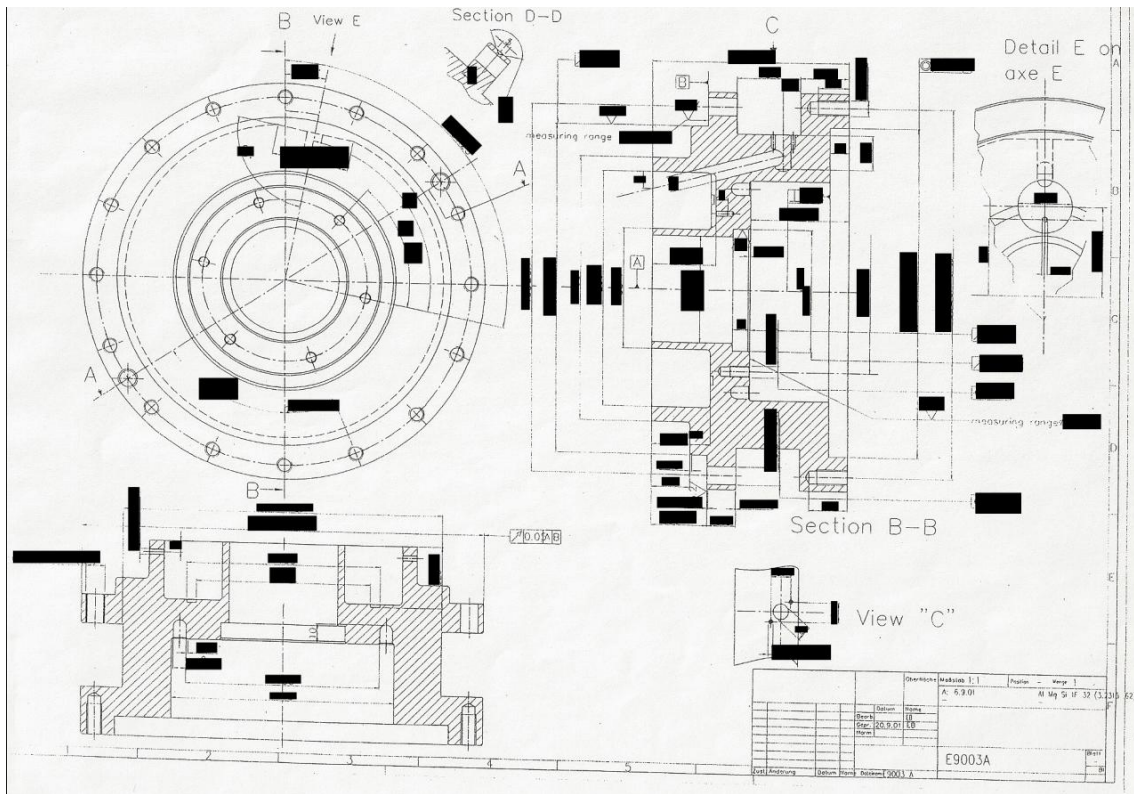


Figure 2: The drawing for the motor housing, part no. 9003 found at Kirag AG in Chur Switzerland (specifications redacted by ISIS).

Motor Housings and Motor for the Libyan Centrifuge Program

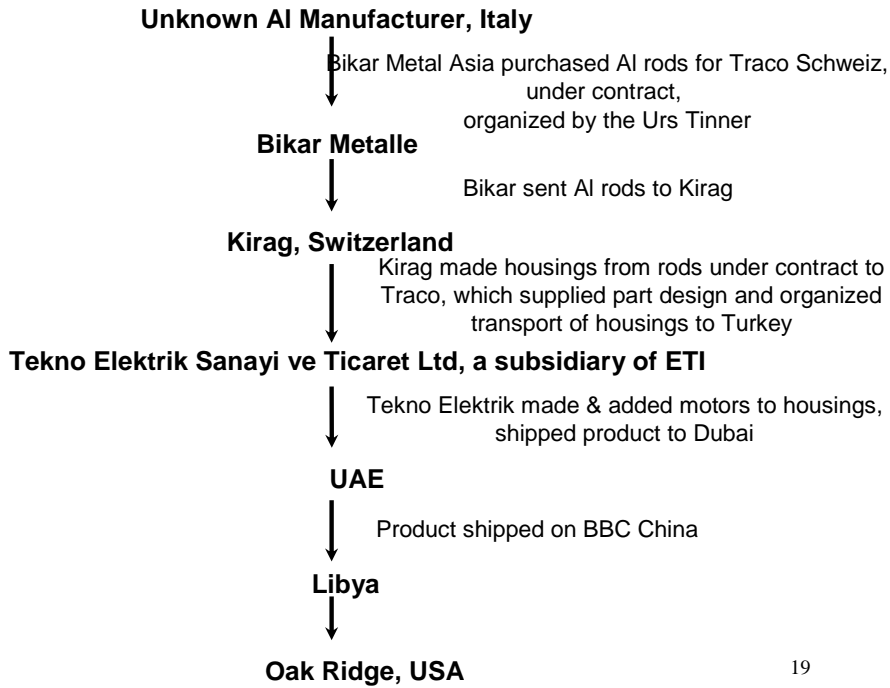


Figure 3: Supply chain of the motor and associated housing made by the Khan network.



Figure 4: President George W. Bush at Oak Ridge, Tennessee holding a finished motor housing turned over by Libya. (motor is white object visible on the bottom of the housing). Source: White House web site.

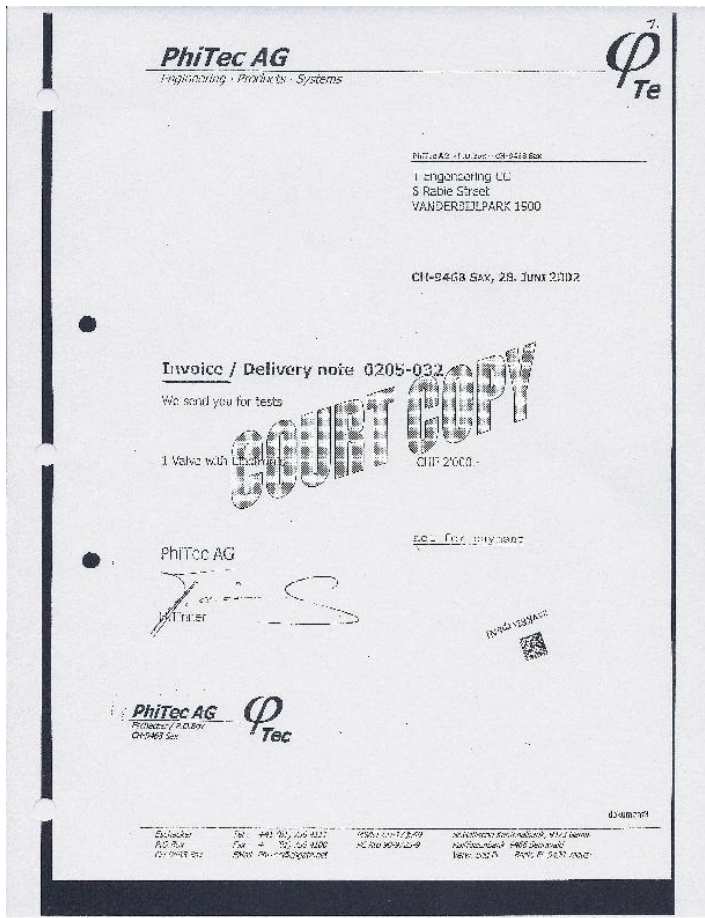


Figure 5: A copy of the invoice sent by PhiTec for a single valve that was used in South Africa by members of the Khan network as part of testing of programmable logic controllers used to maintain computerized control of the Libyan centrifuge plant. Annexure 0 in *Plea and Sentence Agreement, State vs. Geiges, Wisser, and Krisch Engineering*, September 2007.