CHEMICAL WEAPONS IN THE SUDAN:
ALLEGATIONS AND EVIDENCE

by Michael Barletta

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On August 20, 1998, U.S. Tomahawk cruise missiles struck and destroyed al-Shifa Pharmaceutical Factory in Khartoum, the capital of the Sudan. The United States said the attack was in response to the bombings two weeks earlier of U.S. embassies in Kenya and Tanzania, which it believed were orchestrated by Osama bin Laden. U.S. officials said the bombing of the Sudanese facility was necessary to prevent bin Laden from acquiring deadly nerve gas precursors that were being produced at Shifa. The Sudanese government denies that chemical weapons (CW) have ever been produced at Shifa or anywhere else in the country.

Since taking power in a bloodless coup in 1989, the National Islamic Front (NIF)-backed government of the Sudan has been a target of worldwide criticism and increasing U.S. opposition. In 1996, the United States withdrew all diplomatic personnel, and it has imposed economic sanctions against the country in part because the United States identifies the Sudan as a state sponsor of international terrorism. There have also been allegations since 1989 that the NIF government has procured, developed, and used CW, and the Sudan is not a signatory of the Chemical Weapons Convention (CWC).

Despite these general suspicions regarding the Sudan, however, few if any experts would have anticipated either the U.S. attack on Shifa or the specific allegations regarding production at that facility. Prior to August 20, 1998, no U.S. official had ever publicly identified the Sudan as a confirmed CW proliferant or “country of concern.” Moreover, all prior allegations about the Sudan that specified a particular CW agent had identified it as mustard gas, not VX. In addition, although a number of locations had been alleged to be involved in CW development or storage in the Sudan, the Shifa facility had never been identified as among them. Since the bombing of the plant, a number of questions have arisen regarding the U.S. charges, but the U.S. government continues to maintain that its decision was justified.

The attack on Shifa may be evaluated on a number of criteria that are beyond the scope of this study, including its efficacy as a counterterrorism measure; effectiveness as a counter-proliferation initiative; impact on U.S. relations with Arab, Muslim, and African states and peoples; congruence with international law; impact on Sudanese and American national politics; and health and humanitarian consequences. This report, however, concerns the possibility of CW acquisition by the Sudan. It examines allegations and evidence available in unclassified sources regarding the acquisition and development
of CW in the country, focusing on the Shifa facility. Because some details of the U.S. rationale for the cruise missile strike and U.S. allegations regarding CW in the Sudan have evolved substantially since the attack, this study addresses both the initial rationale and subsequent modifications of the U.S. position. Although the official positions of the Sudan are noted below, the author presumes that its government is not a reliable source of information. Hence every effort has been made to rely on sources that are independent or critical of the NIF regime. This study incorporates material published up to October 15, 1998.

This report concludes that it remains possible that at some point in time, a small quantity of a VX precursor chemical was produced or stored in Shifa or transported through or near it. However, the balance of available evidence indicates that the facility probably had no role whatsoever in CW development. Whether or not the United States was mistaken in its view that Shifa was involved in CW production, unconfirmed allegations about other CW sites in the Sudan remain. To ascertain with confidence whether or not chemical weapons have been produced in the country will require a thorough, independent, and technically qualified investigation of the remains of Shifa and other alleged CW facilities in the Sudan.

OPERATION INFINITE REACH

...I ordered our armed forces to strike at terrorist-related facilities in Afghanistan and Sudan because of the imminent threat they presented to our national security. (...) Our target was terror. Our mission was clear: to strike at the network of radical groups affiliated with and funded by Osama bin Laden, perhaps the preeminent organizer and financier of international terrorism in the world today.

U.S. President Bill Clinton, August 20, 1998

Immediately following the near-simultaneous August 7, 1998, bombings of the U.S. embassies in Nairobi, Kenya, and Dar es Salaam, Tanzania, President Bill Clinton convened a team led by National Security Advisor Samuel Berger to evaluate military options for retaliation. In an initiative marked by extraordinary speed and secrecy, less than two weeks later the United States simultaneously attacked targets in Afghanistan and the Sudan in “Operation Infinite Reach.”

The Counterterrorism Center of the U.S. Central Intelligence Agency (CIA) assembled evidence linking the two embassy bombings to Osama bin Laden, and linking the Shifa plant in the Sudan both to bin Laden and to CW development. The evidence was then reviewed by a very limited group of senior officials, who planned the retaliatory attacks in utmost secrecy. This self-dubbed “Small Group” was limited to just six top officials: President Clinton, Secretary of State Madeleine Albright, National Security Advisor Berger, Secretary of Defense William S. Cohen, the Chairman of the Joint Chiefs General Henry H. Shelton, and CIA Director George J. Tenet.

The “Small Group” gathered in the White House Situation Room on August 10. Clinton and other officials agreed with Shelton that operations using ground troops or manned aircraft should be ruled out, and hence these senior officials agreed that the U.S. counterattack should employ Tomahawk cruise missiles. Shelton presented a list of possible targets in the Sudan, and the officials reportedly agreed that al-Shifa was the best among them.

On August 14, CIA Director George Tenet reported that there was conclusive evidence justifying a retaliatory attack against bin Laden. Cohen and Shelton briefed Clinton on a general plan for attacks, and the President reportedly approved their plans that same day, including the strike on al-Shifa. The four chiefs of staff of the armed forces, Attorney General Janet Reno, and Federal Bureau of Investigation (FBI) Director Louis J. Freeh were not informed of the plan until one day prior to the scheduled attack. When briefed, Reno reportedly urged delay to enable the FBI to compile more convincing evidence linking bin Laden both to the embassy bombings and to the facilities targeted for attack. Reno was apparently concerned that the available evidence was insufficient to meet standards of international law, but she was overruled. Neither the Defense Intelligence Agency nor the FBI was involved in evaluating the data that led U.S. officials to attack Shifa.

On August 20, 1998, two U.S. warships in the Red Sea launched a dozen or more Tomahawk cruise missiles that destroyed al-Shifa Pharmaceutical Factory, located in an industrial area northeast of Khartoum. Operation Infinite Reach also included attacks on alleged terrorist training camps in Afghanistan. The missiles struck the Shifa factory at approximately 7:30 p.m. Khartoum time, killing one and injuring 10 Sudanese people in the vicinity. The explosions and ensuing fire consumed the facility, with all but three sections “unrecognizably demolished,” according to a reporter on
The three remaining sections—the administration section, water-cooling works, and plant laboratory—suffered severe damage.\textsuperscript{15}

The day of the attack, top U.S. officials explained that their decision to bomb Shifa was based on their belief that it was involved in CW production. President Clinton said the plant was destroyed because it was “a chemical weapons-related facility.”\textsuperscript{16} National Security Advisor Berger said, “the so-called pharmaceutical plant is part of something in Sudan called the Military Industrial Complex....”\textsuperscript{17} Adding more detail, Secretary of Defense Cohen said “the facility that was targeted in Khartoum produced the precursor chemicals that would allow the production of a type of VX nerve agent.”\textsuperscript{18} Joint Chiefs Chairman Shelton said the U.S. “intelligence community is confident that this facility is involved in the production of chemical weapons agents including precursor chemicals for the deadly V series of nerve agents like, for example, VX.”\textsuperscript{19} An unidentified senior U.S. intelligence official said, we know that [alleged terrorist Osama] bin Ladin has made financial contributions to the Sudanese military industrial complex. That’s a distinct entity of which we believe the Shifa pharmaceutical facility is part. We know with high confidence that Shifa produces a precursor that is unique to the production of VX. (...) We have no evidence, have seen no commercial products that are sold out of this facility. The facility also has a secured perimeter and it’s patrolled by the Sudanese military. It’s an unusual pharmaceutical facility.\textsuperscript{20}

Almost immediately after the U.S. missile strike, press reports began raising questions about the U.S. depiction of al-Shifa. The next two sections of this report present evidence that some elements of the initial U.S. rationale, such as claims that Shifa was military-controlled and wholly dedicated to CW production, were incorrect. The report then examines the more elusive question of whether the site nonetheless may have had some connection to CW development.

**MEDICINAL PRODUCTION OF AL-SHIFA PHARMACEUTICAL FACTORY**

*I have personal knowledge of the need for medicine in Sudan as I almost died while working out there. The loss of this factory is a tragedy for the rural communities who need these medicines.*\textsuperscript{22}

British engineer Thomas Carnaffin, August 1998

Al-Shifa Pharmaceutical Factory contained four main buildings: three production facilities and an administration building.\textsuperscript{23} It was located in Khartoum’s northern district, a mixed residential-industrial area.\textsuperscript{24} Construction of al-Shifa was started in 1992 and completed in 1996 by Bashir Hassan Bashir, a Sudanese engineer, and Salem Baboud, a Saudi Arabian shipper.\textsuperscript{25} The idea to construct the plant was reportedly that of Hassan, who had business experience importing medicines into the Sudan.\textsuperscript{26} The plant was designed in part by retired U.S. pharmaceutical consultant Henry R. Jobe, and it incorporated components shipped from the United States, Sweden, Italy, Switzerland, Germany, India, and Thailand.\textsuperscript{27} According to Sudanese officials and al-Shifa export manager Alamaddin Shibli, the factory was partly financed by the Eastern and Southern African Preferential Trade Association. This institution was reported to be a “thoroughly respectable body” with no known connection to bin Laden or other terrorists.\textsuperscript{28} Bashir has said that the factory had no connection to any Sudanese government “military industrial complex.”\textsuperscript{29} In March 1998, Bashir and Baboud sold the factory for approximately $32 million to Salaheldin Idris,\textsuperscript{30} a Sudanese-born Saudi Arabian businessman.\textsuperscript{31}
Whether or not CW-related activities took place at Shifa, it is now clear that at least most of the facilities’ operations involved production of commercial pharmaceuticals, a fact that senior U.S. decisionmakers were apparently unaware of when they targeted the site. Shifa was reportedly the largest of six pharmaceutical plants in Khartoum, employing over 300 workers and producing dozens of medicinal products. Twelve of these were for veterinary use, including an anti-parasitic that played an important role in sustaining Sudan’s livestock production. Shifa’s human medicines—including drugs for treating malaria, diabetes, hypertension, ulcers, rheumatism, gonorrhea, and tuberculosis—were widely available in Khartoum pharmacies. The factory supplied 50 to 60 percent of Sudan’s pharmaceutical needs, as well as exporting products abroad.

After the U.S. air strike, news reports from the site and interviews with plant officials, local doctors, and foreigners involved in the construction and operation of the facility confirmed that it produced antibiotics, pain relievers, drugs for treating malaria and tuberculosis, and veterinary medicines. NBC Chief Medical Correspondent Dr. Bob Arnot personally inspected the rubble of the Shifa plant two days after the attack. He examined the plant’s hand-written plant logs, assembly lines, and associated machinery, and observed thousands of packages and bottles in the remains of the plant. Arnot concluded that while this evidence did not prove that the plant only produced medicines, it did demonstrate that the plant produced antibiotics and tuberculosis drugs on a large scale.

Contrary to U.S. allegations, it is now clear that the plant was not a closed, secretive, or military-run facility. Irish film producer Irwin Armstrong, who visited the plant in 1997, said, “the Americans have got this completely wrong. In other parts of the country I encountered heavy security but not here. I was allowed to walk about quite freely.” Bishop H.H. Brookins of the African Methodist Episcopal Church of Nashville and Arkansas businessman Bobby May told New Yorker reporter Seymour Hersh that they had toured Shifa days before the U.S. attack and were free to move about the plant as they observed workers packaging medicines. On learning of the attack, Brookins said he believed “somebody made a mistake,” while May recounted watching CNN coverage of the attack from the Khartoum Hilton: “I’m lying in bed and watching the White House talking about this place being a heavily guarded chemical factory. I couldn’t believe my ears. Until then, I had a lot of faith in our intelligence services.” Other accounts indicated that the facility often received guests, including the president of Niger, the British ambassador to the Sudan, and groups of Sudanese schoolchildren. Foreigners were allowed to enter the facility freely, it had no special security constraints, and prominent road

CW ALLEGATIONS AND AL-SHIFA

I spent a total of two months in Khartoum. One of the places where the Sudanese like to take you is the pharmaceutical plant. It was a showplace for them.

Arkansas businessman Bobby May, October 1998

In response to the U.S. attack and allegations, Sudanese Interior Minister Abdul Rahim Mohammed Hussein said that the facility was “a factory for medical drugs” and that “we have no chemical weapons factory in our country.” Sudan’s head of state, Omar al-Bashir, said that the Sudan would ask the United Nations to create “a commission to verify the nature of the activity of the plant.” Although there are sound reasons to be wary of accepting Sudanese government claims, officials’ actions in the wake of the attack are not what one would expect if their statements were mere propaganda. Government ministers arrived at Shifa while the plant was still burning from the attack, which presumably would have been personally hazardous if the plant had been involved in CW production. Press accounts indicated no government or other effort to deny access to the facility, and contrary to their past practice of impeding foreign access to the Sudan, officials began approving visas for journalists almost immediately upon request.

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Testimony that the plant produced medicine and was not heavily guarded contradicts some initial U.S. claims, but does not preclude the possibility that the Shifa facility may also have been involved in CW production. However, U.S. allegations that the Shifa plant produced a chemical weapon precursor have also been disputed by many sources that are independent or critical of the Sudanese government.

Foreign engineers and managers familiar with the construction and operation of the plant said that it was not suitably designed or operated to permit CW production. The U.S. consultant who designed Shifa, Henry R. Jobe, said that it was not constructed with equipment necessary for nerve agent production. The plant’s Italian supplier, Dino Romanatti, said that he had full access to the facility during visits in February and May 1998, and saw neither equipment nor space necessary for CW production. Romanatti described plant resources as very limited: “the availability of tools in the factory was close to zero. You couldn’t get a piece of steel, a screw, a saw. To imagine a plant that makes chemical weapons is absolutely incredible.”

Thomas Carnaffin, a British engineer who served as technical manager for the plant’s construction from 1992 to 1996, said that he never saw any indication of suspect activities at the plant. He told The New York Times, “I suppose I went into every corner of the plant. It was never a plant of high security. You could walk around anywhere you liked, and no one tried to stop you.”

Carnaffin told The Guardian that “unless there have been some radical changes in the last few months, it just isn’t equipped to cope with the demands of chemical weapon manufacturing. You need things like airlocks but this factory just has doors leading out onto the street.” The Chicago Tribune quoted Carnaffin as saying, “it was a very simple mixing, blending, and dispensing pharmaceutical facility.”

A Jordanian engineer who supervised plant production in 1997, Mohammed Abul Waheed, said “the factory was designed to produce medicine and it would be impossible to convert it to make anything else.” The former co-owner of Shifa, Salem Ahmed Baboud, likewise said the plant was designed only to manufacture particular medicines, and could not have been used for any other purpose.

Some diplomats on the scene agreed with these sources. An unidentified senior European diplomat in Khartoum with experience in tracking CW proliferation said that the Sudan has never been detected attempting to circumvent the international system for monitoring exports of sensitive materials and equipment used in CW production. The German Ambassador to the Sudan, Werner Daum, reported to Bonn by coded telex the evening of the U.S. attack that the plant was neither secret nor disguised. The report said Shifa could “in no way be described as a chemical plant,” but was instead “Sudan’s largest pharmaceutical plant,” and that it used materials imported from China and Europe. Moreover, unidentified senior diplomats in Khartoum told the Financial Times that they had no reason to believe the plant produced anything other than pharmaceuticals, and they do not believe that it was linked to bin Laden. Finally, while some Sudanese opposition figures echoed U.S. allegations regarding Shifa, other leaders and the anti-government Democratic Unionist Party stated that they believe Shifa only produced pharmaceuticals.

Thus, according to foreign consultants and diplomats familiar with its recent operations and some independent Sudanese sources, there were no indications of suspicious activities and Shifa apparently had neither equipment nor space for CW production. These multiple accounts, the size of the plant, and the diversity of its pharmaceutical production together suggest that it is highly unlikely that large-scale CW production could have been under way at Shifa.

However, most of these eyewitnesses are not CW specialists and it is possible that their knowledge is incomplete. Hence, their observations do not exclude the possibility that, at some point in time, some portion of the plant was used in small-scale or pilot production of a chemical weapon precursor. Indeed, Will D. Carpenter, a CW expert and former chemical company executive, said that production of a quantity of CW precursor chemicals sufficient for terrorist use might require only “a wide range of available glass-lined equipment that can be tucked away in a small part of a building.”

However, the available evidence does contradict many of the initial U.S. assertions. The factory was neither closed, nor secretive, nor guarded by Sudanese troops, nor in any discernible way part of Sudan’s “military industrial complex.” Likewise, no evidence has emerged of any direct financial or other obvious link between bin Laden and the plant.
U.S. officials acknowledged a month after the attack that they had no evidence directly connecting bin Laden to Shifa when President Clinton ordered the factory’s destruction. Their account of the target selection process, moreover, suggests that desire to act swiftly led them to draw firm conclusions from inconclusive evidence. U.S. officials explained that intelligence officers searched commercial databases and Sudanese internet sites, including Shifa’s, for information. Because they did not find any list of medicines for sale by the plant, they mistakenly concluded that it did not produce pharmaceuticals. U.S. officials have also admitted to uncertainty as to whether their own evidence indicated that precursor chemicals were produced at Shifa, or only stored or shipped through the plant.60 And Clinton administration officials eventually acknowledged that the factory did produce pharmaceuticals.61

**EVOLUTION OF THE U.S. RATIONALE**

...with the knowledge that we had...had we not hit that target—and we did it at night when we—with knowledge that there was not an evening shift there to minimize collateral damage—had we not hit that target and had bin Ladin used chemical weapons in a terrorist attack, I don’t know how we could have looked the American people in the face.62

National Security Advisor Sandy Berger, September 21, 1998

Important aspects of the U.S. explanation for the bombing did not withstand careful scrutiny, and U.S. officials encountered skepticism regarding the motivations of the Clinton administration because just three days prior to the attack the president had admitted to having an improper relationship with a White House intern. In response, U.S. allegations evolved substantially following the August 20 attack. U.S. officials provided additional details regarding the intelligence data that led them to be suspicious of Shifa, and they sought to demonstrate a persuasive link between the plant and bin Laden. In what appeared to be an alternative to the bin Laden connection, some unidentified intelligence officials suggested that the Shifa plant might have been used by Iraq in an effort to circumvent U.N. restrictions on its weapons of mass destruction (WMD) programs. The question of precisely when the United States targeted Shifa for destruction may account for the U.S. problems in sustaining its rationale for the attack. As noted above, within three days of the Kenya and Tanzania bombings, senior U.S. officials resolved to bomb some target in the Sudan in their Operation Infinite Reach counterattack. Some accounts indicate that al-Shifa was substituted at nearly the last moment for another alleged CW facility in Khartoum.

**An Iraqi Connection**

While initial U.S. allegations identified bin Laden as sponsoring the Shifa plant to gain access to CW, some U.S. officials subsequently asserted that Iraqi officials were involved in CW production at the Shifa factory.63 In particular, an unidentified senior U.S. intelligence official said that a key figure in Iraq’s CW program, Dr. Emad al-Ani, had ties to Sudanese officials at the Shifa plant.64 U.S. officials said the plant’s chairman went to Iraq and met with Ani, whom U.S. officials identify as “the father of Iraq’s VX program.”65 Undersecretary of State Thomas Pickering said, “we see evidence that we think is quite clear on contacts between Sudan and Iraq. In fact, El Shifa officials, early in the company’s history, we believe were in touch with Iraqi individuals associated with Iraq’s VX program.”66

This alleged Iraqi connection differs from the original rationale for the attack on Shifa. It also contradicts a White House statement of February 16, 1998, that the United States possessed “no credible evidence that Iraq has exported weapons of mass destruction technology to other countries since the [1991] Gulf War.”67 It conforms in general terms to allegations made in a February 1998 congressional task force report authored by Yossef Bodansky, which claimed that Iraq had relocated its WMD assets and development to the Sudan, Yemen, Libya, and Algeria. But the Bodansky report did not identify the Shifa plant as among the facilities in which Iraq had allegedly engaged in CW development in the Sudan, and, as explained in a subsequent section of this study, the credibility of the report is dubious at best.68

The United States may well have received new intelligence data since February, or reevaluated such data immediately after the Shifa attack, and hence reached the conclusion that Iraq had in fact exported CW capabilities to the Sudan. However, the alleged Iraqi connection was aired by only a few officials, and was not consistently cited by officials even after being publicly broached when the U.N. Security Council first considered Sudan’s request for a fact-finding mission to the Shifa facility. In a recent briefing that included press queries regarding both Iraqi defiance of U.N. Special Commission on Iraq (UNSCOM) inspections and the
attack on Shifa, National Security Advisor Berger again put forward a detailed justification for the U.S. decision to destroy Shifa. However, his explanation included no mention of an Iraqi role in the plant.69

The complicated political context of current U.S. policymaking toward Iraq makes it difficult to interpret U.S. officials’ statements and omissions regarding a possible Iraqi role.70 One technical point is clear, however. Production of VX nerve agent requires a level of technical sophistication that has been attained by only a very few countries, including the United States, the Soviet Union, and Iraq. As former UNSCOM official David Kay noted, “Sudan is not a state that you’d normally expect to understand, by itself, the intricacies of the production of VX.”71 Hence, if the Sudan did seek to produce VX, it would be unlikely to achieve success unless it received significant assistance from Iraq. The close ties between the Khartoum and Baghdad regimes since the Persian Gulf War suggest that the political conditions may have been favorable for such collaboration.

Al-Shifa and Terrorism

In a classified briefing, Secretary of Defense Cohen and CIA Director Tenet told U.S. senators that the United States possessed electronically intercepted telephone conversations from within the Shifa plant. Combined with other evidence, they said, this indicated that the Khartoum plant was involved in a CW program that could have been used by bin Laden.72 It unclear why U.S. officials declined to provide further details on the content of these communication intercepts, given widespread doubts about the attack and the precedent set by the Reagan administration’s release of comparable intelligence data to justify its attack on Libya in the 1980s.73 A senior member of Congress who attended the briefing concluded that the United States apparently does not have unequivocal intelligence linking bin Laden to the embassy bombings.74 This concern is reportedly what led Attorney General Reno—on being informed of the plans to conduct attacks in the Sudan and Afghanistan—to urge that the attacks be delayed until such evidence could be assembled.75

Within a month of the attack, however, federal law enforcement officers indicated that they believed they had acquired adequate evidence to present such claims before a U.S. district court. According to a criminal complaint filed by the FBI against Mamdouh Mahmud Salim, an alleged associate of bin Laden and member of the al Qaeda organization founded by bin Laden, “while al Qaeda was located in the Sudan, CS-1 [confidential source-1] advises that al Qaeda and the NIF had a close working relationship in the Sudan, working together to obtain weapons and explosives and in an effort to develop chemical weapons.” The complaint says that al Qaeda was based in Sudan between 1991 and 1996 and that CS-1 was a member of the organization. It also charges that Salim “was involved in arranging weapons production in the Sudan as part of a joint effort between al Qaeda, the Sudan and Iran.” The complaint alleges, moreover, that “at various times from at least as early as late 1993, Mamdouh Mahmud Salim…made efforts in the Sudan and elsewhere to…obtain the components of nuclear weapons…”76 In a similar vein, an unidentified U.S. State Department official said that bin Laden had sought CW “within his organization and in cooperation with Sudan’s National Islamic Front,” in order to test “various poisonous substances and improve techniques for using and producing them.”77

U.S. officials are reportedly uncertain, however, whether the proposed CW acquisition plan was ever carried out, or if Shifa was involved.78 The State Department official said that bin Laden “provided significant funding for Sudan to build its military-industrial complex,” and that several sources indicated that Shifa’s owner was a “front man or agent for bin Laden.” The official said Shifa’s plant manager lives in the house that was occupied by bin Laden before his expulsion from the Sudan, and that reports indicated that one of bin Laden’s former financial managers said bin Laden had invested in Shifa.79

At the time of the attack on Shifa, U.S. officials were not aware that Salah Idris, an advisor to Saudi Arabia’s largest bank, owned the plant.80 Following the August 20 strikes, U.S. officials sought to link Idris to bin Laden and to terrorist activities. In their Senate briefing, Cohen and Tenet provided what they described as new and not fully evaluated evidence of financial relations between bin Laden and Idris.81 In particular, they said intelligence data indicated ties between bin Laden and Shifa plant manager Osman Suleiman. They said that the evidence “was a little tenuous, but it’s getting stronger.”82

Later, unidentified U.S. intelligence officials said they had evidence that Idris had financial dealings with the Egyptian group Islamic Jihad, which assassinated President Anwar Sadat in 1981. They also said bin Laden provides resources to Islamic Jihad and that it is part of
his alleged terrorist network. They declined, however, to provide details regarding this alleged relationship. The U.S. officials also said that Idris has financial holdings in a firm that is 40 percent owned by the Military Industrial Corporation, which they say controls CW development in the Sudan. Idris has denied all of these charges.83

Independent reports conflict on Idris’ relationship with the Sudanese government and the National Islamic Front. The New York Times and Deutsche Presse-Agentur reported that several Sudanese businessmen have said in interviews that Idris, who was born in the Sudan and currently holds a Saudi Arabian passport, began investing heavily in the Sudan in early 1996, about the time when bin Laden was expelled from the Sudan.84 Idris is said to have invested in what is referred to as the “military industrial complex” in the southern outskirts of Khartoum, where Iraqi technicians allegedly worked to produce chemical weapon agents.85 Deutsche Presse-Agentur reported that Idris “allegedly has good contacts to key leaders of Sudan’s Islamic fundamentalist regime.”86 It does seem plausible that in order to conduct business in the Sudan, it would have been useful and might have been necessary for Idris to have enjoyed good relations with the Khartoum regime.

However, the Financial Times reported that Idris’ family has close ties to the Khatmiyya religious sect, which is “vehemently opposed to the Islamist government in Khartoum” and part of the opposition National Democratic Alliance (NDA). If true, Idris is unlikely to be a business partner or otherwise allied with bin Laden, who had close ties to the Islamist regime that the sect and the NDA opposes.87 The Wall Street Journal described Idris as a “westernized Saudi Arabian banker with no known ties to Islamic extremists,” and noted that Idris was formerly a senior manager at the National Commercial Bank of Saudi Arabia, which has close ties to the Saudi royal family.88 Since the Saudis previously stripped bin Laden of citizenship and expelled him from Saudi Arabia, Idris’ past position again makes ties to bin Laden unlikely. Idris is also on good terms with some leaders of the Sudanese opposition, and his legal representative in the Sudan, Ghazi Suleiman, leads an opposition lawyers’ organization that defends anti-government activists. Suleiman has called for an international fact-finding mission to investigate the U.S. allegations and condemned the U.S. attack on Shifa. He said, “I want to persuade the Americans that they have made a mistake. This was no chemical weapons facility; do you think that, if it was, all the country’s pharmacy students would come to visit as part of their training? The Americans could not have found its equal, for quality and sophistication, in all of Sudan.”89

Whatever his prior relation with the Sudanese government, since the August 20 attack Idris has distanced himself from government efforts to exploit the U.S. destruction of Shifa for propaganda purposes. Idris reportedly did not participate in state-sponsored demonstrations at the scene of the destroyed factory. He has called for an international investigation of the plant and its operations, but publicly rejected efforts by the Sudanese government to politicize the dispute with the United States and refused to accept monies raised by a new tax on Sudanese workers that the government says it is collecting to rebuild Shifa.90

Targeting Shifa

It is unclear precisely when U.S. officials decided to destroy the Shifa plant. This is a critical question, because excessive haste—coupled with the exclusion of most U.S. military and intelligence officials from the planning for Operation Infinite Reach—could explain why U.S. officials were apparently ill informed about the facility.

ABC News reported on August 26 that “it’s now widely understood that the Shifa plant was added to the target list literally hours before the attack.”91 A Newsweek report of August 31 said Shifa was added to the target list on the weekend of August 15-16, a few days before the attack.92 However, senior U.S. intelligence officials said on August 31 that the Shifa facility was designated as a possible target “months” earlier. Other reports, though, again indicated that the facility was selected closer to the time of the attack.93 On September 1, ABC News repeated its prior assertion that “military and intelligence officials say the Sudanese chemical plant was added to the target list less than 24 hours before the missile strike.”94

A September 21 report in U.S. News & World Report marked a shift in accounts about the targeting process. The brief report said that a third target was pulled from the list less than 24 hours before the August 20th attacks. The change was said to have been made because officials reportedly feared its destruction would result in high civilian casualties. Pentagon officials, however, refused to identify the target that was not destroyed, say-
ing only that it was in the Sudan.\textsuperscript{85} Given these conflicting accounts, it thus remains unclear whether a second target was dropped from a list that included Shifa, or if Shifa was substituted for another target in the Sudan. The latter possibility would account better for U.S. officials’ confusion about the facility.

In any case, in testimony before the Senate Armed Service Committee, General Shelton confirmed that a proposed target was removed from the list on the basis of objections of one of the joint chiefs of staff.\textsuperscript{86} The New Yorker reported that the target was a storage facility in Khartoum that the CIA believed was linked to bin Laden, but which was removed from the target list in large part because there was no soil sample indicating CW activity at the facility.\textsuperscript{87}

A “SMOKING GUN”

There were other facilities where there was really hard evidence, but there was not a smoking gun; there was not a soil sample.\textsuperscript{88}

Unidentified U.S. official, August 26, 1998

For U.S. decisionmakers, the most compelling reason to target Shifa appears to have been their belief that the United States had physical proof that the plant was involved in VX precursor production. Unidentified U.S. intelligence officials said on August 25 that the United States possessed a soil sample gathered clandestinely near the Shifa plant that contained “fairly high amounts” of O-ethyl methylphosphonothioic acid, or EMPTA.\textsuperscript{89} The next day, Undersecretary of State Thomas Pickering said the United States had “been aware for at least two years that there was a serious potential problem at this plant that was struck,” but decided to attack only after collecting the soil sample in “recent months.”\textsuperscript{90} According to CIA Director Tenet, the CIA sent a human agent to Shifa who entered the facility grounds, evaded plant guards, and collected a soil sample from a designated area within the gates of the plant.\textsuperscript{91} He said that a U.S. commercial laboratory analyzed the sample and found a level 2.5 times that necessary to be considered a “trace” presence of EMPTA.\textsuperscript{92} An unidentified senior U.S. intelligence official said the compound “is a substance that has no commercial applications, it doesn’t occur naturally in the environment, it’s not a byproduct of any other chemical process. The only thing you can use it for, that we know of, is to make VX.”\textsuperscript{93} The official said, moreover, that Iraq is the only country known to have produced VX using EMPTA.\textsuperscript{94}

U.S. officials were correct that Iraq is the only country that has produced VX using EMPTA. However, they were mistaken in stating that EMPTA can only be used to produce nerve gas. More importantly, however, such a test result indicating the presence of EMPTA could nonetheless be erroneous. This is true especially because the physical link between Shifa and the soil sample remains unclear. Hence such a test result would not constitute definitive proof; it is not a “smoking gun.” Nevertheless, if EMPTA was present at Shifa when it was destroyed on August 20, traces of the chemical almost certainly remain among the wreckage of the plant.

VX is a highly lethal, viscous fluid resembling motor oil in its physical appearance. It can be produced by several different physical processes. Four precursor chemicals that can be used in sequence to produce VX–phosphorus trichloride (PCl₃), methylphosphonous dichloride (SW), methylphosphonothioic dichloroide (SWS), and O-ethyl methylphosphonothioic acid (EMPTA)–are also toxic, although far less so than VX. All four are dual-use chemicals; they have both military applications and legitimate civilian uses. The first of these, PCl₃, is used widely and hence appears on Schedule 3 of the CWC, which requires the declaration of plants producing over 30 tons of Schedule 3 chemicals annually, and inspection of facilities that produce over 200 tons per year. SW, SWS, and EMPTA are included on Schedule 2B of the CWC, indicating that facilities producing them may be subject to inspection if the facility’s annual production of the precursor exceeds the declaration threshold of one metric ton. By contrast, the precursor used by the United States in producing its stockpile of VX, O-ethyl O-2-diisopropylaminomethyl methylphosphonite, or QL, is on Schedule 1, a list of chemicals banned outright by the CWC.\textsuperscript{95}

U.S. officials were apparently under the mistaken impression that EMPTA is not permitted by the CWC. An unidentified official of the U.S. Arms Control and Disarmament Agency (ACDA) told the Chicago Tribune on August 26 that EMPTA is on CWC Schedule 1. ACDA altered its position after Organization for the Prohibition of Chemical Weapons (OPCW) official Ron Manley noted that EMPTA falls on Schedule 2B of the Convention, which lists dual-use chemicals.\textsuperscript{96}

The inclusion of EMPTA on Schedule 2 is significant. It indicates that chemical weapon specialists who developed the CWC schedules identified it as being part of a category of chemicals some of which have or could
have industrial applications. OPCW spokesperson Donato Kiniger-Passigli confirmed that EMPTA could have “legitimate commercial purposes,” such as fungicide production.\textsuperscript{107} Chemical and Engineering News reported that EMPTA is described in research literature as having applications in producing fungicides, pesticides, and anti-microbial agents.\textsuperscript{108} An unidentified State Department official acknowledged that EMPTA can be used in “certain insecticides, as the germination inhibitor for wheat, or in a chemical weapons test kit. But after extensive research we have found no indication that EMPTA has ever been used commercially in any of these applications.”\textsuperscript{109} A spokesperson for a U.S. firm that produces EMPTA for research purposes, Aldrich Chemical Corporation, said the firm was not aware of any present commercial application for the chemical.\textsuperscript{110}

Although U.S. assertions that EMPTA is banned and has no possible legitimate applications are incorrect, it is important to recognize that the chemical would have no role in Shifa’s known legitimate medicinal production. Therefore, if EMPTA were present at Shifa, this would almost certainly indicate that the facility was in some way involved in the production of VX. Nevertheless, for several reasons, a lab test result indicating the presence of EMPTA in a sample taken from soil near Shifa does not necessarily indicate that the facility was involved in its production, nor that EMPTA or VX production was underway elsewhere in Khartoum.

According to Jonathan B. Tucker, director of the Chemical and Biological Weapons Nonproliferation Project at the Monterey Institute of International Studies, a reliable chemical sampling and analysis protocol includes four elements. First, multiple control samples should be gathered from locations comparable to the site under investigation, where the test sample is collected. The control samples are necessary to ensure that any chemical detected is not an environmental contaminant, such as a pesticide residue. Second, the control and test samples should be numerically coded and analyzed in a “blind” manner. This is necessary to avoid inadvertent bias or deliberate tampering in the analysis process. Third, the control and test samples must be sealed and their chain of custody monitored carefully at every step from the sampling locations to the analysis in the laboratory, in order to prevent inadvertent contamination or deliberate tampering. Finally, the control and test samples should be divided and analyzed by more than one laboratory, and if possible, by using more than one independent analytic method. These measures reduce the likelihood of “false positives” or “false negatives,” i.e., test results that mistakenly register the presence or absence of the chemical under scrutiny.\textsuperscript{111}

There are several possible reasons why such a soil sample might test positive for EMPTA. First, U.S. officials may be correct in their allegation that the VX precursors were produced at Shifa. But there are other potential explanations for the test result, however. It is possible that the sample was not taken from Shifa, or that the sample was contaminated or mishandled, either by the human agent who gathered the sample for the CIA or by whoever carried it from the Sudan to the United States. Trace elements of EMPTA might have been found in the soil sample without their being present at Shifa, as a result of not following reliable procedures or through a deliberate effort to mislead U.S. officials. It may not be feasible to implement such procedures under the dangerous circumstances of clandestine intelligence gathering. Because of the nature of U.S. relations with the Sudan, however, it is also possible that the United States had to employ an agent of uncertain trustworthiness.

Since the United States withdrew all diplomatic and intelligence personnel from the Sudan in January 1996, it has had to rely on informants whose allegiance and reliability are not always assured. Shortly after all U.S. personnel were evacuated due to fear of imminent terrorist threats against Americans, the CIA retracted over 100 intelligence reports—including those spurring the fear of attacks and linking the Sudanese government to terrorist actions—because it concluded that the source of the reports was a fabricator.\textsuperscript{112} Based on this and other informants’ reports of terrorist threats that were not corroborated and never materialized, an unidentified Clinton administration official told The New York Times that “the decision to target Al Shifa continues a tradition of operating on inadequate intelligence about Sudan.”\textsuperscript{113} Unidentified U.S. officials who question the U.S. attack on Shifa said that dubious intelligence has driven U.S. policy toward Sudan for at least the last three years.\textsuperscript{114} Hence the reliability of the informant who collected the sample is questionable, and it is possible that the agent could have deliberately tainted the sample or collected it from another location in the Sudan.

CIA chief Tenet said, however, that the operative had submitted to “repeated” polygraph tests to gain assurance that the informant had carried out the mission as instructed.\textsuperscript{115} An unidentified U.S. intelligence official
said, “it was not done sloppily.” This official said the sample was divided into three parts, each of which was tested by the same private laboratory. An unidentified U.S. State Department official said, “we have high confidence that the laboratory that analyzed the Sudanese samples and ultimately detected EMPTA did so correctly and in accordance with scientifically accepted procedures and protocols. The lab has a long history of doing quality analysis.” The official also said, “we know of no other factors in the environment that could result in a positive EMPTA signature.”

A U.S. intelligence official declined to provide Chemical and Engineering News with information on the sample’s chain of custody or what other chemicals were detected in the sample, and would not identify the lab that analyzed it. It is unclear why the CIA asked a private lab to examine the soil sample, instead of the U.S. laboratories that specialize in CW research at the U.S. Army Chemical Research, Development, and Engineering Center at Aberdeen Research, Development, and Engineering Center at Aberdeen Proving Grounds, Maryland, or at Lawrence Livermore National Laboratory, California.

In any case, despite assurances from U.S. officials, their account of the sampling and analysis procedure used in this case indicates that it did not conform to the procedures necessary to maximize confidence in the test’s reliability. Hence, the laboratory test may have reached a false positive result due to confusion of EMPTA with another substance with a similar chemical structure. A Swiss chemist currently examining an Iraqi missile warhead for VX residue for the United Nations, Alfred Frey, said that finding EMPTA “could be a sign of degradation of VX, but this would not be sufficient” to verify that the plant was involved in VX production.

Hank Ellison, former director of the U.S. Army’s chemical and biological defense programs at Fort Campbell, Kentucky, said the chemical structure of EMPTA resembled an agricultural insecticide, Fonofos, which is commercially available in Africa. Because of its widespread use, production of Fonofos (O-ethyl S-phenyl Ethylphosphonothiolothionate) is explicitly exempt from reporting requirements under the CWC. It is uncertain whether Fonofos has been used for agricultural or other purposes in or around Khartoum, which could lead to its appearance in a soil sample taken from the area.

Ellison said, “I imagine this soil sample wasn’t taken under the best of circumstances, by somebody placing it in a cooler and immediately sending it to a lab. And quality control for the storage and manufacture of pesticides and insecticides is not the highest in the world, so that could increase the possibility of seeing similarities in the chemical structure.” OPCW spokesperson Kinigier-Passigli said some research indicated that EMPTA could result as a byproduct of the breakdown of common pesticides. An unidentified U.S. intelligence official said the sample was collected in June 1998, but was not analyzed until July 1998. Thus, the lab test indicating the presence of EMPTA might have been a false positive, an inaccurate finding that the chemical was present due to its similarity with other artificial compounds present in the environment. The United States has declined to make the soil sample itself available for independent analysis.

A few days after the attack, some unidentified U.S. officials suggested an alternative explanation for the presence of EMPTA: the possibility that the precursor was stored in or transported near al-Shifa, instead of being produced by it. They said the chemical might have been produced at another plant in Khartoum, which was not attacked because it is located in a residential neighborhood and U.S. officials feared that its destruction would cause heavy civilian casualties. According to an unidentified U.S. State Department official, however, “we had previously collected samples from other suspected sites in Sudan, but only the sample from the Shifa factory tested positively [sic] for chemical weapons precursors.”

More importantly, the suggestion that Shifa may not have been directly involved in precursor production is clearly at odds with the official U.S. rationale for attacking the plant. Senior U.S. officials have asserted specifically and unequivocally that Shifa was producing a chemical weapon precursor at the time it was attacked by the United States. These officials include President Clinton, Secretary of Defense Cohen, Chairman of the Joint Chiefs of Staff Shelton, National Security Advisor Berger, Secretary of State Albright, Ambassador to the United Nations Bill Richardson, Deputy Undersecretary of State for Political Affairs Thomas Pickering, Assistant Secretary of State for Near Eastern Affairs Martin Indyk, and Deputy State Department Spokesman James Foley. On September 8, Department of Defense spokesperson Kenneth Bacon said, “we believe now, as we did at the beginning, that this plant [Shifa] does make EMPTA, a precursor for VX.”
One issue that remains unclear is the physical path or process by which U.S. officials believe EMPTA would have been dispersed outside the plant. The sample was reportedly collected “within meters” of Shifa. A U.S. intelligence official quoted in an August 25 CNN report said the material found in the soil sample at the Khartoum plant could have impregnated the dirt as a result of either “airborne emissions or spillage from the manufacturing process.” However, EMPTA is of relatively low volatility and hence unlikely to travel in vapor form, and it is not clear why an effluent system that carried EMPTA in liquid form would have deposited it so close to the facility. Another possibility is that some quantity of the chemical might have been spilled while being stored or transported by container. If that were the case, however, the level of EMPTA detected in the sample would probably have been much higher than that which was found. An unidentified senior intelligence official said, “all we know is that it was there.” But it is not self-evident why EMPTA would appear in a soil sample near Shifa, even if the chemical were being produced within the facility.

This crucial question of whether the Shifa plant was involved in VX precursor production could be resolved with confidence through on-site inspection of the Shifa debris. According to Jonathan Tucker, the methyl-phosphorous chemical bond in EMPTA is a diagnostic indicator of nerve agents and is very difficult to break, which means that “if large quantities of EMPTA were produced at this plant, there should still be traces of it or related degradation products.” Amy Smithson of the Henry L. Stimson Center concurred that EMPTA residues would survive fire, such as that which consumed Shifa. Kathleen Vogel, a research chemist and post-doctoral fellow with the Chemical and Biological Weapons Non-proliferation Project, said that if the initial heat, subsequent moisture, and other factors led EMPTA to degenerate into hydrolysis products, these should persist and would be readily identifiable through chemical analysis. If VX itself had been present, traces would likewise remain since its boiling point is not reached until 298°Celsius. Alastair Hay, chemical pathologist at Leeds University, agreed that if EMPTA were ever produced at the Shifa plant, traces would almost certainly remain in the debris. The Chicago Tribune quoted another CW expert, who said “modern techniques are very powerful. I’d be wary of opening a facility to independent analysis unless I were sure that I would not be found out.”

British CW researchers have set a telling precedent in this regard. In August 1988, the Kurdish village of Birjinni in northern Iraq allegedly suffered a CW attack by Iraqi aircraft. In June 1992, researchers commissioned by the U.S. organization Physicians for Human Rights collected samples from the soil, munition fragments, and clothing and other gravesite material in the village. They followed a reliable sampling and analysis protocol, and examined the evidence using several chemical analytic methods. Although four years had passed between the attack and sampling, analysts were able to demonstrate unequivocally that sarin and mustard gas residues were present, even at concentrations as low as parts per billion.

If EMPTA was present in significant quantities at the time Shifa was attacked, detectable traces of the chemical would not only remain on equipment and containers used for its production and storage, but could also be scattered widely among the debris as a result of the missile explosions and fire that destroyed the plant. The remains of the Shifa facility are not comparable to an operating dual-use CW production facility, where sophisticated techniques might be employed to attempt to deceive inspectors. Unlike operating facilities, where sealed containers and machinery could potentially be hidden or removed to deny access to inspectors, if EMPTA were produced or stored in Shifa at the time when it was destroyed, chemical proof that cannot be readily eliminated lies in the rubble in Khartoum.

THE SUDAN AS A CHEMICAL WEAPON PROLIFERANT: PRIOR ALLEGATIONS

...although we are aware of worrisome allegations that Iran has provided chemical weapons to Sudan, these have emanated almost exclusively from the Sudanese opposition and have not been corroborated. Nevertheless, this is a serious issue which we continue to monitor closely, not only with respect to Iran but also with regard to Iraqi support in this regard.

Assistant Secretary of State George Moose, May 15, 1997

The current U.S. charges regarding Shifa are not the only allegations that have been made concerning CW in the Sudan. Earlier charges, however, did not mention the Shifa facility or the possible production of VX in the Sudan, nor were they ever publicly confirmed by U.S. officials. While these facts cast doubts on the recent U.S. allegations, a summary of the previous charges indicates that there are reasonable grounds for concern that the
Sudan may be developing chemical weapons.

Allegations of CW acquisition and use by the present government of the Sudan date as far back as 1989, when the Bashir regime took power in a military coup. The claims were made by Ugandan officials and opposition groups engaged in fighting the Bashir government, however, and were never corroborated by independent sources. Since 1989, a number of additional reports alleged that the government of the Sudan procured and used CW. All reports that specified a particular CW agent identified it as mustard gas. In response, the U.S. Department of State investigated “intelligence and Embassy reports from Sudan [that] discussed local allegations of the use of ‘gas’ bombs by the Sudanese Air Force.” The report issued in March 1992 concluded that “details remain sketchy...and appear to be insufficient to trigger the requirement for a Presidential determination and report to Congress regarding chemical or biological weapons [CBW] use under the recently enacted CBW sanctions legislation.”

Since 1995, members of the Sudanese People’s Liberation Army (SPLA), the Sudanese National Democratic Alliance (NDA), and Ugandan security officials have alleged repeatedly that the Sudan produced CW with Iranian and/or Iraqi assistance, and employed mustard gas in attacking civilians in the Nuba mountains and against SPLA forces. Because these CW allegations were never corroborated, independent reports on CW proliferation did not identify the Sudan as a CW proliferant or “country of concern.”

U.S. government statements likewise did not assert that the Sudan posed a CW threat. The 1997 U.S. Department of Defense annual report on WMD did not identify the Sudan among the states in the Middle East and North Africa posing the “most pressing” WMD threats to regional stability. The CIA’s 1997 report on proliferation did not include the Sudan, indicating a judgment that the Sudan was among those “countries that demonstrated little acquisition activity of concern.” On January 28, 1998, U.S. Assistant Secretary of State for Intelligence and Research Phyllis E. Oakley expressed concern before the Senate Select Committee on Intelligence about the acquisition of advanced conventional weapons by the Sudan and other states identified by the United States as sponsors of terrorism. Oakley did not, however, identify the Sudan as among those states posing a WMD threat to U.S. national security.

As noted above, a widely cited February 1998 U.S. congressional task force report alleged that Iraq transferred CW to the Sudan and Yemen during 1991-1992, and that “in 1993, Iraq sent additional CW to Sudan, this time through Iran.” It also asserted that, beginning in 1997, Iraq transferred equipment and materials for both chemical and biological weapons production facilities that it built in the Sudan. The report was said to be based on U.S., German, and Israeli intelligence sources.

In a reply on February 16, 1998, an unidentified White House official said that the United States has “no credible evidence that Iraq has exported weapons of mass destruction technology to other countries since the Gulf War.” Likewise, German intelligence sources said they had no evidence to support the charges, and the British Foreign Minister told Parliament on March 10, 1998, that his office had no evidence to substantiate the allegations. The credibility of the author of the report, Yossef Bodansky, was questioned because of his alleged anti-Arab and anti-Muslim bias, and due to prior assertions viewed as bizarre. The Bodansky report also contains basic factual errors regarding Scud missiles and nuclear material formerly possessed by Iraq, and in regard to alleged efforts by Iraq to enrich uranium in Libya, which directly cast doubt on the credibility of the report.

The lack, prior to August 20, 1998, of an official U.S. charge about CW in the Sudan does not necessarily entail an absence of suspicions. It could instead reflect the bureaucratic nature of proliferation analysis, in which analysts with the strongest suspicions had been unable to obtain senior support that would lead to an official public accusation. This same fact suggests, however, that the available evidence may not have been decisively convincing. Before the U.S. attack, it appears that most nonproliferation analysts and U.S. government officials viewed allegations that the Sudan sought CW as meriting further attention, but as yet unsubstantiated.

**ALLEGED CW PRODUCTION FACILITIES IN THE SUDAN**

...to find the necessary funding to develop the chemical and bacterial weapons factory that the Sudanese Government has established in the Khartoum Bahri suburb of Kubar, in cooperation with the Iraqi Government...  

Paris-based news magazine Al-Watan Al-'Arabi, October 31, 1997

Since mid-1997, sources critical of the Sudanese government have alleged that CW production facilities are
operating or are under construction in several locations in the Sudan. Prior to August 20, 1998, none of these sources identified al-Shifa Pharmaceutical Factory in Khartoum as among the Sudan’s alleged CW facilities.\textsuperscript{157} Human Rights Watch and Sudanese opposition leaders have called for a United Nations investigation of the alleged CW facilities, and have reiterated this appeal since the strike on al-Shifa.\textsuperscript{158} In the absence of on-site inspection of the facilities, it will likely remain difficult to reach a confident determination regarding these allegations.

The locations of three alleged production facilities are in or close to Khartoum: Kubar, Kafuri, and Sheggara. On October 31, 1997, a report in the Paris-based, pro-Saudi Arabia, \textit{Al-Watan Al-'Arabi} news magazine said that leaders of Islamic terrorist organizations held a strategy-making meeting at the home of Hassan al-Turabi (Speaker of Sudan’s Parliament and head of the National Islamic Front) in al-Manshiyah, Sudan. The report said the leaders agreed to “find the necessary funding to develop the chemical and biological weapons factory that the Sudanese Government has established in the Khartoum Bahri suburb of Kubar, in cooperation with the Iraqi Government, which smuggled special materials for this factory after the end of the Gulf War.”\textsuperscript{159} This location is reportedly near the Shifa facility, although Shifa is generally characterized as a more industrial than residential location. Associated Press reported that the United States decided not to attack this facility in Operation Infinite Reach due to its proximity to residential neighborhoods and diplomatic residences.\textsuperscript{160}

On July 16, 1997, the secretary general of the opposition NDA said that the Sudanese government had built a CW production factory in Kafuri, also in the north of Khartoum.\textsuperscript{161} On January 14, 1998, the Beirut newspaper \textit{al-Diyar} reported that Arab security forces had observed Sudanese government efforts to acquire chemical and biological weapons production technology as part of its “War Industrialization Program.” According to the report, the project is headquartered in the Kafuri suburb of Khartoum and has several facilities located in Khartoum, the agricultural town of Fao, and the more industrialized city of Shandi in northern Sudan.\textsuperscript{162}

Human Rights Watch has recently noted opposition NDA charges that Iraqi CW are stored at the Yarmouk Military Manufacturing Complex located 12 kilometers south of Khartoum in Sheggara.\textsuperscript{163} \textit{The New York Times} apparently referred to this facility when it reported that “a military complex on the southern outskirts of the city” was indicated by unidentified foreign diplomats and a former Sudanese government official in Khartoum as the “most likely place for the [chemical weapon or precursor] production to have been taking place.”\textsuperscript{164}

On September 12, 1997, the \textit{Indian Ocean Newsletter}, published in Paris, reported that a CW factory is under construction south of Khartoum, near Abu-Dawm.\textsuperscript{165} This author was unable to find this location on maps or other sources of geographic place names in the Sudan, and the name given may be an unofficial one.

According to a November 16, 1997, story in the Kampala-based \textit{Nando Times}, Ugandan security officials said they had confirmed the existence of a factory producing mustard gas at a secret location in the city of Wau.\textsuperscript{166} This seems an unlikely location for a sensitive facility, however, given its proximity to the fighting in the south and its potential capture by SPLA rebels.

Reports of alleged CW facilities thus include several distinct locations in the Sudan. Only the Shifa site, where the United States alleges EMPTA was being produced, has been examined by independent foreign sources. However, although many journalists and others have examined the Shifa wreckage and verified that the plant was engaged in pharmaceutical production, only qualified CW verification specialists using appropriate equipment and procedures can verify whether EMPTA was also being produced in the plant.

\section*{A U.N. SECURITY COUNCIL FACT-FINDING MISSION}

\textit{In making the determination...the President shall consider...whether, and to what extent, the government in question is willing to honor a request from the Secretary General of the United Nations to grant timely access to a United Nations fact-finding team to investigate the possibility of chemical or biological weapons use or to grant such access to other legitimate outside parties.}\textsuperscript{167}

U.S. Code Title 22 - Foreign Relations and Intercourse, Chapter 65 - Control and Elimination of Chemical and Biological Weapons, January 6, 1997.

In an uncharacteristic and unprecedented move, the government of the Sudan proposed that the U.N. Security Council conduct an on-site inspection of the Shifa facility, to determine whether it had been used to produce CW or precursor chemicals. The appeal was particularly surprising because the U.N. Security Council had explicitly condemned the Sudan and imposed air
travel sanctions against it in 1996 for failing to cooperate with an investigation of an attempt to assassinate Egyptian President Hosni Mubarak.\textsuperscript{168}

In a similarly peculiar response, the United States opposed and sought to block an international investigation of Shifa’s production. U.S. opposition to the proposal contrasts with its longstanding and firm support for the efforts of UNSCOM to investigate potential WMD capabilities and installations retained by Iraq. It diverges, moreover, from the spirit of U.S. chemical and biological weapons legislation, which—as quoted above—commends attention to the willingness of alleged proliferants to accept United Nations-sponsored fact-finding missions regarding their alleged CBW activities.

Immediately after the attack on Shifa, the Sudan formally requested that a U.N. Security Council fact-finding mission be sent to Khartoum to examine the destroyed plant and determine its production. Gobrial Roric, Sudanese minister of foreign affairs, wrote in an August 21, 1998, letter to the U.N. Security Council: “I assure you once again of our readiness to provide the Council with all data and information that it may need to study this matter in all its aspects.”\textsuperscript{169} Sudanese Foreign Minister Mustafa Osman Ismail later said, “for us we have no veto for Americans, non-Americans. Any committee to be established by the Security Council” would be acceptable to the Sudan.\textsuperscript{170}

Sudan’s request won support from the Arab League, the Organization of the Islamic Conference, the Group of Arab States of the United Nations, the Non-Aligned Movement, the Intergovernmental Authority of Development, and the Organization of African Unity.\textsuperscript{171} These international organizations represent nearly every state in Africa and the Middle East—including several allied with the United States and some with antagonistic relations with the Sudan—as well as scores of states in the developing world outside these regions. The Security Council first considered the question briefly on August 24, 1998, but took no action.\textsuperscript{172}

Following the meeting, the U.S. chargé d’affaires to the United Nations, Peter Burleigh, expressed opposition to such a fact-finding mission.\textsuperscript{173} U.S. Ambassador to the United Nations Bill Richardson said, “we don’t think an investigation is needed. We don’t think anything needs to be put to rest.”\textsuperscript{174} U.S. officials say the United Nations is not an appropriate forum to address the question.\textsuperscript{175} As National Security Advisor Sandy Berger explained, “well, I don’t think it’s necessary. I think one never knows what months later another group will or will not find. I have no question in my mind...that that was an appropriate target.”\textsuperscript{176} Deputy Undersecretary of State for Political Affairs Thomas Pickering concurred: “it should be noted that visual inspection of facilities like the El-Shifa chemical plant [sic] are often not sufficient to reveal a connection with the production of chemical weapons. ...in the past, even expert UNSCOM visits to a similar plant in Iraq did not turn up clear and compelling evidence.”\textsuperscript{177}

On September 28, the Group of Arab States of the United Nations submitted a draft resolution to the U.N. Security Council, which requests the secretary-general to dispatch a technical competent fact-finding mission to study the following points: a) whether al-Shifa has been engaged in the production of chemical weapons ingredients; b) whether there exists any link either financial, technical, logistical or otherwise between al-Shifa and the Osama bin Laden terrorist network; c) requests the secretary-general to submit a report on the findings of the mission to the Security Council within one month.

The Security Council held a preliminary discussion, but Council President Hans Dahlgren of Sweden announced, “the conclusion of today’s discussion was that consultations will continue among members.”\textsuperscript{178} Sudanese diplomats said they seek to challenge the United States to veto such a resolution.\textsuperscript{179} Sudanese Ambassador to the United Nations Elfatih Erwa said if the United States vetoes the resolution, it would be in effect saying to the world, “we do what we want to do. We don’t have to obey international law.”\textsuperscript{180} The United States seeks to forestall either an investigation or a formal vote on conducting one, and has lobbied Security Council members regarding the evidence that U.S. officials say justified the attack on Shifa.\textsuperscript{181} Because the United States enjoys veto power, no U.N. Security Council investigation can be undertaken without U.S. agreement. According to a recent news report, the Sudan may be willing to drop its call for an investigation in exchange for an end to U.S. economic sanctions and revocation of the U.S. classification of the Sudan as a state sponsor of terrorism.\textsuperscript{182}

The political dimension to this dispute between the
Sudan and the United States is unfortunate, and this proposed quid pro quo would be particularly undesirable. The allegations of CW development in the Sudan merit serious international attention, and a U.N. Security Council-mandated expert team with appropriate technical capacities and adequate political support could make a reliable assessment of the allegations of CW development in the Sudan. The Sudanese government has called for a U.N. investigation of the bombing site, but it also categorically denies that CW are being produced anywhere in the country. The categorical terms of its repeated denials and its direct request for a Security Council investigation invite the possibility of a broader inquiry. An arrangement in which the United States supports a meticulous U.N. inspection of Shifa, and Sudan accepts thorough on-site U.N. inspection of its other alleged CW facilities, would make it possible to address many unanswered questions.

CONCLUSIONS

The facilities the U.S. attacked on August 20, 1998 were central to the bin Ladin network’s ability to conduct acts of terror around the world. Coordinator for Counterterrorism, Department of State, August 21, 1998

...there are lots of connections and added to that, the physical presence of the precursor makes a compelling case that it probably wasn’t a bad thing to take the plant out.


As an American citizen, I am not convinced of the evidence.

Unidentified Clinton administration official, September 21, 1998.

This review of the available open-source evidence indicates that there are insufficient grounds in the public domain to reach a conclusive determination about whether the Sudan possesses CW, or whether the Shifa factory produced the VX precursor chemical EMPTA. Public statements of U.S. officials and the evolving rationale for the U.S. attack on Shifa, however, indicate that classified U.S. intelligence data about alleged CW activities in the Sudan may likewise be of uncertain reliability.

Certainly, the evidence reviewed in this report suggests possible deficiencies in the collection, analysis, and use of intelligence data leading to the attack on Shifa. There are doubts about the credibility of U.S. allegations about the plant in part because of the haste and secrecy of the decisionmaking that led to the attacks, and because U.S. officials had never clearly identified the Sudan as a CW proliferant. Even more importantly, however, senior U.S. officials were shown to have been ignorant of key facts at the time of their decision to bomb the plant. U.S. political authorities and intelligence officials were not aware that: 1) Shifa was an important producer of pharmaceuticals in the Sudan and its products were widely available in Khartoum pharmacies; 2) U.S. officials at the United Nations had approved Shifa’s proposed export of veterinary medicine to Iraq under the U.N. oil-for-food program; 3) Shifa was not under heavy military guard but quite open to Sudanese and foreign visitors; 4) the plant was not owned by the government but by a Saudi banking consultant with some ties to the Sudanese anti-Islamist opposition; 5) EMPTA is not banned by the CWC and could have legitimate commercial applications; and most importantly, and 6) without following a reliable CW sampling and analysis protocol—which would be very difficult to implement through covert action—even a competent laboratory could reach a “false positive” test result in analyzing a soil sample due to the presence of pesticide or insecticide residue.

It remains possible that Al-Shifa Pharmaceutical Factory may have been involved in some way in producing or storing the chemical compound EMPTA, which can be used in the production of VX nerve gas. However, review of the evidence available in open sources offers only limited support for the U.S. allegation. On balance, the evidence available to date indicates that it is more probable that the Shifa plant had no role whatsoever in CW production.

Given the range of allegations about other sites in the Sudan, however, there are also grounds to doubt its government’s claims. Opposition leaders and Human Rights Watch have called for a U.N. investigation of suspected CW facilities in the Sudan, for fear that if the Bashir regime gains access to CW, it may use them against the Sudanese population in the country’s civil war.

The convergence of a set of unprecedented conditions has created an opportunity to investigate all the charges more thoroughly. The unexpected willingness of the Sudanese government to accept international scrutiny, widespread skepticism about recent U.S. claims about al-Shifa but a prior pattern of allegations of CW devel-
opment elsewhere in the Sudan, and growing recognition of humanitarian and security interests that the government of the Sudan not acquire VX or other nerve agents have combined to raise the possibility of a U.N. Security Council investigation of Shifa and other alleged CW facilities in the Sudan. The United States could contribute relevant intelligence data and technical expertise to aid a U.N. investigation. Such an initiative would also offer an opportunity to press the Sudan to join the Chemical Weapons Convention, implementation of which would entail ongoing inspections of potential dual-use facilities in the country.

It would be profoundly regrettable if U.S. opposition to an examination of al-Shifa led to the foreclosures of a unique and perhaps fleeting opportunity for an international investigation of Sudan’s alleged CW program. Without a U.N. effort to examine the remains of al-Shifa and other alleged CW production and storage facilities in the Sudan, any efforts the Sudanese government may be taking to acquire CW will almost certainly continue unhampered.

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2 The treaty text and a listing of state parties to the Chemical Weapons Convention are available from the Organization for the Prohibition of Chemical Weapons (http://www.opcw.org/).


16 Clinton, “Address to the Nation by the President.”


18 DOD News Briefing, Office of the Secretary of Defense, August 20, 1998 (http://www.defenselink.mil/).

19 Ibid.


53 Shadid, “Questions Remain.” This report cites an interview with Adam Umbadi, a production engineer at the factory.


“chemical and bacteriological facility” located in a residential area of Khoratoum’s Kobar suburb. However, they decided to target al-Shifa instead because its location in an industrial area reduced the risk of civilian casualties (Diamond, “U.S. Intelligence Cites Iraqi”). In planning the attack, U.S. officials said they believed that due to wind and climate factors at the site, there would be little risk of creating a harmful chemical cloud in the area. They said they allocated additional cruise missiles to ensure that any toxic chemicals were incinerated (Watson and Barry, “Our Target Was Terror,” p. 28; Newman, “America Fights Back,” p. 42). Both Secretary Cohen and General Shelton said that efforts were made to reduce civilian casualties, so-called “collateral damage.” Cohen said that “a detailed analysis was made and we’re satisfied that there was a low risk of collateral damage” (DOD News Briefing, Office of the Secretary of Defense, August 20, 1998, [http://www.defenselink.mil/]).

It is not clear, however, how such calculations could be made with any confidence. Since U.S. officials were of the mistaken view that the plant had no legitimate pharmaceutical production, they would presumably have estimated that the entire plant could have been dedicated to CW precursor and/or agent production. Without knowledge of whether VX itself had been produced, or only its precursors, and given uncertainty about the quantity of precursors and/or VX in the plant, it would be excessively difficult to predict the potential impact of the attack on the surrounding community.


110 United States District Court, Southern District of New York, September 14, 1998, p. 2-5. The author is indebted to Seth Carus for providing the text of this criminal complaint.


113 “U.S. Claims More Evidence Linking Sudanese.”


121 Hubbard, “Military Strikes: Doubts Raised on US Target Claims.”


125 Starr, “More Questions than Answers.”

126 Watson and Barry, “Our Target Was Terror,” p. 28.


128 ABC News also reported that these “sources say the Administration wanted a target in addition to bin Laden’s camps in Afghanistan to show the US was moving on what they called bin Laden’s worldwide network of operations.” See “More Questions Raised about Sudan Strike,” ABC News Broadcast of September 1, 1998; in Bulletin Broadcaxing Network, September 2, 1998.


130 Unidentified military officials said they had evidence of another

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It is unclear whether the senior U.S. officials who planned Operation Infinite Reach understood these issues. James Woolsey, President Clinton’s former CIA director, expressed doubt. He said, “this should not be the kind of decision made only with three or four people around you of Cabinet-level who don’t know an EMPTA sample from their left foot.” See Ian Brodie, “America Insists Factory Was Gas Producer,” The Times (London) (http://www.sunday-times.co.uk/cgi-bin/BackIssue?1074973). A critic of the U.S. attack said, “no scientist would consider a single sample analyzed at one laboratory, without any peer review, as a basis to publish, let alone bomb. The team that decided to bomb contained no scientist. How hard could it have been to find one?” See Deborah MacKenzie, “Questions First, Bombs Later,” New Scientist, September 19, 1998, p. 51.

Peter Capella and Andrew Marshall, “US Strives to Justify Air Strike on Sudan Attack on Factory,” Independent (Johannesburg), August 26, 1998. EMPTA can be used to produce VX, but it can also be a product of the degradation of VX (Yu-Chu Yang, Linda L. Szafraniec, William T. Beaudry, and Dennis K. Rohrbaugh, “Oxidative Detoxification of Posphothiolates,” Journal of the American Chemical Society 112 (1990), pp. 6621-27).


“U.S. Claims More Evidence Linking Sudanese Plant.” An unidentified U.S. intelligence official said that samples were taken from five other sites in the Sudan, but only that collected at Shifa tested positive for EMPTA. See Paul Richter, “Sudan Attack Claims Faulty, U.S. Admits,” Los Angeles Times, September 1, 1998.


The Pentagon also released a statement on its website, saying that the nerve agent VX had been found in the Sudanese facility. This was based on the analysis of a sample collected at Shifa, and if that area had been buried immediately by the cruise missile explosion, rubble containing its chemical traces might be limited to a correspondingly small area in the ruins of the plant. Hence thorough inspection would require sampling from locations throughout the wreckage. (Jonathan Tucker, personal interview with the author, October 14, 1998).

“Iraq had a biological weapons program during the 1980s and possessed nerve agents. There were prior allegations of CW use in the Sudan, but these charges were made against Sudanese rebels. In 1986, the Sudanese government and an official of Ethiopia’s Democratic Peoples Alliance alleged that the rebel Sudanese People’s Liberation Army (SPLA) used chemical weapons in attacks on Sudanese villagers and government military personnel. See Gordon M. Burck and Charles C. Flowerree, International Handbook on Chemical Weapons Proliferation (New York: Greenwood Press, 1991), pp. 471-472.


17 The Bodansky report alleges that during 1991-92, “approximately 27.5 pounds of 93% U-235 which had been originally supplied to Iraq by France was shipped to Algeria for use in the French-built Osirak research reactor” was shipped to Algeria from Sudan for storage at the “Algerian reactor at Ain-Oussera.” Algeria rejected the charges as a “fantasy.” See “Ambassador Denies Report Iraqi Uranium Is Stockpiled In Algeria,” AFP, February 15, 1998; in Dialog, February 15, 1998 (http://dialog.carl.org). The available evidence corroborates the Algerian response. The Aïn Oussera facility is under IAEA safeguards, and the fissile material referred to in the task force report was physically airlifted from Iraq between November 15 and 17, 1991, by the IAEA with the assistance of UNSCOM. It was transferred in Russia through isotopic dilution for resale as 20 percent-enriched reactor fuel. See “IAEA Inspections and Iraq’s Nuclear Capabilities,” IAEA, April 1992 (http://www.iaea.or.at/worldatom/inforesource/other/iraq/iraqindex.html); “Fifth report of the Executive Chairman of the Special Commission...”, UNSCOM, May 21, 1993 (http://www.un.org/Depts/unscom/s25977.htm); “UNSCOM Activities,” SIPRI Yearbook 1994 (Oxford and New York: Oxford University Press/Stockholm International Peace Research Institute, 1994), pp. 755-56.

The Bodansky report also alleged that Iraq transferred specialists and materials from its WMD programs to Libya in the 1990s. It asserts in particular that Iraq sent a “limited quantity of semi-enriched nuclear fuel” by ship to Libya, and that by the end of 1995, Iraqi specialists “began enriching the Iraqi nuclear material having successfully installed the small and medium-sized kilns/furnaces there” in Libya. This alleged activity is not physically possible. Although there are several technical processes by which uranium can be enriched, none of these involve “kilns/furnaces.” See Office of Technology Assessment, Appendix 4-B: Enrichment Technologies, in Technologies Underlying Weapons of Mass Destruction (Washington, D.C.: U.S. Government Printing Office, December 1993), pp. 176-80.


Seth Carus, personal interview with the author, October 22, 1998.

Jihad Salim, Al-Watan Al-Arabi (Paris), October 31, 1997; in FBIS FTS199711180000479 (18 November 1997).

There is thus no basis in the open-source literature to support the statement that the Sudanese government assuredly knew about the Bin-Laden-financed pharmaceutical plant in Khartoum and may have been involved with the plant; the Sudanese opposition has been telling the world about it for some time” (Patrick Clawson, Michael Eisenstadt, Alan Makovsky, and David Schenker, “What do the Sudan/Afghanistan Strikes Harbinger?” PolicyWatch Number 337, August 21, 1998 [http://www.washingtoninstitute.org/watch/policywatch/policywatch1998/337.htm]).


Diamond, “U.S. Intelligence Cites Iraq.”


162 U.S.C. Title 22 - Foreign Relations and Intercourse, Chapter 65 - Con- control and Elimination of Chemical and Biological Weapons, January 6, 1997 (http://www.law.cornell.edu/uscode/22/ch65.html); text also available from The U.S. House of Representatives Internet Law Library (http://law.house.gov/usbc.htm#search).

sc.htm).


173 *Ibid*.


176 Press Briefing by National Security Advisor Sandy Berger.

177 Transcript: Pickering on US Sudan, Afghanistan Strikes.

178 “Draft UN Resolution Calls for Sudan Probe.”

179 *Ibid*.

180 Winfield, “Arabs Demand US-Sudan Bomb Probe.”


183 “News Conference with Mahdi Ibrahim Mahammad.”

184 Coordinator for Counterterrorism, Department of State, “Fact Sheet: U.S. Strike on Facilities in Afghanistan and Sudan.”

