

Iraq Missile Chronology

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Last update: November 2008

**As of November 2008, this chronology is no longer being updated.
For current developments, please see the Iraq Missile Overview.**

2008-2006

29 February 2008

UNMOVIC is officially closed down as directed by UN Security Council Resolution 1762, which terminated its mandate. [Note: See NTI Chronology 29 June 2007].

—UN Security Council, "Iraq (UNMOVIC)," Security Council Report, Update Report No. 10, 26 June 2008.

25 September 2007

U.S. spokesman Rear Admiral Mark Fox claims that Iranian-supplied surface-to-air missiles, such as the Misagh 1, have been found in Iraq. The U.S. military says that these missiles have been smuggled into Iraq from Iran. Iran denies the allegation. [Note: See NTI Chronology 11 and 12 February 2007].

"Tehran blasted on Iraq Missiles," *Hobart Mercury*, 25 September 2007, in Lexis-Nexis Academic Universe; David C Isby, "U.S. Outlines Iranian Cross-Border Supply of Rockets and Missiles to Iraq," *Jane's Missiles & Rockets*, Jane's Information Group, 1 November 2007.

29 June 2007

The Security Council passes Resolution 1762 terminating the mandates of the UN Monitoring, Verification, and Inspection Commission (UNMOVIC) and the IAEA in Iraq. Resolution 1762 also requests the UN Secretary General to dispose safely of archives containing sensitive information, and to transfer any remaining UNMOVIC funds to the Development Fund for Iraq. A letter to the Security Council from the Iraqi government indicates it is committed to respecting its obligations to the nonproliferation regime.

—Colum Lynch, "UN Security Council Dissolves Unit Looking for Iraqi Arms," *The Washington Post*, 30 June 2007, in Lexis-Nexis Academic Universe; UN Security Council, "Iraq (UNMOVIC)," Security Council Report, Update Report No. 10, 26 June 2008.

27 April 2007

British Armed Forces Minister Adam Ingram announces that the Board of Inquiry learned that the Lynx helicopter shot down in Iraq on 6 May 2006, was brought "down by a surface-to-air missile, using a man-portable air-defence system, fired from the ground." According to the report, "the distance was probably 'at the extreme range' of the system involved."

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—Sophie Freeman, "Iraq helicopter crash 'result of a missile attack,'" *Daily Post (Liverpool)*, 28 April 2007, in Lexis-Nexis Academic Universe; "Single missile downed by UK Lynx," *Flight International*, 8 May 2007, in Lexis-Nexis Academic Universe.

12 February 2007

Iranian President Mahmoud Ahmadinejad denies U.S. allegations that Iran is supplying Iraqi insurgents with sophisticated weapons. He says, "There should be a court to prove the case and to verify the case."

—"Iran Denies Arming Iraqi," *The Daily Mail*, 13 February 2007, in Lexis-Nexis Academic Universe; "Iran Denies Supply Arms to Militants," *Chinadaily.com.cn*, 13 February 2007, in Lexis-Nexis Academic Universe.

11 February 2007

A U.S. military intelligence report is released in Baghdad accusing Iran of supplying Iraqi insurgents with weapons including anti-aircraft missiles. The report says that "Iranian Misagh-1 portable anti-aircraft missiles were found after a failed attempt to shoot down a plane at Baghdad's airport in 2004." The report claims that Iraqi insurgents have been receiving support from the Qods (Quds) Force of the Iranian Revolutionary Guard.

—Bill Gertz, "Iran arms Iraqi insurgents; U.S. military cites bombs, missiles and rockets," *The Washington Times*, 12 February 2007, in Lexis-Nexis Academic Universe; James Glanz, "U.S. Says Arms Link Iranians To Iraqi Shiites," *The New York Times*, 12 February 2007.

15 February 2006

The recently released tapes documenting conversations between Saddam Hussein and top Ba'ath officials in late April or May of 1995 indicate the regime did knowingly fail to reveal aspects of the missile program to United Nations inspection bodies. The tapes record the words of the deceased Iraqi general and son-in-law of Saddam Hussein, Hussein Kamel, relating his work to keep intelligence on Iraqi missile capabilities from inspectors.

—"Tapes Show Son-in-Law Admitted WMD Deception," *ABC News*, 15 February 2006.

13 February 2006

Russia recommends that all material and findings collected by UNMOVIC and related inspection bodies such as the IAEA and the ISG be presented to the Security Council. Russia cites reasons for this recommendation as a way to bring full and final clarity to the much debated issue of Iraq's WMD programs.

—"Russia Wants All Iraq Inspections Files Referred to UN Security Council," *Xinhua*, 13 February 2006.

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2005

8 December 2005

The United States and Algeria speak out about removing UNMOVIC, the UN group of weapons inspectors sent to Iraq for the purpose of dismantling Iraq's chemical, biological and long-range missile programs. Though Iraq has been asking the Security Council to remove the inspection body since 2004 due to its funding by Iraqi oil revenue,

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Algeria and the United States are now leaning on the Security Council to remove UNMOVIC from Iraq as well.

—"Algeria, US Seek End of UN Weapons Inspection Program in Iraq," Associated Press, 8 December 2005.

27 July 2005

The investigation led by the U.S. Senate Select Committee to determine whether or not the Bush administration misconstrued intelligence in order to justify the war in Iraq has come to a halt. Senator John Kerry says that as a result of the stalled proceedings "a year and a half later, there's still no report, no conclusions, no accountability for the mistakes, and no way to be sure they won't be repeated."

—"Prewar Iraq Intelligence Inquiry in Senate," Global Security Newswire, 27 July 2005.

14 July 2005

U.S. Undersecretary of Defense for Policy Douglas Feith says that U.S. policy makers relied too heavily on information regarding the suspected WMD stockpiles believed to exist in Iraq prior to the 2003 invasion. Feith argues that the U.S. led war in Iraq is necessary, but claims that "we as an administration, instead of giving proper emphasis to all major elements of the rationale for war, overemphasized the WMD aspect."

—"AP Interview: Departing Pentagon policy chief says administration overemphasized WMD as war rationale," Associated Press, 14 July 2005.

4 July 2005

Mogens Lykketoft, former foreign minister of Denmark, writes an open letter to President George Bush that claims the U.S. falsely accused Saddam Hussein of harboring "dangerous weapons of mass destruction" as an "original and official justification for the Iraq war."

—"Danish SDP's Lykketoft Writes Open Letter to Bush Criticizing US Foreign Policy," Copenhagen Politiken, 4 July 2005, in FBIS document EUP20050704364006.

30 June 2004

British Prime Minister Tony Blair asserts that the previously classified Downing Street Memos released to the public in May 2005 have been misinterpreted. In response to accusations, resulting from the release of the Memos, that there was a U.S. initiative coupled with U.K. support to invade Iraq shortly after September 11th 2001, Prime Minister Blair says that "people say the decision was already taken. The decision was not already taken."

—"Downing Street Memos Misinterpreted, Blair Says," Global Security Newswire, 30 June 2005.

24 June 2005

The United Nations Security Council approves a transfer of \$200 million dollars from the Iraqi Oil for Food program to the Development Fund for Iraq. Money generated from the Oil for Food program has most recently been used to finance UNMOVIC activities in Iraq in order to dismantle weapons of mass destruction programs. A transfer of funds from Oil for Food Accounts to the Development Fund for Iraq results in a reduction of the UNMOVIC budget from \$345.9 million to \$125 million. Samir Sumaidaie, Iraq's acting ambassador to the United Nations argues that spending more than \$10 million per year for UNMOVIC in Iraq is no longer a useful allocation of government funds because Iraq does not possess any weapons of mass destruction and therefore is no longer a threat.

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—"U.N. approves transfer of \$200 million in oil-for-food revenue to Iraq Development Fund," Associated Press, 24 June 2005.

3 June 2005

The White House downplays the findings of the UNMOVIC report released on May 25, 2005. White House spokesman Scott McClellan says that the Bush administration has taken the necessary precautions to secure the Iraqi sites mentioned in the report. He also reports that it is unlikely that the looted dual use missile items are now being used by other countries to enhance their weapons programs.

—"White House downplays U.N. report on missing weapons in Iraq," Associated Press, 3 June 2005.

June 2005

The Central Intelligence Agency (C.I.A.) released the final report of its investigation concerning Iraq's suspected weapons of mass destruction programs. The report provides supplementary information to the September 2004 report written by Charles Duelfer, special advisor of the Iraq Survey Group. The C.I.A. supplementary report asserts that although there is a risk that Iraqi officials with knowledge of weapons of mass destruction programs could be recruited to work for other governments, terrorist groups, or insurgents, thus far there is "only very limited reporting" that other governments have made attempts to recruit Iraqis and there are "no reports" that any successful attempts have occurred.

—"Final Iraq Report Downplays Brain Drain," *Arms Control Today*, June 2005.

31 May 2005

U.S. Secretary of State Condoleezza Rice announces that Iraq has joined the Proliferation Security Initiative program in an effort to halt global black market trafficking of missile related materials and technologies.

—"U.S. to Detail Interception of Weapons Materials," Global Security Newswire, 31 May 2005; Stefan Nicola, "WMD trafficking hard to stop without China," *Washington Times*, 10 June, 2005.

25 May 2005

UNMOVIC releases a report that says 3,000 dual use items related to missile production have disappeared from 109 of 378 sites surveyed in Iraq since the beginning of the U.S. led invasion in 2003. Dual use missile items reported to be missing include "solid propellant production equipment, missile hardware, testing equipment, missile subsystems and components and raw materials."

—"Iraq asks U.S.-led forces to remain in war-torn country," Deutsche Press-Agentur, 25 May 2005; "Iraq weapons material 'missing'," *BBC*, 3 June 2005.

1 May 2005

The "Downing Street Memo," a classified document dated July 23, 2002, is recently leaked to the public and reveals top British officials warning Prime Minister Tony Blair that there is sparse evidence of weapons of mass destruction programs in Iraq eight months before the invasion occurs. The memo indicates that Blair supported the U.S. policy of Iraqi regime change by means of a military invasion, but was advised by other British government officials that there was no legal evidence for such actions. Blair says "regime change and WMD were linked in the sense that it was the regime producing WMD...If the political context were right, people would support regime

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change." Subsequently, it is alleged by U.K newspapers that in the following months Blair intentionally produced faulty information that supported the presence of Iraqi nuclear weapons in an effort to gain British support for a military invasion.

—"Leaked No 10 Memo Shows Blair Committed to Iraq Eight Months Before Invasion," *Sunday Times*, 1 May 2005.

28 April 2005

In an addendum to the Iraq Survey Groups report on WMD in Iraq, Charles Duelfer includes an account of an interview conducted with Abdullah al-Mullah Huwaysh, a defense industry official in Saddam Hussein's regime on the topic of Iraq's missile ambitions. Huwaysh says in the report that Saddam asked him in 2002 to begin production of a ballistic missile with the capability of traveling over 300 miles, and be able to reach Israel and Iran.

—Rowan Scarborough, "CIA Reports Saddam Pushed to Restart Arms Effort," *Washington Times*, 28 April 2005.

24 April 2005

Statistics are released following the widely-publicized crash of a Bulgarian civilian helicopter on the proliferation of portable anti-aircraft missiles. Bought mostly on the black market, the weapons generally are bought and sold for \$50,000 to \$250,000 and are found mostly in war zones and the third world. In 2002, the Federal Bureau of Investigation reported 29 separate incidents involving aircraft being hit by shoulder-fired missiles, causing 550 recorded deaths. Prior to investigations into Iraq's arsenals, 2,000 of these missiles were thought to be in circulation. In 2004, U.S. intelligence agencies estimated an additional 4,000 from prewar Iraq have been added to this number due to unaccounted for systems from weapons sites.

—Thom Shanker, "Cash-and-Carry Missiles in Iraq," *New York Times*, 24 April 2005.

23 April 2005

A video is posted on an Islamic website by the Islamic Army in Iraq showing the shooting down of a Bulgarian civilian helicopter by a SAM missile and the shooting of a civilian pilot who survived the initial crash.

—Oliver Poole, "Pilot Shot Dead after Surviving Crash," *Daily Telegraph*, 23 April 2005.

22 April 2005

The Iraqi insurgent group Al-Mujahidin Army claims responsibility for the surface-to-air missile attack on the Bulgarian civilian helicopter shot down near Baghdad on 21 April. The group releases a video showing the firing of missiles and the helicopter on fire before hitting the ground. Prior to Al-Mujahidin claims of masterminding the attack, the Islamic Army in Iraq also claimed responsibility for the same attack.

—"Second Group Claims Downing of Bulgarian Helicopter in Iraq," BBC, 22 April 2005.

21 April 2005

The Bulgarian Defense ministry reports the crash of a commercial civilian helicopter 20 km north of Baghdad. The helicopter was contracted by the U.S. Defense Department and owned by a Bulgarian company called Heli Air. A surface-to-air missile fired by Iraqi insurgents is indicated as the reason for the crash that killed six American security contractors, two guards from the Philippines, and three Bulgarian crew members. The helicopter is the first civilian aircraft to be shot down in Iraq since the arrival of coalition forces.

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—"Commercial Helicopter Shot Down in Iraq; Nine Dead, Including Three Bulgarians," Associated Press, 21 April, 2005; "Helicopter Shot Down Near Baghdad," *BBC News*, 21 April 2005.

20 April 2005

In the Qadisiyah province of central Iraq a Polish-led multinational force successfully arrest two former Iraqi army officers who had been involved in Saddam Hussein's army in an anti-terror operation. The troops also seize five anti-aircraft missile launchers, 400 meters of fuses, and 24 detonators.

—"Polish-led Forces Detain Two Former Iraqi Army Officers," Saudi Press Agency, 20 April 2005.

18 April 2005

An insurgent group known as The Islamic Army in Iraq claims responsibility for a missile attack on a U.S. Armored Personnel Carrier south of Baghdad. They say a number of American soldiers have been wounded as a result of an unidentified missile fired at the patrol vehicle.

—"Islamic Army' Claims Attack on US Vehicle Near Baghdad," *Al-Jazeera*, 18 April 2005.

8 April 2005

Britain's Joint Intelligence Committee admits many of its allegations on Iraq's chemical, biological, nuclear and ballistic missile capabilities were wrong and unsubstantiated. The admissions are revealed in the parliamentary Intelligence and Security Committee annual report.

—Kim Sengupta, "Intelligence Chiefs Admit Iraq Weapons Claims were Untrue," *Independent*, 8 April 2005.

5 April 2005

As part of a counterinsurgency policy, the United States military is increasing its number of Unmanned Aerial Vehicles (UAV) in Iraq and Afghanistan. The aircraft are capable of launching missile attacks, tracking insurgents, and are instrumental in the protection of coalition convoys. The Pentagon is preparing to increase its budget for the production of such aircraft to \$13 billion through 2010.

—Eric Schmitt, "Remotely Controlled Aircraft Crown Dangerous Iraqi and Afghan Skies," *New York Times*, 5 April 2005.

29 March 2005

The Senate Select Committee on U.S. Intelligence releases a report on the U.S. Intelligence Community's Prewar Intelligence Assessments on Iraq, in which it summarizes the prewar assumptions of the U.S. government on Saddam Hussein's holdings of WMD and further condemns the IC for multiple false conclusions on Saddam Hussein's holdings of chemical and biological weapons, as well as his nuclear program. However, it is the Committee's assessment that the National Intelligence Estimate (NIE) produced in October 2002 reported Iraq's missile capabilities correctly and reasonably based assumptions on the intelligence in their possession. Prior to the war, the IC reported that Iraq retained up to a few dozen Scud-variant missiles, and was in the final stages of development of the al-Samoud missile. The NIE further warned of Iraq's preparation to deploy the al-Samoud missile and Ababil-100 short-range ballistic missile; both types of missiles exceed the United Nations 150 km limit. It is the Committee's findings that such assertions had ample foundations of intelligence, and further inspection found the assessments to be truthful.

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—"Overview of the Report," Report on the U.S. Intelligence Community's Prewar Intelligence Assessments on Iraq, 29 March 2005, www.wmd.gov.

26 March 2005

Among other biological and chemical weapons catalogued as missing, the Iraq Survey Group reports that up to 36 Samoud 2 short-range missiles, 34 Fatah short-range missiles, and nearly 600 SA-2 missile engines are missing or unaccounted for out of the 90 military-industrial sites in Iraq that were looted or destroyed over the last two years. Before U.N. inspectors were evacuated prior to the U.S. led invasion, they were able to find and destroy 75 Samoud 2 missiles, yet since the war, accounts of the remaining missiles have been lost.

—"Questions That Hang over Iraq's Military-Industrial Complex," Associated Press, 26 March 2005; Charles J. Hanley, "Missiles, Microbes, Sacked Weapon Sites: Loose Ends Proliferate in Iraq," *Associated Press*, 26 March 2005.

8 March 2005

A report released by the British Ministry of Defense (MoD) accident inquiry team reveals that a surface-to-air (SAM) missile fired from the ground in Iraq by insurgents is the cause of an RAF Hercules C-130 plane crash earlier this year. Such revelations have caused the MoD to fear that new missiles in the possession of insurgents are capable of striking aircraft flying above 15,000 feet. It was previously believed that SAM missiles have a range of less than 10,000 feet.

—Colin Brown, "RAF Hercules That Crashed Killing 10 was Hit by Missile," *Independent*, 8 March 2005.

4 March 2005

Demetrius Perricos, head of UNMOVIC, reports to the U.N. Security Council that approximately 90 sites inspected by the commission have been looted, razed, or stripped. The missing equipment and materials are of interest to UNMOVIC due to the possibility of use for chemical or biological weapons, and long-range missiles. Satellite imagery revealed the disappearance of such materials from the 90 sites, out of 353 monitored.

—Edith M. Lederer, "UN Report Says Satellite Images Show Some 90 Inspection Sites in Iraq Stripped or Razed," Associated Press, 4 March 2005.

27 February 2005

Six surface-to-air missiles are discovered by Iraqi troops in northern Fallujah. The missiles were located in an alleyway in the city, hidden beneath a tarp, and turned over to U.S. Marine explosive disposal experts. Elsewhere, a weapons cache is seized in Saqliwiyah by Iraqi troops from a suspected insurgent including one SA-7 launcher containing one missile.

—"Iraqi, U.S. Forces Continue Increased Security Operations Throughout Al-Anbar Province," States News Service, 27 February 2005.

26 February 2005

The United Nations Monitoring, Verification, and Inspection Commission (UNMOVIC), a group of U.N. inspectors responsible for dismantling the chemical, biological, and long-range missile program in Iraq, is facing the possibility of being discontinued. Due to pressure from the interim Iraqi government, the Bush administration began informal

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consultations with Demetrius Perricos, UNMOVIC's executive chairman, to discuss the continued necessity of the group's presence in Iraq.

—Edith M. Lederer, "After Blocking Discussions, U.S. is Quietly Talking about Ending Work of U.N. Inspectors in Iraq," Associated Press, 26 February 2005.

16 February 2005

An attack on US headquarters in Fallujah is claimed by the Islamic Army in Iraq. The group claims to have fired several unknown missiles at the compound, inflicting a number of injuries and deaths among US troops.

—"Islamic Army in Iraq Fires Missiles at US Positions in Al-Fallujah," Al-Jazeera, 16 February 2005, in FBIS Document GMP20050216000260.

13 February 2005

In response to allegations of insurgent missiles' involvement in the crash on 20 January of the British RAF Hercules C130 transport plane, a British Defense Ministry spokesman maintains that the investigation has yet to be concluded. Metal fatigue is now considered to be the most likely cause of the aircraft's demise, rather than a missile attack. A member of the investigation reports no evidence has been uncovered to support the theory of the airplane being accosted by a missile or explosives.

—Peter Almond, "Metal Fatigue Theory in RAF Crash," *Sunday Times*, 13 February 2005.

9 February 2005

A news report on Arabic television relates the North Oil Company's claim that a missile has hit an oil pipeline that connects Kirkuk to oil refineries in Bayji, a location just north of Baghdad. The point of attack is reportedly near Al-Fathah, just two kilometers west of Kirkuk. A North Oil Company official says missiles were used in this attack because the pipeline is fairly well protected. Thamer al-Ghadban, the Iraqi Oil Minister states that attacks on the oil industry since the invasion in 2003 have cost Iraq from \$7 to 8 billion in oil exports.

—"Al-Sharqiyah Reports Missile Attack Sets Fire to Oil Pipeline West of Kirkuk," Al-Sharqiyah, 9 February 2005, in FBIS Document GMP20050209000041.

2 February 2005

Although Arabic television has screened a videotape showing insurgents orchestrating the crash of British military Hercules C130 aircraft by using shoulder-fired shoulder-to-air missiles, British authorities are not yet acknowledging the authenticity of the tape and continue to investigate. The tape was sent to the al-Jazeera television station by a group called the Green Brigade, which has ties to the National Islamic Resistance operating in Iraq. The group claims responsibility for the crash that caused the death of 10 military personnel on board. The videotape shows of a finger pushing a button, two missiles in the air, an explosion in the sky, followed by footage of what appears to be burning debris of an aircraft in a field.

—Michael McDough, "Iraq Aussie Airman Killed; Plane Crash 'Missile Video' Under Scrutiny," *The Advertiser*, 2 February 2005.

4 January 2005

Following the revelation of Polish involvement in a missile engine transaction between former Polish employees of

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the Military Property Agency and Saddam Hussein's regime, 15 Polish businessmen are charged with supplying arms to Iraq between 2000 and 2002. The evidence for such charges are 280 scrapped engines for Volkhov antiaircraft missiles that were purchased from the businessmen by Amir Ibrahim Jasim al-Tikriti, a cousin of Saddam Hussein and head of the Iraqi missile construction program.

—"Fifteen Poles Face Trial for Supplying Saddam Regime with Missile Engines," *Financial Times*, 4 January 2005.

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2004

14 December 2004

A U.S. Air Force effort to reduce the risk of ground travel on the most dangerous roads in Iraq is being criticized due to insurgent possession of surface-to-air missiles (SAMs). The Air Force is increasing its frequency of air travel and cargo transportation in an attempt to shift transportation from the ground to the air, reducing the number of personnel traveling on dangerous routes by 180 people per day. Some officials say that this change actually increases the risk for traveling people and cargo, citing insurgent possession of shoulder-fired SAMs that are able to target low-flying aircrafts. Evidence of this claim is supported by an instance last year when a civilian cargo jet was hit by an SAM in Baghdad.

—John J. Lumpkin, "To Reduce Risk to Trucks, Air Force Steps Up Cargo Flights Over Iraq," Associated Press, 14 December 2004.

7 December 2004

U.S. bases around the Iraqi city of al-Fallujah are attacked by 49 Ababil type missiles. The insurgents within Fallujah, who are known as the Muhammad Army Brigades in Iraq, are claiming responsibility. The missiles were fired at 1:30 am and aimed for U.S. military barracks within the bases and runways for use by U.S. aircraft and helicopters.

—"Iraqi Resistance Fires Missiles at US Bases near Al-Fallujah," *BBC*, 7 December 2004.

16 November 2004

Russian Foreign Minister Sergei Lavrov says that his country does not plan to provide weapons to Iraq at this time. However, he says that Russia is willing to resume supplying weapons and military equipment to Baghdad if the government requests it. He adds that Russia would be willing to consider training Iraqi servicemen in the use of such weapons in Russia, not Iraq. Iraq was formerly one of the Soviet Union's largest purchasers of weapons.

—Yevgeniy Kolomeyets and Tamara Frokina, "Russia not plan to supply weapons to Iraq," ITAR-TASS, 16 November 2004.

5 November 2004

American intelligence agencies release a new formal estimate of the number of shoulder-fired surface-to-air missile (SAM) systems suspected to be outside the control of any government around the world. The new estimate, wherein a total of 6,000 of these weapons may be at large, represents a tripling of previous approximations. The rise is attributed to the unknown status of at least 4,000 such weapons from Iraq's prewar

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arsenal.

—Douglas Jehl and David E. Sanger, "U.S. Expands List of Los Missiles," *New York Times*, 6 November 2004.

4 November 2004

The *Los Angeles Times* reports that several US army reservists and national guardsmen claim they saw vast looting of explosives at the Al Qaqa facility after the fall of Baghdad. The soldiers are not able to confirm that these explosives were the stocks of HMX and RDX first publicly reported missing in late October. However, one soldier says he saw bags labeled "hexamine" among those being carted away by looters. Hexamine is an ingredient of HMX. The soldiers say they were unable to prevent the theft of the explosives because they lacked adequate forces in comparison to the number of looters. The soldiers' calls to superiors for reinforcements apparently went unheeded.

—Mark Mazzetti, *Los Angeles Times*, 4 November 2004, in "Soldiers Describe Looting at Iraqi Al-Qaqa Site," Global Security Newswire, 4 November 2004, www.nti.org.

26 October 2004

The Pentagon identifies a period of time during the spring of 2003 during which it suspects that powerful conventional explosives were removed from a bunker at the Al Qaqa facility. This time period includes several weeks prior to the US-led invasion and extending up through several weeks following the capture of Baghdad by coalition forces.

—Bradley Graham, "U.S. Thinks Explosives Vanished in Spring '03," *Washington Post*, 27 October 2004.

25 October 2004

IAEA Director-General Mohamed ElBaradei sends a letter to the UN Security Council regarding a letter submitted to the IAEA from the General Director of the Planning and Following Up Directorate of the Iraqi Ministry of Science and Technology on October 10, 2004. The Iraqi letter informs the IAEA of the loss after April 9, 2003, of explosives previously under IAEA monitoring, namely large quantities of HMX and RDX. According to the letter, the losses appear to have resulted from the theft and looting of governmental installations where security was lacking.

—"Letter dated 25 October 2004 from the Secretary-General addressed to the President of the Security Council," United Nations Security Council, S/2004/831, 25 October 2004.

24 October 2004

Iraq's interim government announces that approximately 380 tons of powerful conventional explosives, suitable for making missile warheads and detonating nuclear weapons, are unaccounted for from the Al Qaqa facility, one of Iraq's most sensitive military installations. The explosives, mainly HMX and RDX, had been monitored by UN weapons inspectors prior to the 2003 US-led invasion. The IAEA says it informed coalition forces about the location and danger of these explosives before the war began.

—James Glanz, William J. Broad and David E. Sanger, "Huge Cache of Explosives Vanished From Site in Iraq," *New York Times*, 25 October 2004.

9 October 2004

The *Guardian* publishes an editorial written by former UN weapons inspector Scott Ritter who worked in Iraq

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between 1991 and 1998. In it, Ritter criticizes the Iraq Survey Group (ISG) report for failing to provide documentation regarding Saddam's supposed intent to restart WMD and missile programs once sanctions were ended. He also writes that ISG head Charles Duelfer is not an unbiased reporter on the matters of Iraq's disarmament, as he, during his tenure as deputy executive chairman of the UN inspections teams, participated in discussions with senior US government officials about removing Saddam from power. Iraq spies were aware of Duelfer's conversations and, as a result, were intransigent towards UN inspectors who were suspected of collaborating against Saddam. Ritter calls for a full declassification of the ISG report and its supporting documentation in order to, in his opinion, demonstrate that Saddam's regime's actions may be explained by its desire to protect itself in the face of US government efforts to oust it.

—Scott Ritter, "The source Duelfer didn't quote," *Guardian*, 9 October 2004.

30 September 2004

The Iraq Survey Group (ISG) reports that no evidence was uncovered during its investigation to demonstrate that Iraq retained Scud-variant missiles after 1991. In fact, the ISG report states that it appears all 819 Scud missiles Iraq acquired from the Soviet Union prior to 1991 were destroyed.

—"Comprehensive Report of the Special Advisor to the DCI on Iraq's WMD," Central Intelligence Agency, Volume II, 30 September 2004.

30 September 2004

Iraq began to develop a new, longer-range unmanned aerial vehicle (UAV) program in early 2000, named Al-Quds. This program was still in a development stage when the US-led invasion began in 2003. Evidence uncovered by Iraq Survey Group (ISG) inspectors suggests that these UAV programs were likely meant to perform reconnaissance or electronic warfare functions.

—"Comprehensive Report of the Special Advisor to the DCI on Iraq's WMD," Central Intelligence Agency, Volume II, 30 September 2004.

30 September 2004

The Iraq Survey Group (ISG) report states that following the departure of UNSCOM inspectors in 1998, Iraq carried on with one cruise missile program and commenced another. In the former case, Iraq continued to seek the extension of its HY-2 cruise missile range to 150km after 1998. The second program was known as the Jinin Project. In this program, Iraq sought to convert the HY-2 anti-ship cruise missile into a 1,000-km-range land attack cruise missile. By the time UN inspectors returned in 2002, the Jinin Project may have been three to five years from completion. Inspectors uncovered no evidence linking this project to weapons of mass destruction programs.

—"Comprehensive Report of the Special Advisor to the DCI on Iraq's WMD," Central Intelligence Agency, Volume II, 30 September 2004.

30 September 2004

Iraq replaced the Al-Samoud missile program with the Al-Samoud II in 2001 due to instability problems. August 2001 flight tests led to the deployment of the Al-Samoud II missiles to the Iraqi Army in December 2001, according to the Iraq Survey Group (ISG) report. Iraq hired technicians and engineers from Russian firms to assist in the Al-Samoud II's development. Iraq reportedly launched five Al-Samoud II missiles against US-led invading forces in the

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2003 war.

—"Comprehensive Report of the Special Advisor to the DCI on Iraq's WMD," Central Intelligence Agency, Volume II, 30 September 2004.

30 September 2004

The Iraq Survey Group (ISG) report finds that sometime after 2000 or 2001, Iraq sought to extend the life span of the solid-propellant FROG-7 and Ababil-50 rockets, as well as some surface-to-air missiles (SAMs). Iraqi efforts to increase the shelf life of the FROG-7 and Al-Nida' was determined to have aided in Iraq's efforts to advance its composite solid-propellant manufacturing infrastructure.

—"Comprehensive Report of the Special Advisor to the DCI on Iraq's WMD," Central Intelligence Agency, Volume II, 30 September 2004.

30 September 2004

The Iraq Survey Group (ISG) report states that the Iraqis began to develop the Al-'Ubur surface-to-air missile (SAM) system in 1999 or 2000. The conceptualization for this solid-propellant SAM was that it would use a modified Al-Fateh rocket motor. The Iraqis also considered using the Al-'Ubur motor within a single-stage surface-to-surface ballistic missile (SSM) that would have exceeded UN range limitations. The Iraqis did not, however, follow through with its development as an SSM.

—"Comprehensive Report of the Special Advisor to the DCI on Iraq's WMD," Central Intelligence Agency, Volume II, 30 September 2004.

30 September 2004

According to the Iraq Survey Group (ISG) report, Iraq began flight-testing the composite solid-propellant Al-Fateh missile in 2000. The Al-Fateh was produced with materials permitted under UN Security Council resolutions, although its range capability exceeded that which was allowable under UN decree. The ISG uncovered no evidence to suggest the Al-Fateh was intended to carry a weapon of mass destruction warhead. The Al-Fateh high explosive (HE) warhead design was derived from a Scud HE warhead. Unable to acquire or produce an appropriate guidance system, Iraq deployed the unguided Al-Fateh—which is therefore a rocket, not a missile—with the Iraqi Army in late 2001. They likely possessed between 40 and 60 Al-Fateh rockets at the start of Operation Iraqi Freedom and fired between 12 and 16 during the war.

—"Comprehensive Report of the Special Advisor to the DCI on Iraq's WMD," Central Intelligence Agency, Volume II, 30 September 2004.

30 September 2004

Regarding Iraq's efforts to convert SA-2 surface-to-air missiles (SAM) into ballistic missiles, the Iraq Survey Group (ISG) reports that Baghdad restarted these efforts in 1997. The project was subsequently canceled in 1998 but possibly restarted again in 2000. Documents uncovered by the inspectors dated August 2000 show two missiles with either two or five SA-2 engines. These designs may have resulted in missiles with ranges between 500km and 1,000km, although the program appears to have stalled due to a lack of approval from Saddam Hussein. However, contracts examined by the inspectors also show that Iraq imported 380 SA-2/Volga liquid-propellant engines from Poland and maybe Russia or Belarus. Inspectors report that the SA-2 conversion project led by Al Kindi State

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Establishment was abandoned prior to the arrival of UN inspectors in 2002. Another group was secretly involved in a crash program designed to convert SA-2s to surface-to-surface missiles (SSMs) although none were fired during the subsequent war.

—"Comprehensive Report of the Special Advisor to the DCI on Iraq's WMD," Central Intelligence Agency, Volume II, 30 September 2004.

30 September 2004

The Iraq Survey Group (ISG) report on Iraq's weapons of mass destruction and delivery system programs alleges that, since 1991, widespread corruption and secret dealings involving foreign government entities, private companies and various individuals, allowed Saddam Hussein's regime to acquire goods and services to aid in the development of undeclared missile systems. The assistance provided to the regime by foreign entities included technical expertise and training, as well as equipment and spare part transfers. Entities from France, Russia, Poland, Romania, Belarus, and Ukraine allegedly participated in these schemes. In the majority of cases, the inspectors uncovered no proof that government officials provided official sanction of these activities. The report also says that Saddam Hussein's regime and these suppliers managed to circumvent international sanctions using a network of front companies in various Middle East countries. While a few countries allowed such activity due to their political closeness or sympathy towards Iraq, the report finds that most were motivated by financial gain. Specific cases include transactions with a Polish front company named Ewex, which was set up by Iraqi intelligence officers. Between 2001 and 2003, they reportedly gathered approximately 280 engines and guidance components for surface-to-air missiles (SAMs) from various Polish sources. The report alleges that these engines were intended for a new missile that would violate the range limitations established by the United Nations. Polish authorities later arrested Ewex officials in 2003 for their illicit activities. In addition, the Bulgarian firm JEFF Co. is alleged to have delivered warheads, missiles, and launcher units to Baghdad in 2002. A Ukrainian company supplied Iraqi intelligence agents in 2001 with five motors for Iraq's unmanned aerial vehicle (UAV) program. The motors were allegedly shipped within diplomatic pouches in order to avoid scrutiny. The report also details other transfers of missile engines and motors from at least one Ukrainian firm, which received compensation in the form of vouchers and credits for oil purchases under the UN's Oil-for-Food Program. Government complicity with such deals was identified in Ukraine. Also, illegal trade was commonplace between Russia and Iraq, according to the report, with weekly charter flights from Moscow to Baghdad transferring items such as small missile components. One Russian company inked a contract with the Iraqis to supply \$20 million worth of items for the Iraqi missile program.

—"Comprehensive Report of the Special Advisor to the DCI on Iraq's WMD," Central Intelligence Agency, Volume II, 30 September 2004.

30 September 2004

A report detailing the facts uncovered during the Iraq Survey Group's (ISG) investigation into Iraq's weapons of mass destruction (WMD) and delivery system programs is published. Among its key findings, the report says that between 1997 and 2003, Iraq likely maintained a number of undeclared programs to convert SA-2 surface-to-air missiles (SAMs) into surface-to-surface missiles (SSMs) with ranges up to 250km and 500km. In addition, by 2000 or 2001, Iraq began focusing its efforts on developing a long-range, solid-propellant ballistic missile that would have exceeded the 150km range limit imposed by the UN Security Council. This program was undertaken quietly

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and with little documentation. Creating a timeline of Iraq's procurement and development efforts, the ISG reports that, by 1991, Iraq had acquired the missiles and infrastructure from a number of suppliers that in turn formed the basis for Iraq's indigenous development of future missile systems. The first Gulf War and subsequent sanctions imposed on Iraq by the international community caused many of Iraq's delivery system programs to be curtailed after 1991. UN inspections also led to the destruction of a large portion of Iraq's long-range missile stocks and production infrastructure, although Iraq reportedly concealed some items with the aim of facilitating the programs' restart at a later date. Between 1995 and 1998, any remaining secretive work on long-range missile systems was effectively curtailed due to the defection of high-level regime insider Hussein Kamil. The report uncovered increased activity related to delivery system development after the onset of the 1996 Oil-for-Food program, as well as following the end in 1998 of the regime's cooperation with UN inspectors. This activity included the hiring of outside expertise and the development of plans for three long-range ballistic missile systems. These three systems were in development, not production, up until the 2003 invasion of Iraq by US-led forces. The design of these long-range missiles was in clear violations of UN Security Council Resolution 687. Iraq also sought to acquire missile systems during this period from North Korea and Russia sources, as well as missile guidance and control systems from entities in the Federal Republic of Yugoslavia, Russia and Belarus. Moreover, a new liquid-rocket engine test, which would have permitted testing of more powerful engines or clusters of engines, had also been built in this period but probably had not yet been used for testing. Overall, the inspectors determined that international inspections did offer some insight to the Iraqi delivery system programs in the years leading up to the 2003 invasion by US-led forces, but without the inspections, Saddam would surely have continued his efforts to reconstitute long-range delivery systems. Moreover, the ISG assesses that Saddam purposely sowed confusion about Iraq's arsenal and capabilities in order to deter enemies, especially Iran and Israel.

—"Comprehensive Report of the Special Advisor to the DCI on Iraq's WMD," Central Intelligence Agency, Volume II, 30 September 2004.

17 September 2004

The *New York Times* says that a draft report being prepared by the Iraq Survey Group (ISG) will state that Iraq had an intention to restart its weapons programs when, and if, sanctions were ever lifted, but that the Iraqis did not maintain an active large-scale weapons program at the time the US-led coalition invaded the country in 2003.

—Douglas Jehl, "Study Finds Desire for Arms, But Not Capacity," *New York Times*, 17 September 2004.

9 June 2004

The acting head of the UN weapons inspection team, Demetrius Perricos, tells a closed-door meeting of the UNSC that inspectors have discovered 20 SA-2 surface-to-air missiles in a scrapyards in Jordan, as well as other equipment probably linked to banned weapons programs. These items are believed to have been exported from Iraq since the US-led invasion. The equipment includes a mixer for solid rocket fuel and other processing equipment. The UN inspectors were reportedly alerted to the material outside Iraq after an SA-2 rocket engine was discovered in a Rotterdam scrapyards.

—Stephen Fidler, "Iraqi weapons looted for scrap, UN says," *Financial Times*, 11 June 2004.

28 April 2004

The *Times* of London reports that a British-Iraqi businessman involved in the UN's "oil-for-food" program in Iraq

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claims to have witnessed an Iraqi diplomat paying off UN personnel in order to get a dozen containers full of possible missile engines into Iraq from Jordan in 1997.

—James Bone, "I saw UN staff take bribes,' says trader," *Times* (London), 28 April 2004.

30 March 2004

In his testimony before the US Congress, the chief inspector for the Iraq Survey Group (ISG), Mr. Charles Duelfer, confirms past ISG findings that Iraq maintained a hearty delivery system program, which was pursued outside the purview of the United Nations. He also says that new information continues to be collected with regard to secretive long-range ballistic missile development and unmanned aerial vehicle (UAV) programs. Specifically, Duelfer reports that the Iraqis sought North Korean and other foreign support for their delivery system programs. In addition, other foreign technical assistance was apparently provided to Iraqi engineers and designers from 1998 until the invasion by coalition forces in 2003. This foreign assistance included information used to redesign production data, as well as contracts with foreign firms for the fabrication of several key Al-Samoud missile subsystems.

—"Testimony to the US Congress by Mr. Charles Duelfer, Director of Central Intelligence Special Advisor for Strategy regarding Iraqi Weapons of Mass Destruction (WMD) Programs," Central Intelligence Agency, 30 March 2004, www.cia.gov.

28 March 2004

An Israeli parliamentary subcommittee criticizes Israel's intelligence services, saying that they lacked evidence to support their overestimations of Iraq's weapons programs before the 2003 invasion, including relating to Iraq's missile capabilities.

—Greg Myre, "Lawmakers Rebuke Israeli Intelligence Services Over Iraq," *New York Times*, 29 March 2004.

5 March 2004

The *New York Times* reports that, according to US government officials, Russian engineers secretly provided technical assistance to Saddam Hussein's long-range ballistic missile program in the years before the 2003 US-led invasion. The Russian engineers allegedly worked for a private company, not the Russian government.

—James Risen, "Russian Experts Reportedly Gave Iraq Missile Aid," *New York Times*, 5 March 2004.

8 January 2004

The Carnegie Endowment for International Peace publishes a report accusing the Bush Administration of hyping Iraq's WMD and missile programs prior to the 2003 war. The report also assesses that until 2002, the intelligence community had, in general, accurately judged Iraq's nuclear and missile capabilities.

—James Bone, "Americans scale back hunt for weapons," *Times* (London), 9 January 2004.

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2003-2002

19 December 2003

The US State Department announces a new program to hire Iraqi scientists that had been involved in Iraq's WMD programs prior to the overthrow of the Saddam Hussein regime. This effort is meant to keep scientists from selling their technical expertise to other countries.

—Robin Wright and Peter Slevin, "U.S. to Hire Scientists in Iraq to Aid in Rebuilding," *Washington Post*, 19 December 2003.

November 2003

Reports emerge that Dr. Modher Sadeq-Saba al-Tamimi, the Iraqi scientist who led Saddam Hussein's long-range missile program, has fled to Iran.

—Dafna Linzer, "Top missile scientist flees to Iran," *Toronto Star*, 17 November 2003.

3 October 2003

ISG chief inspector David Kay says that UN inspections and international sanctions established against Iraq after the 1991 Gulf War were more effective than the United States had realized prior to its 2003 invasion. The sanctions reportedly led Pyongyang to tell Baghdad that delivery of missile-related items was impossible due to the international attention focused on Iraq. Kay also tells reporters that North Korea was paid \$10 million prior to the war for equipment to produce ballistic missiles, but the equipment was never received in Iraq.

—Bryan Bender, "Rebuilding Iraq; US Inspector Touts Iraqi Sanctions in Report, Bush and Democrats See Vindication," *Boston Globe*, 4 October 2003.

2 October 2003

A newly issued interim report from the US Central Intelligence Agency-run Iraq Survey Group (ISG) states that Saddam Hussein's regime successfully concealed parts of its WMD programs, although it remains unclear whether weapons stocks existed prior to the US-led invasion in the spring of 2003. In his testimony before a congressional hearing concurrent to the report's release, ISG chief weapons inspector David Kay says that Iraq was committed to improving its delivery systems prior to the invasion and had that invasion not occurred, Iraq would have "dramatically breached UN restrictions" placed on it after the 1991 Gulf War. The report's other findings include information about illicit work since 2000 on ballistic missiles with ranges of at least 400km and up to 1000km, as well as on a clustered engine liquid propellant missile and the conversion of SA-2 surface-to-air missiles into ballistic missiles with a desired range of 250km. Studies were reportedly underway regarding proscribed-range solid fuel missile designs. The report quotes one Iraqi prisoner as having said that Iraq maintained a small number of Scud-variant missiles until at least 2001. Iraq is also described as having maintained two related programs to develop unmanned aerial vehicles (UAVs), which may have been geared for use in surveillance and decoy missions, or possibly to disperse chemical or biological weapons. Several Iraqi officials interviewed by ISG investigators reportedly said that one type of UAV was capable of flying further than Iraq stated in its declaration to the UN in 2002. The ISG report also details information about Iraq's purported engagement with North Korea about sharing missile technology, including possibly long-range missiles and anti-ship cruise missiles with a range of 200 miles. The ISG alleges that between 1999 and 2002, North Korea attempted to transmit such missile technology to Iraq.

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clandestinely. Other foreign assistance for Iraq's delivery system programs besides that from North Korea is also detailed in the report. This includes significant levels of assistance from a foreign firm and affiliate companies, which supplied and supported the solid rocket propellant and dual-use chemical programs. Another foreign country allegedly shipped guidance and control systems for the Ababil-100 missile. Other foreign experts operating as independent consultants in Iraq were aiding in the development of Iraq's liquid propellant missile program and various design plans.

—"Statement by David Kay on the Interim Progress Report on the Activities of the Iraq Survey Group (ISG) Before the House Permanent Select Committee on Intelligence, the House Committee on Appropriations, Subcommittee on Defense, and the Senate Select Committee on Intelligence," Central Intelligence Agency, 2 October 2003, www.cia.gov; Mark Huband, "Evidence points to concealment of elements of WMD programme Iraq Survey Group Report," *Financial Times* (London), 3 October 2003; Richard Beeston, "Ballistic plans were concealed," *Times* (London), 3 October 2003.

6 May 2003

Chief UN weapons inspector Hans Blix tells the UNSC that apart from the Al-Samoud missile infractions detailed in his previous reports, UN inspectors had, up until their 18 March 2003 withdrawal, found no evidence of proscribed WMD programs in Iraq.

—"UN Inspectors Found No Evidence of Prohibited Weapons Programmes as of 18 March Withdrawal, Hans Blix Tells Security Council," United Nations Press Release SC/7777, 6 May 2003, www.un.org.

29 April 2003

The US-led coalition announces the surrender of General Amir Rashid Muhammad al-Ubaydi in Iraq, who was the former Iraqi oil minister and an important adviser to Saddam Hussein. General Rashid also supervised Iraq's secret missile programs. He is the husband of Rihad Taha, a microbiologist known as Dr. Germ due to her suspected involvement in Iraq's past secretive efforts to produce biological weapons.

—Elaine Monaghan, "Coalition captures 'Missile Man'," *Times* (London), 30 April 2003.

25 March 2003

Russia denies that Russian companies sold proscribed military equipment Iraq. This denial follows a 23 March 2003 *Washington Post* report that three Russian companies were involved in illicit sales to Iraq of anti-tank guided missiles, night-vision goggles, and jamming devices.

—"Kremlin denies equipment sales," *Gazette* (Montreal), 25 March 2003.

7 March 2003

Chief UN weapons inspector Hans Blix issues a report that states Iraq's cooperation in the past has not been as proactive or immediate as required under UNSC resolutions, but the country has made significant recent efforts towards UN disarmament goals. Among its findings and its list of remaining unanswered questions, the 167-page report suggests that Iraq could be producing proscribed missiles besides the Al-Samoud stockpile currently being destroyed. The report also questions what happened to unaccounted for Iraqi Scud/Al-Hussein warheads and missiles.

—Guy Dinmore and Mark Turner, "Complex Blix report gives hope to both sides in UN Iraq's Weapons

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Programme," *Financial Times*, 8 March 2003; "Where are the Missing Weapons?" *Chicago Sun-Times*, 8 March 2003.

2 March 2003

Iraq destroys six more Al-Samoud 2 missiles but threatens to suspend these efforts if the United States continues to signal that it is going to war nevertheless.

—Bassem Mroue, "Iraq slowly destroys its missiles but more remain," *Toronto Star*, 3 March 2003.

1 March 2003

Iraq begins to destroy its proscribed Al-Samoud 2 missiles under the supervision of UN inspectors. Four missiles are destroyed after Iraqi officials and UN inspectors agree to a timetable for the complete elimination of the missile program.

—Rajiv Chandraasekaran, "Iraq to Destroy Illegal Missiles," *Washington Post*, 1 March 2003; Phillip Coorey, "Iraq claims to have destroyed missiles," *Sunday Telegraph* (Sydney), 2 March 2003.

27 February 2003

Iraqi President Saddam Hussein agrees to comply with UN inspectors' demands that Iraq destroy Al-Samoud 2 missiles and facilities.

—Ewen MacAskill and Michael White, "Saddam backs down on missiles," *Guardian*, 28 February 2003.

25 February 2003

CBS News begins airing portions of anchorman Dan Rather's interview with Iraqi President Saddam Hussein, which was recorded in a Baghdad palace. Among his comments, the Iraqi leader denies that his nation possesses missiles with ranges beyond that which is permitted under UN mandates.

—Bill Carter, "Threats and Responses; Iraqi Denies Missiles Break Rules," *New York Times*, 26 February 2003.

23 February 2003

Iraq test-fires a short-range missile in an attempt to show inspectors that the missile's range is in fact within UN limits. Iraq also says that it is considering UN inspectors' demands to destroy 100 of its 120 Al-Samoud 2 missiles.

—John Diamond and Susan Page, "U.S. presses toward war resolution," *USA Today*, 24 February 2003.

14 February 2003

UN chief weapons inspector Hans Blix reports to the UNSC that while Iraq continues to disobey UN mandates, he has noted some improved cooperation from Saddam Hussein's regime. Blix reports that UN inspectors in Iraq have carried out 400 inspections at 300 sites since November and that private interviews with three Iraqi scientists had yielded useful information. He also says inspectors have not yet uncovered WMD but have found missiles that exceed range limits set by the UN. In addition, he accuses Iraq of not living up to its responsibility to fully disclose its chemical and biological weapons programs. US Secretary of State Colin Powell later responds by expressing disappointment with Blix's lack of toughness about Iraq's failures to disarm.

—Geneive Abdo, "Confronting Iraq; Report Complicates US Stand in Mixed Verdict, Blix Faults Iraq, Cites Cooperation," *Boston Globe*, 15 February 2003.

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14 February 2003

Iraqi Deputy Prime Minister Tariq Aziz discounts claims that Iraq's missile program is in violation of UNSC resolutions. He states that the absence of a guidance system within the missiles in question causes them, on occasion, to fly some distance beyond their target.

—Paddy Agnew and Frank Millar, "Iraq not in breach of council's resolution, says Aziz," *Irish Times*, 14 February 2003.

12 February 2003

US and UN officials state that the panel of international missile experts assembled by chief UN weapons inspector Hans Blix have determined that an Iraqi ballistic missile program is in violation of UN mandates.

—Colin Lynch and Dana Priest, "Panel: Iraq Broke Limit on Missiles," *Washington Post*, 13 February 2003.

5 February 2003

US Secretary of State Colin Powell speaks before the UNSC about Iraq's non-compliance with UN disarmament demands, as well as Iraq's alleged links to terrorism. Regarding ballistic missiles, Powell states that Iraq has been attempting to develop missiles with a range surpassing 700 miles and has already built a test-stand for longer-range missile engines. He claims Iraq has also created short-range systems that breach the UN range limit of 150km, and it has illicitly imported rocket engines. He cites intelligence reports assessments that Iraq retains a covert force of up to a few dozen Scud-variant missiles, in addition to its stocks of Al-Samoud 2 and Al-Fatah missiles that violate UN proscriptions. In addition, Powell's presentation includes the playing of a video clip to illustrate that Iraq had developed methods to disperse deadly biological agents using remote-piloted aerial vehicles.

—Secretary of State Colin L. Powell, Remarks to the United Nations Security Council, New York City, 5 February 2003, www.state.gov; "Threats and Responses: The Presentation; How Powell's Evidence Compares to Findings From Prior Intelligence," *New York Times*, 7 February 2003.

4 February 2003

The *Washington Post* reports that chief UN weapons inspector Hans Blix will invite a team of international rocket scientists to the United Nations to help determine whether Iraq's suspect missile programs actually violate the country's international disarmament obligations. The team of experts will assess whether the missiles in question represent a "material breach" of past UNSC resolutions.

—Colum Lynch, "Blix Gets Aid on Iraq Missile Issue," *Washington Post*, 4 February 2003.

27 January 2003

Chief UN weapons inspector Hans Blix strongly criticizes Iraq for failing to reveal all details regarding its long-range missile programs and its chemical and biological weapons programs. Blix also chides the Iraqi regime for its lack of cooperation with UN weapons inspectors in Iraq. Blix notes that specific findings in Iraq so far include two missiles which have been tested and shown to exceed the range of 150km permitted by the UN, and machinery that has been rebuilt since inspections ended in 1998 for the manufacture of missiles.

—Bronwen Maddox, "How a cynic revealed his weapon of mass inspection," *Times* (London), 28 January 2003; Evelyn Leopold, "Arms inspector sharply critical," *Toronto Star*, 28 January 2003.

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14 January 2003

British officials say that smuggled missile engine parts uncovered by UN inspectors in recent weeks in Iraq may eventually be linked to a prohibited long-range missile program and could serve as the crucial evidence of Iraq's suspected illicit weapons programs.

—Michael Evans, "Smuggled parts may be the missing clue," *Times* (London), 15 January 2003.

9 January 2003

Chief UN weapons inspector Hans Blix reports to the UNSC that although Iraq has violated UN sanctions by importing certain material for its weapons programs, no weapons stockpiles or other such "smoking guns" have yet been discovered in Iraq. However, Iraq's illicit imports, according to Blix, have included missile engines and raw material for the production of solid missile propellant.

—Melissa Radler, "Inspectors haven't found 'smoking gun,' says Blix," *Jerusalem Post*, 10 January 2003.

29 December 2002

Iraq provides the UN with a list in Arabic of more than 500 scientists who have been involved in the development of ballistic missile and WMD programs. Iraq's submission of this information was required under UNSC Resolution 1441.

—Neil MacFarquhar, "Iraq gives U.N. list of 500 weapons experts," *Toronto Star*, 29 December 2002.

December 2002

The US State Department issues a list of inadequacies in Iraq's 7 December declaration of its weapon and missile programs. Regarding ballistic missiles, the State Department says Iraq disclosed having manufactured new energetic fuels, but its admissions do not include recognition that these fuels are suited only to missile systems which remain undeclared by the Iraqi government. The list also questions the Iraqi claim that a flight-test of a larger diameter missile remains within the UN proscribed range limit of a 150km. In addition, the State Department expresses doubts about Iraq's denial of links between its unmanned aerial vehicle (UAV) programs and WMD dispersal programs.

—"Threats and Responses; The U.S. Catalogs 'Material Omissions'," *New York Times*, 20 December 2002.

19 December 2002

A German newspaper reports that Iraq's 12,000-page declaration to the UN regarding its WMD and missile programs reveals the names of 150 companies from around the world, which allegedly aided Iraq in developing its missile and other weapons programs.

—Stephen Fidler and Hugh Williamson, "British suppliers 'named in Iraqi dossier'," *Financial Times*, 19 December 2002.

14 December 2002

UN weapons inspectors visit a Scud missile factory where bomb casings for chemical weapons were fabricated in the final days of the 1991 Gulf War. This government-owned company is 30 miles north of Baghdad.

—Sameer Yacoub, "UN Inspectors Visit Disease Centre Again," *Scotland on Sunday*, 15 December 2002.

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3 December 2002

In a speech delivered at the Pentagon, US President George Bush demands that Saddam Hussein reveal every detail related to his missile and WMD programs.

—David E. Sanger and Richard W. Stevenson, "Threats and Responses: The President," *New York Times*, 3 December 2002.

25 November 2002

The first group of UN weapons inspectors arrives in Iraq.

—Rajiv Chandrasekaran, "Arms Inspectors Pledge Scrutiny in Iraq," *Washington Post*, 26 November 2002.

4 October 2002

A report by US intelligence agencies is released. It alleges that Iraq has fortified its missile program since UN weapons inspections were terminated in 1998.

—"U.S. Report Cites Iraqi Threat; Intelligence Survey Projects a Nuclear Weapon in a Decade," *Washington Post*, 5 October 2002.

24 September 2002

Prime Minister Tony Blair releases a dossier created by the British government, which states that Iraq has illegally retained up to 20 Al-Hussein missiles, with a range of 650km as well as the capacity to deliver chemical and biological weapons. The report also alleges Iraq has begun installing Al-Samoud liquid-fueled missiles that possess an extended range beyond the 150km range limit set by the UNSC. In addition, construction is reported to have begun on a new engine test stand at the Al-Rafah special weapons establishment in Shahiyat approximately 64km southwest of Baghdad, which will be used in the development of missiles able to travel more than 1,000km and that will be capable of reaching British bases in Cyprus, other NATO members, Israel, as well as the other Persian Gulf nations. According to the report, Iraq's missile program currently employs hundreds of people. Moreover, much of the missile production infrastructure that had been destroyed in the Gulf War I and Operation Desert Fox in 1998 has allegedly been rebuilt. The report also notes that the Iraqis have already begun to hide sensitive equipment and paperwork in anticipation of the return of the UN inspectors. Another assertion is that a new plant has been constructed at the Al-Mamoun factory southwest of Baghdad, which appears geared towards producing ammonium perchlorate, a key ingredient in the production of solid-fuel rocket motors. The Indian chemical engineering firm NEC Engineers Private Limited is said to be responsible for providing assistance in these and other efforts, including at the Fallujah 2 chlorine plant.

—"The Case Against Iraq Key Points of the Dossier," *Independent*, 25 September 2002; Michael Evans, "Longer-range weapons could hit British bases," *Times* (London), 25 September 2002.

16 September 2002

Iraq agrees to allow UN weapon inspectors to re-enter Iraq for the first time since being withdrawn by UNSCOM chief Richard Butler in 1998.

—Barbara Slavin and Dave Moniz, "Iraq says U.N. can resume searches," *USA Today*, 17 September 2002.

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12 September 2002

The White House releases a 20-page paper entitled "A Decade of Deception and Defiance," which seeks to summarize existing evidence about Iraq's ongoing efforts to develop WMD and make the case for going to war against Saddam Hussein's regime. Among the few previously undisclosed pieces of information included in the paper is an allegation that the Iraqis have constructed a new missile test stand at the Al-Rafah facility.

—Dana Priest and Joby Warrick, "Observers: Evidence For War Lacking; Report Against Iraq Holds Little That's New," *Washington Post*, 13 September 2002.

9 September 2002

The International Institute of Strategic Studies (IISS) releases its study on Iraq's WMD capabilities and intentions. Among their findings, researchers conclude that Iraq's ballistic missile programs have been severely degraded over the past 11 years.

—Kim Sengupta, John Lichfield and Ben Russell, "Downing Street Seizes on Iraq Weapons Report to Fuel War Talk," *Independent*, 10 September 2002.

5 September 2002

US warplanes attack a missile site near Basra as well as other air-defense and communications targets.

—Barbara Slavin and Dave Moniz, "Iraq says U.N. can resume searches," *USA Today*, 17 September 2002.

27 August 2002

A report in the *Hindustan Times* claims India is investigating five companies that may have supplied technology and equipment to Iraq for use in its missile and chemical weapons programs.

—"Briefs," *Australian*, 27 August 2002.

12 March 2002

British Foreign Secretary Jack Straw says new British and US intelligence shows that Iraq has repaired, and is moving forward with, its ballistic missile program.

—"Straw struggles to convince MPs of need for attack," *Guardian*, 13 March 2002.

6 March 2002

The United States presents the United Nations' Security Council (UNSC) with approximately one dozen satellite photographs and a videotape, which allegedly show that Iraq has modified hundreds of cargo and dump trucks and is using some components for missile systems as well as to create delivery vehicles capable of transporting heavy artillery pieces. Specifically, the United States says that Iraq has stripped the hydraulic systems from waste management vehicles for use in missile programs. US officials also claim that Iraq obtained these nearly 1,000 Russian and German trucks through a UN humanitarian program.

—"World; In Brief: The Middle East," *Washington Post*, 7 March 2002.

29 January 2002

US President George Bush delivers the annual State of the Union address. He charges that Iraq is one of the "axis of evil" nations that continue to pursue weapons of mass destruction (WMD) and the means to deliver them.

—"Our War on Terror... Is Only Begun'," *Washington Post*, 30 January 2002.

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2001

Mid-December 2001

According to the Supreme Council for Islamic Revolution in Iraq (SCIRI), Iraq hides a considerable stock of long-range SSMs, as well as chemical and biological warheads, in a lake in western Iraq. It is reported that the Iraqis secretly transported these weapons over two consecutive nights.

—*KUNA* (Kuwait, Internet) in English, 29 December 2001, in "KUNA: Iraqi Opposition Says Iraq Hides Weapons of Mass Destruction," FBIS Document GMP20011229000077, 29 December 2001.

18 November 2001

Iraqi forces continue to bolster their presence along the borders with the Kurdish enclaves in the north. The Iraqi forces possess 130mm heavy artillery pieces and missile launchers.

—Ali Abd-al-Amir, "'Kurdish Afghans' Kill 12 and Injure 59 Members of Talabani's Party. Iraqi Forces Deploy Artillery and Missiles and Dig Trenches Around Kurdistan," *Al-Hayah* (London) in Arabic, 19 November 2001, p. 8, in "Iraqi Forces Reportedly Deploy Artillery, Missiles Close to Kurdish Areas," FBIS Document GMP20011119000048, 19 November 2001.

2 November 2001

Iraqi authorities amass troops in areas close to the Kurdish enclave in northern Iraq. Iraqi troops deploy a number of military trucks, tanks, as well as artillery and missile batteries in the areas near the Kurdish city of Dahouk.

—"Iraq Masses Troops on Kurdish areas," Iraq Press News Agency, 2 November 2001.

1 November 2001

The traditional Baghdad industrial fair begins and involves approximately 200 companies from dozens of countries, including Belarus. Belarusian Foreign Ministry spokesman Pavel Latushka says that participants at the event include Deputy Economics Minister Yuryy Yenin and representatives of the Minsk Automobile Plant, the Minsk Tractor Works, the Belarusian Automobile Plant, the Mahilyow Automobile Plant, the Minsk Wheeled Traction Vehicle Plant, and the Amkador company, which manufactures road-building equipment.

—"Belarusian companies poised to strengthen presence in Iraq," *Belapan* (Minsk) in Belarusian, 1 November 2001; in "Belarusian Companies Poised to Strengthen Presence in Iraq," FBIS Document CEP20011102000121, 1 November 2001.

25 October 2001

The Russian-Italian joint venture company Iveco-UralAZ announces plans to send trucks to Iraq in November. Deliveries are expected to be completed by January 2002. Iraq will receive 60 Ural-Iveco-6429 trucks, each with a 35-ton carrying capacity.

—David Nissman, "Russian Trucks to Be Shipped to Iraq in November," *Iraq Report*, 2 November 2001, Vol. 4, No. 35, www.rferl.org.

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17 October 2001

In preparation for a possible US military strike in the aftermath of the 11 September terrorist attacks in the United States, Iraqi authorities evacuate vital installations, particularly those related to weapons production, such as the Al-Kindi facility, one of the main weapons factories in the country. Evacuation continues at the Jaber Bin Hayan facility, which is to the west of Mosul.

—"Weapons Sites Evacuated in Iraq," Iraq Press News Agency, 17 October 2001.

4 October 2001

Twenty Iraqi army officers arrive in Minsk, at the invitation of the Belarusian Defense Ministry, to engage in a two-year course of study at the Military Academy of Belarus for mastery of the S-300 SAM system. Each of the Iraqi officers serves in the Iraqi PVO air-defense units. [NOTE: This arrangement was mediated by the Belarusian firm Belmetalenergo, which was created with the participation of Infobank one year prior in order to facilitate interaction in the Iraqi market.]

—Yuriy Andreyev, "Belarus to Train Iraqi Antiaircraft Personnel," *Vremya Novostey* (Moscow) in Russian, 5 October 2001, in "Yuriy Andreyev Article on Iraqi Air Defense Officers Training at Belarusian Military Academy. A contract for training Libyan army officers is also under discussion," FBIS Document CEP20011005000392, 5 October 2001; Andrey Makhovskiy, "Contract for Training Iraqi Officers Could Cost Belarus Too Much," *Delovaya Gazeta* (Belorussakaya) in Russian, 5 October 2001, in "At the Invitation of the Belarusian Defense Ministry, 20 Iraqi Army Air Defense Officers Are Attending a Two-Year Training Course on the S-300 SAM System at the Belarusian Military Academy," FBIS Document CEP20011005000387, 5 October 2001.

29 September 2001

A nuclear scientist who defected from Iraq admits that he was asked to reproduce a wax crucial for firing a ballistic missile. He says that he completed this assignment with the aid of Bulgarians. He adds that Iraqis currently work to adapt 12 unpiloted aircrafts used during the Iran-Iraq War and to extend the range of aircrafts to 1,120km.

—Jessica Berry, "Saddam has Germ Warfare Arsenal, Says Defecting Physicist," *The Sunday Telegraph* (London, Internet) in English, 30 September 2001, in "Defecting Physicist Claims Iraq Building Chemical, Biological Weapons Arsenal," FBIS Document EUP20010930000198, 30 September 2001.

27 September 2001

Belarus sends the first of two letters to the Belarusian embassy in Iraq, which extends an invitation to 10 named Iraqi army officers to study at the Military Academy of Belarus. [NOTE: A second letter is later sent inviting another 10 Iraqi army officers to study in Belarus. See 4 October 2001.]

—Andrey Makhovskiy, "Contract for Training Iraqi Officers Could Cost Belarus Too Much," *Delovaya Gazeta* (Belorussakaya) in Russian, 5 October 2001, in "At the Invitation of the Belarusian Defense Ministry, 20 Iraqi Army Air Defense Officers Are Attending a Two-Year Training Course on the S-300 SAM System at the Belarusian Military Academy," FBIS Document CEP20011005000387, 5 October 2001.

27 September 2001

Iraq returns to operation the Khan Sa'ad camp and its military engineers' production plant. It is reported that Iraq has recently smuggled a large number of modern equipment pieces to the facility for repair. General Hamdan Abd

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Ali and Osama al-Takriti oversee the production plant.

—"Reopening of the Khan Sa'ad Camp and the Military Engineers' Plant," *Al-Naba'* in Arabic, 27 September 2001.

16 September 2001

Russia plans to export 3,000 six-wheel-drive Ural trucks to Iraq this year. Iraq says that it will use the trucks for civilian purposes.

—"Ural Trucks for Iraq May End up in Army," Moscow Russian Public Television ORT1 in Russian, 16 September 2001.

2 September 2001

Reports allege that Iraq builds missiles and chemical weapons along the unpopulated Syrian border area of Al-Qayem. At least eight factories operate at full production. One plant in the Al-Qayem area is suspected of focusing on the creation of chemical warheads for ballistic missiles. Qusay Hussein reportedly leads these efforts.

—"Iraq Restores 8 Military Factories to Full Production," *World Tribune*, 8 September 2001; Jessica Berry, "Saddam's Poison Gas Kills 20 of His Men," *The Sunday Telegraph* (London, Internet) in English, 2 September 2001, in "UK Telegraph Reports Iraq Buildup of Conventional, Chemical Weapons Capabilities," FBIS Document EUP20010902000085, 2 September 2001.

20 August 2001

Islamic Resistance Forces, an Iraqi opposition group, announces its rocket attack on an Iraqi SSM base situated on the road between Jalula and Qarah Tappah. The attack destroys six Iraqi SSMs.

—"Iraqi Opposition: 'We Destroyed a Base, Killed Five Soldiers,'" *Al-Hayah* (London) in Arabic, 21 August 2001, p. 2, in "Iraqi Opposition Issues Statement on Attack on Military Base," FBIS Document GMP20010821000115, 21 August 2001.

11-13 August 2001

Syrian Prime Minister Mohammed Mustafa Miro visits Iraq. He and Iraqi Deputy President Taha Yassin Ramadan sign secret military alliance accords. These accords include the establishment of combined Iraqi-Syrian command structures related to their air forces and missile, tank, intelligence, and armored ground corps in both Damascus and Baghdad. The accords formalize the secret military arrangements that have been in operation for the past six months, and promise mutual assistance in a regional war against Israel.

—"DEBKAfile Says Syria's Miro Concluded 'Secret' Military Pact with Iraq," *Jerusalem DEBKAfile*, 14 August 2001; in FBIS GMP20010816000138, 14 August 2001.

4-6 August 2001

A large, high-ranking Syrian military delegation travels in secret to Baghdad to draft military pacts. The pacts are related to joint Iraqi and Syrian command structures already in place in both Damascus and Baghdad, which are staffed cooperatively by air forces as well as missile, tank, intelligence, and armored ground corps. In addition, the military pacts provide "for the contingency of only one of two allies being involved in a Middle East war. In that case, the combatant state will enjoy the use of the other's air bases to mount attacks against Israeli targets and for storing its air fleet and missile forces, including surface and anti-air batteries, out of harm's way."

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—"DEBKAfile Says Syria's Miru Concluded 'Secret' Military Pact with Iraq," *Jerusalem DEBKAfile*, 14 August 2001, in FBIS GMP20010816000138, 14 August 2001.

August 2001

At a meeting of Saddam Hussein, his son Qusay, and the Military Industry Minister Abd-al-Tawwab Mullah al-Huwaysh, a new strategy is developed to upgrade Iraq's anti-aircraft batteries, and to focus military efforts on downing US aircraft and retaining US pilots as hostages.

—Sa'id al-Qaysi, *Al-Watan al-Arabi* (Paris) in Arabic, 14 September 2001, pp. 20-22, in "Paper on Saddam Husayn's Plan to Take US Pilots Hostage," FBIS Document GMP20010915000104, 14 September 2001.

29 July 2001

US Secretary of State Colin Powell visits China. According to *Al-Watan al-Arabi*, one of the purposes of his visit is to discuss missile cooperation between Beijing and Baghdad. Powell asks China to recall its military experts from Iraq and to dismantle the sophisticated radar network there.

—Sa'id al-Qaysi, *Al-Watan al-Arabi* (Paris) in Arabic, 14 September 2001, pp. 20-22, in "Paper on Saddam Husayn's Plan to Take US Pilots Hostage," FBIS Document GMP20010915000104, 14 September 2001.

3 July 2001

Iraqi experts and engineers examine the efficacy of turning Syria's missile capabilities into more effective weapons, which may offer both countries a better strategic balance with Israel. Experts from both countries are hoping that Syria will be able to build approximately 3,000 surface-to-surface missiles (SSMs) over the next five years, and that this may serve as a more active deterrent to Israel.

—"Top Secret," *Al-Arab al-Alamiyah* (London) in Arabic, 3 July 2001, p. 3, in "Sources Say Missile Technology Transfer Part of Cooperation between Iraq, Syria," FBIS Document GMP20010703000124, 3 July 2001.

2 July 2001

Iraqi forces fire at least one missile into southern Iraq near the border town of Umm Qasr. Kuwaiti and allied forces, along with US and British warplanes, observe the test.

—"Iraq Tests Modified Anti-aircraft Missile: Kuwaiti Paper," Agence France Presse, 8 July 2001.

July-August 2001

According to the Supreme Council for Islamic Revolution in Iraq (SCIRI), Iraq sets up SAM launchers in Abu Gharib near Baghdad. These launchers are Russian-made and highly accurate for strikes on high-flying targets.

—*KUNA* (Kuwait) in English, 6 August 2001, in "Iraq Reportedly Deploys Missile Launchers on Outskirts of Baghdad," FBIS Document GMP20010806000130, 6 August 2001.

July-December 2001

Iraq begins reconstruction of the Al-Ma'moun facility, which has large and deep casting pits specifically designed to produce proscribed missile motors.

—"Unclassified Report to Congress on the Acquisition of Technology Relating to Weapons of Mass Destruction and Advanced Conventional Munitions, 1 July Through 31 December 2001," Central Intelligence Agency, January 2003, www.odci.gov.

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6 June 2001

An Iraqi delegation joins representatives from 43 other countries at MHTA-Omsk-2001 in Russia, which is the fourth international exhibition of military hardware, technologies, and armaments for land forces. Military attache Abdul Kafar Karim is part of the Iraqi delegation. He tells ITAR-TASS that the Iraqi delegation is interested in Russian armored vehicles, particularly: the T-80U, T-90S, T-55, and T-72 tanks; armored personnel carriers made by the Kurgan Machine-Building Plant, including the BMP-2 and BPM-3; and the Strela-10M anti-aircraft missile systems.

—ITAR-TASS (Moscow) in English, 6 June 2001, in "Iraqi Delegation Shows Interest in Russian Weaponry," FBIS Document CEP20010606000263, 6 June 2001.

5 June 2001

British reports consider it most likely that Saddam Hussein obtained important military secrets from Serbia, which may in turn enable him to shoot down US or British aircraft in the "no-fly" zones in northern and southern Iraq.

—Khalid al-Shami, "Saddam's Acquisition of Secrets of NATO's Most Important Missile Moves Him Closer To Shooting Down Aircraft," *Al-Quds al-Arabi* (London) in Arabic, 6 June 2001, p. 1, in "Saddam Husayn Reportedly Obtains Secrets of NATO Missile from Serbia," FBIS Document GMP20010606000116, 6 June 2001.

June 2001

Yuriy Orshansky denies that Ukraine assisted with Iraq's missile development programs and says Ukraine is not involved with any illegal trade in arms or critical technologies with Iraq which would violate UN sanctions. He also says that Ukrainian cooperation with Iraq may be implemented only in directions envisaged by the Ukrainian state service of export controls.

—*Unian* (Kiev) in Ukrainian, 30 June 2001, in "Ukraine Denies Being Involved in Illegal Arms Trade with Iraq," FBIS Document CEP20010630000113, 30 June 2001.

June 2001

A Kuwaiti source reports that Iraqi President Saddam Hussein's son Qusay issues orders for missiles tipped with chemicals and nerve gas to be supplied to Iraqi warplanes stationing in secret bases outside of Baghdad. The Supreme Council of Islamic Revolution in Iraq (SCIRI) releases a statement claiming that several pro-regime parties in Iraq supervised these measures at air force bases and with private army aviation units responsible for the protection of Baghdad and the presidential palaces. According to the statement, these measures are carried out secretly with rapidity to prevent any sudden attack and to suppress attempts to topple the regime.

—*KUNA* (Kuwait, Internet) in English, 19 June 2001, in "KUNA: Iraqi Opposition Says Iraqi Warplanes Carry Chemical Weapons, Nerve Gas," FBIS Document GMP20010619000064, 19 June 2001.

June 2001

A military museum in Belgrade displays an intact British missile that missed its target during the NATO campaign against Serbia. The displayed missile model is one used in combat by British and coalition forces to destroy anti-aircraft missiles. It is considered one of the most important weapons employed by NATO and the United States during air campaigns against both Serbia and Iraq. Given the likelihood that Serbia has shared this missile technology with Iraq, the British Royal Air Force now fears a more potent Iraqi capacity for shooting down Tornado

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aircraft used to enforce the "no-fly" zone in southern Iraq, as these missiles are employed frequently during their flights. NATO officials also express their utmost concern regarding the possibility that Iraqi air defenses may be able to shoot down US and British aircraft in the "no-fly" zones. An Iraqi source tells *Al-Quds al-Arabi* that the Iraqi government has allocated a substantial budget for its air-defense system in an effort to force the United States and Britain to halt their flights over Iraq. The source added, "Iraqi military experts and scientists obtain all the money or aid they request on direct instructions from President Saddam Husayn."

—Khalid al-Shami, "Saddam's Acquisition of Secrets of NATO's Most Important Missile Moves Him Closer To Shooting Down Aircraft," *Al-Quds al-Arabi* (London) in Arabic, 6 June 2001, p. 1, in "Saddam Husayn Reportedly Obtains Secrets of NATO Missile from Serbia," FBIS Document GMP20010606000116, 6 June 2001.

June 2001-September 2001

Eight military factories start operations nearly at full strength. It is suspected that a factory in the unpopulated Syrian border area of Al-Qayem is developing chemical weapons and missiles. Reports indicate that Iraqi scientists work long hours to augment Iraq's conventional and chemical weapon arsenals.

—Jessica Berry, "Saddam's Poison Gas Kills 20 of His Men," *The Sunday Telegraph* (London, Internet) in English, 2 September 2001, in "UK Telegraph Reports Iraq Buildup of Conventional, Chemical Weapons Capabilities," FBIS Document EUP20010902000085, 2 September 2001.

Late May 2001

Saddam Hussein meets with Ukrainian First Vice Premier Yuri Yekhanurov and Ukrainian presidential adviser Valentyna Dovzhenko. Dovzhenko delivers a message from President Leonid Kuchma regarding his country's desire to promote ties with Iraq in different spheres. Hussein promises to work towards enhancing ties with Ukraine in trade, economic, scientific, and other areas.

—"INTERFAX-UKRAINE Business Review," Interfax (Moscow) in English, 28 May 2001, in "Interfax Ukraine Business Panorama Report for May 21-28, 2001; Kuchma Expresses Ukraine's Desire to Promote Its Ties with Iraq-Iraqi Radio Reports," FBIS Document CEP20010529000267, 28 May 2001.

3 May 2001

Japanese authorities arrest Kim Chong-nam, the son of North Korea's supreme leader and head of North Korea's missile export plans, at Narita International Airport in Tokyo. Chong-nam allegedly claims that his travel to Japan is for the purpose of collecting money for North Korea's missile exports to Iraq. [NOTE: According a Japanese public security official quoted in Seoul's *Sindong-a* magazine, the Japanese Public Security Investigation Agency scrutinized Kim Chong-nam for 66 hours prior to his arrest. Also, it is reported that North Korea recently exported 300 SAM-16A mount-type air-defense missiles. In order to evade Western intelligence agency surveillance networks, Iraq allegedly deposited payments for these SAM-16As in various banks in Switzerland, Hong Kong, Sydney, and Tokyo. Before he was arrested at Narita Airport, Kim Chong-nam's itinerary exactly reflected travel to the four cities where Iraq deposited money. In addition, Chong-nam went to Australia before he entered Japan and wired one of four missile money bundles to a secret account in China.]

—Ch'oi Yong-chaе, "Exclusive! 'Little General' Kim Chong-nam's Secret Travels," *Sindong-a* (Seoul, Internet) in Korean, 1 June 2001, in "DPRK's Kim Chong-nam's Travels Reportedly Linked to Arms Sales," FBIS Document KPP20010604000129, 1 June 2001.

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1 May 2001

Iraqi and Ukrainian businessmen sign 19 pacts outlining their intentions to cooperate to supply Iraq with goods and services. Specifically, the agreements involve turbine supplies, the construction of a turbine manufacturing plant, boiler supplies, as well as deliveries of tires, fertilizers, and other materials.

—"Interfax Ukraine Business Panorama for 23-30 April 2001," Issue 18 (431), Interfax (Moscow) in English, in "Ukraine Business Panorama 23-30 Apr," FBIS Document CEP20010501000101, 1 May 2001.

May 2001

Iraqi authorities arrest a number of engineers and workers in Iraq as a result of their failure to develop missile launchers.

— Ali-Abd-al-Amir, "Surveillance of Iraqi Military Industrialization Scientists Tightened," *Al-Hayah* (London) in Arabic, 13 June 2001, p. 3, in "Iraqi Military Scientists Closely Watched Following Attempts to Flee Country," FBIS Document GMP20010613000135, 13 June 2001.

May 2001

The Russian truck manufacturing firm KAMAZ in Naberezhnye Chelny signs a contract to ship 800 trucks to Iraq. The company also assembles another 80 trucks for separate shipment to Iraq.

—"KAMAZ Exports Trucks to Iraq," *Russia-Upper Volga News Report*, April 2002, www.bisnis.doc.gov.

May 2001

An Iraqi delegation visits Belarus. The Belarusian Defense Ministry and the Iraqi delegation reach an agreement for training officers of the Iraqi Armed Forces at the Military Academy of Belarus. [NOTE: See 5 October 2001.]

—Andrey Makhovskiy, "Contract for Training Iraqi Officers Could Cost Belarus Too Much," *Delovaya Gazeta* (Belorussakaya) in Russian, 5 October 2001, in "At the Invitation of the Belarusian Defense Ministry, 20 Iraqi Army Air Defense Officers Are Attending a Two-Year Training Course on the S-300 SAM System at the Belarusian Military Academy," FBIS Document CEP20011005000387, 5 October 2001.

May 2001

The first session of the Ukrainian-Iraqi intergovernmental commission on trade, economic, and technical cooperation takes place in Baghdad.

—*Zerkalo Nedeli* (Kiev) in Russian, 15 December 2001, in "Ukraine: Paper Analyses Signs of Ukrainian-Iraqi Rapprochement," FBIS Document CEP20011223000042, 15 December 2000.

28 April-1 May 2001

The "Iraq-Ukraine: New Millennium" exhibition takes place in Baghdad. The Ukrainian delegation is comprised of 103 members who represent the interests of 161 Ukrainian companies. The Consul of Iraq in Kharkiv, Yuriy Orshansky, and eight ministers of the Iraqi government participate in the opening ceremony. Iraq and Ukraine sign agreements signifying their intentions to work together in various areas.

—*Interfax Ukraine Business Panorama*, 23-30 April 2001, Issue 18 (431), Interfax (Moscow) in English, in "Ukraine Business Panorama 23-30 Apr," FBIS Document CEP20010501000101, 1 May 2001.

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26 April 2001

A Belarusian delegation led by first Deputy Presidential Chief of Staff Vladimir Zametalin arrives in Iraq for the third session of the Iraqi-Belarusian joint committee. Attendance at the session includes Iraqi Staff Lieutenant General Muzahim Sa'b al-Hasan, First Deputy Director of the Military Industrialization Organization (MIO) Dayf Abd-al-Majid, the Iraqi ambassador to Belarus, and representatives from the Ministries of Industry, Trade, Information, Transport, and Telecommunications. [NOTE: Talks are focused on major projects related to the establishment of joint truck assembly lines in Iraq. Iraq also expresses interest in setting up a domestic manufacturing base for spare parts. Other projects are under consideration, including the formation of a joint venture with Minsk Engine Works.] —"Iraq: Belarusian Delegation Arrives; Direct Air Route Agreement to be Signed," Baghdad Republic of Iraq Radio Main Service (in Arabic), 26 April 2001, in FBIS Document GMP20010426000125, 26 April 2001.

19 April 2001

A source close to the Russian Aerospace Agency says that the Intersputnik space communication organization and the Alfa-Eko firm intend to launch communication satellites and develop a telecommunications system for Iraq. The press secretary at the Iraqi embassy in Moscow confirms that Iraq is conducting negotiations with Intersputnik and Alfa-Eko. [NOTE: Viktor Veshchunov, the director of the Intersputnik international department, says that presumably a small geo-stationary satellite will be launched. This satellite would possess a rather broad range of capabilities, from broadcasting television programs to data transmission to the provision of mobile satellite communications services. The satellite will cost an estimated \$55 to \$80 million initially, although this amount may increase depending on the launch parameters, the type of booster rocket to be employed and the satellite positioning destination. The satellite will be produced by one of the three leading enterprises in the Russian space industry, either GKNPTs imeni Khrunichev, the Scientific Production Association (NPO) of Applied Mechanics imeni Reshetnev, or the Scientific Production Association (NPO) of Machine Building. Ground-based telephone communications, however, must be restored first. This work is estimated to cost "hundreds of millions of dollars." The telecommunications department of Alfa-Eko tells *Vedomosti* newspaper that it is not involved in this project, although it would gladly participate. Alfa-Eko Press Secretary Igor Baranovskiy refuses to comment on the company's future cooperation with Intersputnik.]

—Interfax (Moscow) in English, 19 April 2001, in "Russia to Help Iraq in Satellite Project," FBIS Document CEP20010420000067, 19 April 2001; Yuriy Granovskiy, "Satellite for Iraq," *Vedomosti* (Moscow) in Russian, 20 April 2001, p. B3, in "Intersputnik, Alfa-Eko Plan Telecommunications Satellite for Iraq," FBIS Document CEP20010420000349, 20 April 2001.

17 April 2001

Russian firm Alfa-Eko announces that Iraq agreed to grant Alfa-Eko a number of oil and gas deposits for development. [NOTE: See 20 April 2001.]

—Yuriy Granovskiy, "Satellite for Iraq," *Vedomosti* (Moscow) in Russian, 20 April 2001, p. B3; in "Intersputnik, Alfa-Eko Plan Telecommunications Satellite for Iraq," FBIS Document CEP20010420000349, 20 April 2001.

April 2001

Dr. Mansur al-Ka'bi, a researcher in the Iraqi nuclear organization who is in charge of a missile project, flees Iraq after being interrogated for failing to acquire a special paint that enables aircraft and missiles to jam radar

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systems.

—Ali-Abd-al-Amir, "Surveillance of Iraqi Military Industrialization Scientists Tightened," *Al-Hayah* (London) in Arabic, 13 June 2001, p. 3, in "Iraqi Military Scientists Closely Watched Following Attempts to Flee Country," FBIS Document GMP20010613000135, 13 June 2001.

Beginning of April 2001

A delegation from Intersputnik, the intergovernmental space communication organization, visits Baghdad. Delegation officials negotiate with Iraqi officials to restore telecommunications in Iraq. [NOTE: Successful negotiations presumably will lead Intersputnik to launch a small geo-stationary satellite for Iraq. See 20 April 2001.]

—Yuriy Granovskiy, "Satellite for Iraq," *Vedomosti* (Moscow) in Russian, 20 April 2001, p. B3, in "Intersputnik, Alfa-Eko Plan Telecommunications Satellite for Iraq," FBIS Document CEP20010420000349, 20 April 2001.

28 March 2001

An Iraqi delegation led by Minister of Industry and Minerals Adnan Abd-al-Majid Jasim, visits Minsk, Belarus. The Iraqis negotiate with the Belarusian Minister of Industry Anatol Kharlap regarding prospects for bilateral mechanical engineering dealings. The Iraqis are interested in purchasing Belarusian vehicles and tractors, and they discuss the possibility of assembling tractors in Iraq. [NOTE: The goods produced by the Minsk Wheeled Tractive Unit Works are basically the same models used for both civilian tractors and mobile missile launch systems.]

—"Iraqi Minister of Industry and Minerals Visiting," BBC Worldwide Monitoring, 30 March 2001, in Lexis-Nexis, <http://web.lexis-nexis.com>; *Nasha Niva* (Minsk) in Belarusian, 9 April 2001, in "Belarusian Paper Looks into Trade Relations with Iran, Iraq," FBIS Document CEP20010411000389, 9 April 2001.

4 March 2001

According to Hideshi Takesada, North Korea has transferred Nodong missiles and Scud-C technology to Iraq. [NOTE: This report is unsubstantiated.]

—Hideshi Takesada, "The BMD Issue in Northeast Asia: Strategic Relations and Japan's Option," unpublished conference paper for "Partnership for Peace: Building Long-Term Security Cooperation in Northeast Asia," sponsored by the Nautilus Institute and Fudan University, 4 March 2001, www.nautilus.org.

March-May 2001

Iraq imports 300 SAM-16As and mounted style air-defense missiles from North Korea.

—Ch'oi Yong-chaе, "Exclusive! 'Little General' Kim Chong-nam's Secret Travels," *Sindong-a* (Seoul, Internet) in Korean, 1 June 2001, in "DPRK's Kim Chong-nam's Travels Reportedly Linked to Arms Sales," FBIS Document KPP20010604000129, 1 June 2001.

March-April 2001

Iraqi defense and industry ministers visit Belarus to discuss upgrading Iraq's arsenal of Soviet armaments. The Iraqis are especially interested in obtaining Minsk's tractor units. [NOTE: The possibility that Iraq would use those tractor units for a mobile missile launch system is a source of concern, given that both civilian tractor units and mobile missile launch systems are derived from the same model.]

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—*Nasha Niva* (Minsk) in Belarusian, 9 April 2001, in "Belarusian Paper Looks into Trade Relations with Iran, Iraq," FBIS Document CEP20010411000389, 9 April 2001.

24-27 February 2001

Russia and Iraq work intensely to accelerate substantial deliveries of SA-6 anti-air missiles and advanced radar to Iraq. The Russians redirect supplies through military bases in Belarus, then onto civilian airline flights traveling from Minsk to Baghdad, in order to avoid detection. [NOTE: see 14-28 February 2001]

—"Special Iraqi Command Staff in Moscow and Minsk Organize Airlift of Advanced Air Defense Systems to Baghdad," *Jerusalem DEBKAfile* (Internet) in English, 28 February 2001, in "Russia Routing Missile Shipments to Iraq via Belarus to Deflect US Anger," FBIS Document GMP20010301000137, 28 February 2001.

24 February 2001

At a meeting of officials from Germany's BND intelligence agency, Iraqi production of new missile systems is discussed, along with Iraq's alleged work on the Al-Samoud liquid-fuel missile. An intelligence official reports that Iraq is in the planning stages of a solid-fuel missile related to the Ababil-100/Al-Fatah type. The official also says that Iraq is rebuilding some of the missile installations that the allies destroyed during the Gulf War. The BND estimates that both Al-Samoud and Ababil-100 are capable of transporting a load of 300kg over a distance of 150km. The BND also believes Iraq is trying to produce longer-range missiles, and that by 2005, Baghdad may even succeed in producing missiles with a 3,000-km-range which would be capable of reaching Germany. The BND is certain that Iraq has re-established a large portion of its formerly 250 arms factories, which includes various mobile production capacities. Production capacity is still only 10 to 20 percent of the level before 1991, but the German newspaper *Die Welt* reports that this number will probably continue to rise.

—Roland Nelles, "The Long Arm of Saddam," *Die Welt* (Berlin, Internet) in German, 24 February 2001, in "German BND Sees Threat from Iraqi Weapons of Mass Destruction," FBIS Document EUP20010223000418, 24 February 2001.

Mid-February 2001

Israeli defense sources believe that Iraq possesses several dozen Scud missiles and a few missile launchers.

—Jerusalem Voice of Israel Network B in Hebrew, 18 February 2001, in "Israel Lacks Information on Iraq; Iraqi Threats Must be 'Taken Seriously,'" FBIS Document GMP20010218000010, 18 February 2001.

16 February 2001

The Chinese Foreign Ministry denies the claim that Chinese workers assist Iraq with its fiber-optic efforts.

—Jim Mannion, "Work to Improve Iraqi Air Defenses with Fiber Optics Triggered Air Strike," *Agence France Presse*, 20 February 2001.

16 February 2001

US and British planes strike an Iraqi high-tech air-defense site south of Baghdad. They hit six sites, including radar stations and command and communication sites. US and British pilots observe Chinese workers laying fiber-optic cables between the Iraqi aerial defense sites.

—Bob Roberts, "Bomb the Brits Saddam Ordered 22 Attacks on RAF Jets," *Daily Record*, 20 February 2001; Anne

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Penketh, "British and US Aircraft Bomb Iraqis," *The Independent* (London), 17 February 2001, p. 1, in Lexis-Nexis Academic Universe, <http://web.lexis-nexis.com>; Julian Borger and Richard Norton-Taylor, "Allied Planes Bomb Baghdad," *The Guardian* (London), 17 February 2001, p. 1, in Lexis-Nexis Academic Universe, <http://web.lexis-nexis.com>; *AFP* (Hong Kong) in English, 22 February 2001, in "Diplomat Says Number of Chinese in Baghdad Quadrupled over Recent Months," FBIS Document CPP20010222000163, 22 February 2001; Jim Mannion, "Work to Improve Iraqi Air Defenses with Fiber Optics Triggered Air Strike," *Agence France Presse*, 20 February 2001.

14-28 February 2001

Saddam Hussein posts a large military delegation at Iraq's embassies in Moscow and Minsk in an effort to speed up the transfer of military supplies from Russia to Iraq. Brigadier Saadi Subhi leads the Moscow delegation, and Colonel Aedil Hadida, a military engineer who specializes in air defenses, leads the Belarusian delegation. In addition, a large number of Russian intelligence officers reportedly arrive in Baghdad to train Iraqi intelligence officers. [NOTE: See 24-27 February 2001]

—"Special Iraqi Command Staff in Moscow and Minsk Organize Airlift of Advanced Air Defense Systems to Baghdad," *Jerusalem DEBKAfile* (Internet) in English, 28 February 2001, in "Russia Routing Missile Shipments to Iraq via Belarus to Deflect US Anger," FBIS Document GMP20010301000137, 28 February 2001; Douglas Busvine, "German Intelligence Report," *Chicago Sun-Times*, 25 February 2001, p. 32.

13 February 2001

According to the German intelligence agency BND, Iraq builds missile fuel production facilities in the destroyed bunkers at Mutanah State Establishment.

—Hubert Seipel, "Behind Closed Doors: The Spies -- the Federal Intelligence Service," Mainz ZDF Television in German, 13 February 2001, in "ZDF Television Views Activities of German Federal Intelligence Service," FBIS Document EUP20010226000175, 13 February 2001.

1 February 2001

A delegation of aircraft manufacturers from Russia's Altai territory in Siberia travels to Iraq on a working mission. The delegation is composed of Ivan Komarov, the General Director of the Altai aircraft manufacturing enterprise, and experts of the state enterprise Goskonsim. The goal of their visit is to conclude a contract for repairing and replacing equipment at a steel mill in Iraq. [NOTE: Komarov says that the Iraqi Airlines company is prepared to discuss Russian exports of IL-76 aircraft to Iraq, as well as the training of technical and flight personnel in Russia.]

—Interfax (Moscow) in English, 1 February 2001, in "Delegation of Russian Aircraft-builders Goes to Iraq," FBIS Document CEP20010201000401, 1 February 2001.

31 January 2001

Syrian Prime Minister Muhammad Mustafa Miru and Iraqi Vice President Taha Yassin Ramadan sign a tariff reduction accord. Ramadan says that Iraq and Syria are negotiating a long-term strategic cooperation agreement.

—Gary C. Gambill, "Syria's Foreign Relations: Iraq," *Middle East Intelligence Bulletin*, Vol. 3, No. 3 (March 2001), www.meib.org.

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January 2001

It is reported that Uzbekistan-born economist Grigori Luschanski previously attempted to supply Iraq with Scud missile components from North Korea. Ukrainian customs officers discovered the contraband items in a transporter about to leave Kiev for Baghdad. [NOTE: US Republican House Speaker Newt Gingrich says the US government identifies Luschanski as an international arms dealer who has shipped Scud missile warheads from North Korea to Iraq.]

—Rudolph Chimelli, "A Superpower of the Underworld: The Russian Mafia's Global Business," *Sueddeutsche Zeitung*, (Munch, Internet) in German, in "German Daily Calls Diamond Trade Russian Mafia's 'Global Business,'" FBIS Document EUP20010207000342, 31 January 2001.

28 January 2001

The United States and allied air forces strike SAM sites in southern Iraq in response to recent Iraqi violations of UN Security Council resolutions.

—US Department of State, "Coalition Forces Strike Iraqi Missile Sites," 30 January 2001, <http://usinfo.state.gov>.

January 2001

The Iraqi Electricity Commission signs a contract with the Turkish Gama Group to import electrical machines, equipment, and spare parts. An Electricity Commission official states that the Turkish company is prepared to provide support and assistance to the electricity sector to improve the system, as well as transport and distribution networks.

—Hanan Abd-al-Aziz, *Al-I'lam* (Baghdad) in Arabic, 17 January 2001, in "Iraq: Turkish Group to Supply Electrical Machines, Spare Parts," FBIS Document GMP20010212000030, 17 January 2001.

January-20 February 2001

US and UK planes come under fire from Iraqi missiles and rockets 22 times in less than a month.

—Bob Roberts, "Iraq Fired 22 Rockets," *The Mirror*, 20 February 2001.

10 January 2001

The US Department of Defense (DOD) reports that Iraq likely retains a limited number of launchers and Scud-variant SRBMs capable of striking its neighbors, as well as the components and manufacturing means to assemble and produce others. The DOD also estimates that Baghdad probably has warheads capable of delivering chemical or biological agents. The report indicates that Iraq retains the domestic expertise and sufficient infrastructure to support most missile component production, with the exception of a few critical sub-elements. The report further estimates Iraq could develop and test an ICBM capable of reaching the United States by 2015, depending on the success of its acquisition efforts and the amount of foreign support provided. In terms of cruise missiles and other delivery means, the DOD estimates that Iraq possesses only a small stockpile of land-launched short-range anti-ship cruise missiles and air-launched short-range tactical missiles, which were purchased from China and France prior to the Gulf War. Iraq also has a variety of fighter aircraft, helicopters, artillery and rockets available as potential means of delivery for weapons of mass destruction, although the operational status of these systems is questionable due to the cumulative effects of the UN arms embargo. The report indicates, however, that Iraq has continued to work on its UAV program, which involves converting L-29 jet trainer aircraft originally acquired from

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Eastern Europe. These modified and refurbished L-29s may be intended for the delivery of chemical or biological agents. In the future, Iraq may try to use its research and development infrastructure to produce its own UAVs and cruise missiles or, should the UN arms embargo be lifted, it could try to purchase cruise missiles.

—US Department of Defense, "Proliferation: Threat and Response," 10 January 2001.

1 January-30 June 2001

US Director of Central Intelligence George Tenet reports that Iraq's development of the liquid-propellant Al-Samoud short-range ballistic missile (SRBM) is maturing. Tenet also says that Iraq likely places a high priority on its solid-propellant missile development program, along with the development of the Ababil-100 SRBM, as well as two such airframes, transporter-erector-launchers (TELs), and possibly longer-range missile systems. He also believes that Iraq probably retains a small, covert force of Scud-type missiles. In addition, the director reports that Iraq has worked on its unmanned aerial vehicle program (UAV), which entails the conversion of L-29 jet trainer aircraft.

—US Director of Central Intelligence, "Acquisition of Technology Relating to Weapons of Mass Destruction and Advanced Conventional Munitions, 1 January - 30 June 2001," Unclassified Report to Congress, 30 January 2002.

January 2001

According to Israeli intelligence sources, Saddam Hussein's younger son Qusay travels to Damascus to discuss contingency plans for Syrian-Iraqi military cooperation in the event of an Israeli attack. [See 11-13 August 2001.]

—Gary C. Gambill, "Syria's Foreign Relations: Iraq," *Middle East Intelligence Bulletin*, Vol. 3, No. 3 (March 2001), www.meib.org.

January 2001

Iraq signs a contract with the Russian-Italian venture company, Iveco-UralAZ, for the purchase of 60 Ural-Iveco-6429 trucks with a 35-ton carrying capacity. The contract is part of the UN Oil-for-Food program. These trucks can be converted for use as missile launchers. [NOTE: Iveco-UralAZ plans to begin sending trucks to Iraq in November 2001 and complete the deliveries by January 2002. See 25 October 2001.]

—David Nissman, "Russian Trucks to Be Shipped to Iraq in November," *Iraq Report*, Vol. 4, No. 35, 2 November 2001, www.rferl.org.

January-June 2001

Belarusian President Alyaksandr Lukashenka has business dealings with Iraq worth over \$600 million. Belarus sells advanced radar and radio equipment to the Iraqi Air Force headquarters. Former Croatian Defense Minister Libo Rozes organizes the trade network for Lukashenka.

—"DEBKAfile military sources' exclusive report: 'Belarusian President Lukashenka Selling Weapons to Palestinians,'" *Jerusalem DEBKAfile* (Jerusalem, Internet) in Hebrew, 22 July 2001, in "Israel's DEBKAfile: Putin Backs Lukashenka's Arms Sale to PA, Others," FBIS Document GMP20010723000054.

2001

According to Iraqi opposition sources, Iraq receives shipments of medium-range Scud-class missiles through Syria. Sources say that the Scuds are of Czech-origin, and meant for export to Syria and Yemen. Iraq smuggles the Scuds, along with surface-to-air missiles (SAMs), rockets and guidance systems, from Syria.

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—"Iraq Restores 8 Military Factories to Full Production," *World Tribune*, 8 September 2001; Jessica Berry, "Saddam's Poison Gas Kills 20 of His Men," *The Sunday Telegraph* (London, Internet) in English, 2 September 2001, in "UK Telegraph Reports Iraq Buildup of Conventional, Chemical Weapons Capabilities," FBIS Document EUP20010902000085, 2 September 2001.

2001

Iraq allegedly obtains chemicals needed to manufacture chemical weapons, as well as solid rocket fuel, missile technology and equipment to resurrect Iraq's military industrial complex. Officials monitoring the UN's Oil-for-Food program express concern that dual-use items intended for the Iraqi military are slipping through the sanctions net into Iraq, including over the Jordanian border.

—Robert Windrem and Linda Fasulo, "Sanctions Fail to Check Iraqi Military 'Dual-use' Products Slip through Embargo, Officials Say U.S. and U.N. Officials Say Traffic Over the Iraq-Jordan Border Provides a Steady Stream of Supplies to Saddam Hussein's Military," NBS News, 13 August 2001.

2001

Iraq completes formation of three broad defensive lines along the frontline with the protected Kurdish enclaves in the north. Behind these lines, the Iraqi military deploy an offensive strike force consisting of Republican Guard forces from the Hamarabi, along with Baghdad units supported by armor and missile forces.

—Falah al-Amari, "Washington Moves 20,000 Soldiers to Qatar and Kuwait; Building of Three Military Defenses on the Frontline with Kurdistan," *Al-Mutamar*, 20 December 2001, p. 1, <http://209.50.252.70/AlMutamar/Mutamar285.pdf>.

2001

Egyptian planes carrying food and medical assistance for Iraqi civilians also allegedly transport basic supplies used by Iraq in the development of its "non-traditional" weapons rearmament program. These supplies purportedly are directed toward Iraqi efforts to re-establish ballistic missiles and chemical weapons factories.

—"Accusation of Egyptian Planners Transporting Military Supplies in Food Shipments to Iraq," *Al-Mutamar*, 26 February 2001.

2001

Moscow breaches the UN arms embargo by signing deals worth more than \$145 million with Iraq to reinforce Iraqi air defenses. Also, Iraqi Brigadier Saadi Mohammed Subhi allegedly heads a new 20-member military intelligence bureau attached to Iraq's embassy in Moscow. [NOTE: Connections between Russia and Iraq continue to concern Western intelligence officials. Subhi is of particular concern given his background in air defense and intelligence. He is also a member of the Ba'ath party. In addition to Subhi, the man appointed to head an expanded Iraqi intelligence mission in Belarus is Colonel Aedil Kamil Hadidi, a military engineer. Because Belarus is a close ally to Moscow, Hadidi's role is another sign of Iraq's growing ties with Russia. In addition, Iraqi opposition groups say radar and missile equipment has been smuggled into Iraq from Russia through Iran. They also allege that Moscow has augmented the training it provides to Iraqis in the use of equipment and intelligence.]

—Douglas Busvine, "German Intelligence Report," *Chicago Sun-Times*, 25 February 2001, p. 32.

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Early 2001-2002

Yugoslav scientists travel repeatedly to Iraq. They allegedly develop a turbojet engine for the CM-1500 cruise missile.

—"Supplier: Yugoimport, Al Fatah Company, Infinity, Brunner, GVS, Temex and Interdeal," in Iraq Watch Iraq Supplier Database, Wisconsin Project on Nuclear Arms Control, www.iraqwatch.org.

Early 2001

Yugoslav military experts help the Iraqi military improve its air-defense systems by briefing Iraqi officers on tactics used by US aircraft during the 1999 NATO bombing campaign against Yugoslavia. [NOTE: Iraqi and Yugoslav air defenses use some of the same Soviet-designed radar, missile, and anti-aircraft artillery systems. It is reported that the Yugoslav advice, coupled with fiber-optic communications links that Chinese technicians installed, has improved Iraq's air defense.]

—"China, Yugoslavs Helping Iraq Fine-tune Attack in No-fly Zone," *The Houston Chronicle*, 24 February 2001, p. 28.

Early 2001

Yugoslav scientists travel to Iraq to meet with officials of the Iraqi trading company Al Rawa in order to discuss development of a turbojet engine for a medium- to long-range cruise missile named the CM-1500.

—"Supplier: Yugoimport, Al Fatah Company, Infinity, Brunner, GVS, Temex and Interdeal," in Iraq Watch Iraq Supplier Database, Wisconsin Project on Nuclear Arms Control, 25 November 2002, www.iraqwatch.org.

Early 2001

Iraq attaches precision guidance technology to a short-range Al-Samoud missile modeled after Russian-designed Scuds.

—Roger Boyes, "Iraq Builds Chemical Weapons System 'Capable of Hitting European Cities,'" *The Times* (London), 26 February 2001; "Saddam Close to Building N-missile: German Report Claims Iraq Has Speeded up Secret Programme," *The Herald* (Glasgow), 9 March 2001, p. 2.

Early 2001

Iraq actively produces ammonium perchlorate at the Al-Ma'moun plant. This chemical is one of three components needed to make solid fuel. According to the German intelligence agency, the BND, a Delhi company known as NEC Limited bought the equipment in use at the Al-Ma'moun factory. [NOTE: NEC Limited is on the German Economics Ministry's blacklist of businesses involved in arms proliferation.]

—Roger Boyes, "Iraq Builds Chemical Weapons System 'Capable of Hitting European Cities,'" *The Times* (London), 26 February 2001; "Saddam Close to Building N-missile: German Report Claims Iraq Has Speeded up Secret Programme," *The Herald* (Glasgow), 9 March 2001, p. 2.

Early 2001

Germany's federal intelligence agency, the Bundesnachrichtendienst (BND), claims Iraq recently managed to manufacture solid rocket fuel in one of its own factories. [NOTE: This factory is probably the Al-Ma'moun facility. See 25 August 2000.]

—Johannes Leithaeuser, "Saddam Expands Weapons Programs, Report Says," *Frankfurter Allgemeine* (Frankfurt,

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Internet) in English, 24 February 2001, in "German Intelligence Service Reports Expansion of Iraqi Weapons Program," FBIS Document EUP20010224000093, 24 February 2001.

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2000

End of 2000

An Iraqi consulate opens in Kharkiv, Ukraine. The consulate is headed by Ukrainian Yuriy Orshansky, who reportedly has supplied equipment including thermal power stations and pipes to Iraq.

—*Zerkalo Nedeli* (Kiev) in Russian, 15 December 2001, in "Ukraine: Paper Analyses Signs of Ukrainian-Iraqi Rapprochement," FBIS Document CEP20011223000042, 15 December 2001.

31 December 2000

Saddam Hussein presides over the Al-Aqsa Call military parade. Sophisticated SSMs and anti-aircraft missiles are displayed during the parade, including the Al-Samoud, Al-Fateh, and Al-Raad missiles, all with ranges under 150km. A number of new SSM types, which resemble the Al-Hussein and anti-aircraft missiles, are also displayed during the parade, along with 50 French-made Roland missiles and new formations of Russian-made SAMs, including the SAM-8 and SAM-9. In addition, unclassified reports provided to the US Congress cite the presence at the parade of four Al-Samoud transporter-erector-launchers (TEs) with airframes and two Ababil-100 TEs with airframes.

—"The Combined Arms in the Military Parade 31 December," *Al-Mutamar*, 8 January, p. 3; "Acquisition of Technology Relating to Weapons of Mass Destruction and Advanced Conventional Munitions," Unclassified Report to Congress, 1 January 2001; "Iraq's Biggest Show of Armed Might since Gulf War," *The New York Times*, 1 January 2001.

21 December 2000

The head of military intelligence for the Israeli Defense Forces (IDF), Israeli Major-General Amos Malka, says that Iraq seeks to launch a missile attack as part of a regional war with Israel. He also says that Iraq will seek to build an Arab coalition with Syria in the event of such a war.

—"IRAQ SEEKS WAR WITH ISRAEL," *Middle East Newsline* (Jerusalem) E-mail-Text in English, 21 December 2000, in "Israeli IDF's MI Chief Concerned of Iraqi Missile Attack in Regional War," FBIS Document GMP20001221000155, 21 December 2000.

15 December 2000

Iraqi Trade Minister Muhammad Mahdi Salih, is sent by Saddam Hussein to visit Malaysian Prime Minister Mahathir Mohamed. They discuss the expansion of ties between the two countries. Salih indicates that Iraq is interested in purchasing food supplies, medicine, medical equipment, timber, and steel from Malaysia.

—"Iraqi Trade Minister in Malaysia, Vietnam," *Iraq Report*, 22 December 2000, Vol. 3, No. 43, www.rferl.org.

3-9 December 2000

Saddam Hussein holds a secret meeting with a Russian military delegation in Baghdad. The Russian delegation

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purportedly includes experts who participated in Iraqi military industrialization plans during the 1980s, as well as specialists with experience in the manufacture of sophisticated missiles and other weaponry. As part of a new military cooperation deal with Moscow, Baghdad allegedly commissions these experts to implement a plan for the redevelopment of long-range missiles.

—Riyad Alam-al-Din, *Al-Watan al-Arabi* (Paris) in Arabic, 22 December 2000, pp. 18-21, in "Report on 'Secret' of Saddam Husayn's 'Disappearance,' Iraq's 'New Strategy,'" FBIS Document GMP20001222000150, 22 December 2000.

2 December 2000

US officials say that Iraqi agents around the world actively seek to obtain better guidance systems for their short-range missiles to enable Iraqi strikes on the capitals of Saudi Arabia or Israel.

—Joie Chen and David Ensor, "A Look at What U.S. Intelligence Thinks Iraqi Is Doing Behind the Scenes," CNN The World Today, 2 December 1999.

30 November 2000

The Iraqi Ministry of Industry and Minerals signs joint venture agreements with six Indian companies: TIL, Kirloskar Oil Engines Limited (KOEL), Kirloskar Brothers Limited (KBL), Telco, Ajanta Pharma Limited (APL), and Cosmos International Limited (CIL). Telco agrees to produce the Sumo field vehicle; KOEL will produce diesel engines; KBL will provide a centrifugal pump model; TIL is responsible for the Model Hydra capacity truck mounted mobile crane; APL will launch a pharmaceutical production unit; and CIL will revamp the production line for DC motors, compressors, and capacitors.

—"6 JT Venture Pacts Signed with Iraq," India Business Insight Database, 30 November 2000.

November 2000-February 2001

The number of Chinese personnel working on communications and radar systems in Iraq quadruples. According to an Arab diplomat, the Chinese lay down fiber-optic cables in order to improve Iraqi radar capacity and strengthen its surface-to-air missile (SAM) defense.

—*AFP* (Hong Kong) in English, 22 February 2001, in "Diplomat Says Number of Chinese in Baghdad Quadrupled over Recent Months," FBIS Document CPP20010222000163, 22 February 2001.

8 November 2000

According to Ukrainian Parliamentarian Serhi Presunko, a member of the Working Ukraine group, Iraq offers Ukraine its cooperation with a number of prospective projects during the 33rd international industrial-economic exhibition in Baghdad. The offer is worth \$15 billion and includes projects related to oil exploration, oil extraction and carriage, railroad equipment, construction of repair facilities for railroad transport and household appliances, land development and water purification for the chemical industry and transportation industry. Presunko also says that Iraq is ready to introduce a liberalized registration procedure for Ukrainian companies in the Iraqi market.

[NOTE: According to Presunko, 51 official offices for foreign representatives currently operate in Iraq, and 24 offices have been opened through third-party countries. Ukrainian trade with Iraq is reportedly worth \$14.8 million a year at present.]

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—"Iraq Offers Ukraine Cooperation on Promising Projects," Interfax (Ukraine), 9 November 2000; "Iraq Offers Ukraine Cooperation," Interfax Russian News, 8 November 2000.

7 November 2000

According to representatives of the Russian Priroda State Scientific Center and Rosuchpribor Holding, Iraq and Russia draft a contract to open a Russian university branch in Baghdad.

—Yevgeniy Nikitin, ITAR-TASS (Moscow) in English, 7 November 2000, in "Russian University May Open Branch in Iraq," FBIS Document CEP20001107000109, 7 November 2000.

October 2000

Saddam Hussein reportedly decides not to use his Scud missiles, as he does not want to provide the United States with definitive proof that he has been deceiving UNSCOM inspectors.

—Fiamma Nirenstein, "Saddam's Risky War Games," *La Stampa* (Turin) in Italian, 26 October 2000, p.12, in "Intelligence 'Sources' Hint Saddam Loath to Use Scud Missiles against Israel," FBIS Document EUP20001026000074, 26 October 2000.

October-November 2000

According to an official publication of the Iraqi National Congress (INC), a Russian delegation visits Baghdad and signs a military agreement with Iraq. The Russians agree to provide Iraq with military equipment and weapons beginning in January 2001.

—"German Companies Provide the Regime with Weapon Transport Trucks and Spare Parts," *Al-Mutamar* (Online), 6 November 2000.

Late October 2000

A delegation comprised of aircraft manufacturers from Russia's Altai territory in Siberia travels to Iraq to establish relations.

—Interfax (Moscow) in English, 1 February 2001, in "Delegation of Russian Aircraft-Builders Goes to Iraq," FBIS Document CEP20010201000401, 1 February 2001.

September-December 2000

According to a secret Defense Intelligence Agency report, as many as 4,000 Sony PlayStations are purchased in the United States and shipped to Iraq. The report says that bundled PlayStation computers could be used to calculate ballistic data for long-range missiles.

—Joseph Farah, "Why Iraq's Buying up Sony PlayStation 2s; Intelligence Experts Fear Games Bundled for Military Applications," *WorldNetDaily.com*, 19 December 2000, www.worldnetdaily.com.

28 September 2000

Baghdad Al-Thawrah disputes the validity of a statement, cited by Reuters, which quotes a diplomat as saying, "[T]he Iraqi air defense recently fired new surface-to-air missiles that demonstrated a new ability to resist US and British aircraft." *Baghdad Al-Thawrah* also maintains that under the more than a decade-long embargo, it is impossible Iraq could have replenished its armament with new items, particularly air-defense equipment. Instead, the publication ascribes recent Iraqi air-defense developments to improvements in mobilization-based applications

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and unconventional action plans.

—Mundhir Abd-al-Rahman Ibrahim, "Following Up on the Iraqi Air Defense's New Sources of Power," *Al-Thawrah* (Baghdad) in Arabic, 28 September 2000; in "General on Iraq's 'New Ability' in Air Defense Techniques," FBIS Document GMP20000928000082, 28 September 2000.

3 September 2000

The Iraqi Ministry of Industry and Minerals decides to rehabilitate dozens of factories, including plastic industries destroyed or damaged during the Gulf War. The ministry also publicizes plans to develop glass, ceramics, and electrical industries.

—Yunus Hasan al-Samarrai, "Fertilizer Industry Developed," *Al-Thawrah* (Baghdad) in Arabic, 03 September 2000, in FBIS Document GMP20000920000115, 20 September 2000.

September 2000

Representatives of the Minsk Tractor Works of Belarus (MTW) visit an idle manufacturing site in Iraq. They bring with them a list of equipment that must be obtained to restore operations at the site. [NOTE: This site has been frozen since economic sanctions were imposed against Iraq in the early 1990s.]

—*Belorusskaya Delovaya Gazeta* (Minsk) in Russian, 19 April 2001, in "Belarus Holds Talks to Assemble Tractors in Iraq," FBIS Document CEP20010419000347, 19 April 2001.

25 August 2000

A spokeswoman for the German foreign intelligence agency BND confirms a *Bild Zeitung* report that approximately 250 technicians work at the Iraqi Al-Mamoun plant in the production of a solid fueled short-range missile called the Ababil-100. The BND also concludes that Saddam Hussein has instructed work to continue on studies and blueprints for missiles with a range of up to 3,000km. [NOTE: Iraqi officials did not deny the contents of the *Bild Zeitung* article, but countered that it was an attempt to divert attention from the more important issue of economic sanctions imposed on Iraq after its 1990 invasion of Kuwait.]

—John Hooper, "Saddam Building Missiles," *The Guardian* (London), 26 August 2000, p. 18; Einar Koch, "Detected by the BND: Saddam Husayn's Secret Missile Factory," *Bild* (Hamburg) in German, p. 2, in "Germany's BND Detects Saddam Husayn's 'Secret Missile Factory'" FBIS Document EUP20000825000015, 25 August 2000.

11 August 2000

According to *Ha'aretz*, Saddam Hussein withdraws his pre-authorization for district commanders to fire Scud missiles armed with chemical warheads in the event that communication with Baghdad is disrupted.

—Amos Har'el, "Saddam Returns to Himself Power To Operate Chemical Weapons," *Ha'aretz* (Tel Aviv) in Hebrew, 11 August 2000, p. A3, in "Saddam Said Assumes Power to Operate Chemical Weapons," FBIS Document GMP20000811000129, 11 August 2000.

August 2000

Western intelligence sources allege that Iraq secretly negotiates with Russian companies in an effort to establish a factory for production of key ballistic missile components. The latest meetings between the two countries reportedly have focused on constructing a plant for the production of gyroscopes for long-range ballistic missiles.

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Intelligence reports say the proposed factory is expected to be built south of Baghdad at a cost of 10 million pounds and may be completed by 2001. The Ministry for Military Industry reportedly plays a primary role in negotiating this deal.

—Michael Evans, "Saddam Seeks Russian Missile Deal," *The Times* (London), 14 August 2000.

August 2000

Iraq attempts to import missile parts, including navigation instruments, from the former Soviet Union and North Korea. Its attempts have been unsuccessful thus far.

—Einar Koch, "Detected by the BND: Saddam Husayn's Secret Missile Factory," *Bild* (Hamburg) in German, p. 2, in "Germany's BND Detects Saddam Husayn's 'Secret Missile Factory'" FBIS Document EUP20000825000015, 25 August 2000.

August 2000

Ahmed Nazim, the Iraqi Charge D'Affaires in Moscow, denies allegations by Western sources that Baghdad and Moscow are involved in secret discussions regarding construction of a plant to produce ballistic missile components in Iraq. [NOTE: The Foreign Ministry of Russia has also officially refuted this information.]

—"Western Reports about Secret Russian-Iraqi Talks Denied," Interfax, 15 August 2000.

27 July 2000

The US Office of the Special Assistant for Gulf War Illnesses releases an information paper regarding Iraq's Scud ballistic missiles. The paper says that Iraq launched more than 90 short-range ballistic missiles during the 1990 Gulf War. It reports that some veterans believe Iraq launched more Scuds at coalition forces than actually stated. The paper also states that the Scuds either broke up upon re-entry or after Patriot missile intercepts.

—US Department of Defense, "New Information Paper Examines Iraq's Use of Scud Ballistic Missiles during Gulf War," 27 July 2000.

19 July 2000

Iraq fires a surface-to-air missile (SAM) into Kuwaiti airspace.

—"Iraq Fires Missile into Kuwaiti Airspace," CNN.com, 20 July 2000, www.cnn.com.

16-18 July 2000

The second session of the Belarusian-Iraqi Cooperation Commission takes place in Minsk. The Iraqi delegation, led by Deputy Prime Minister and Finance Minister Hikmat al-Azzawi, stays in Minsk from 15 July through 20 July. The commission's main task is to launch a common market between the two countries and move towards enhancement of various aspects of their cooperation without the employ of brokers. The representatives of the two countries sign a protocol specifying their main areas for trade and economic cooperation. The Iraqi delegation visits the Atlant refrigerator plant, the Belbiofarm pharmaceutical firm, and the car and tractor plants in Minsk.

—Aleksandr Reutov, "Iraq and Belarus Find Each Other," *Kommersant* (Moscow) in Russian, 19 July 2000, in "Iraqis Said in Market for Belarusian Military Spares, Optics," FBIS Document CEP20000719000165, 19 July 2000; "Belarus, Iraq Sign Protocol on Cooperation," BBC Worldwide Monitoring, 22 July 2000, in Lexis-Nexis, <http://web.lexis-nexis.com>.

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2 July 2000

Representatives at the Iraqi-Yugoslav joint committee for Economic, Scientific-Technical and Trade Cooperation sign a trade protocol. Iraqi Trade Minister Mohammed Mehdi Saleh says that the protocol outlines terms by which Iraq will import a wide array of food, agricultural equipment, trucks, and other vehicles. According to Western sources, the two countries also sign a military agreement on the periphery of the trade protocol. This military pact guarantees Belgrade's support to Iraq in the manufacture of the Al-Samoud missile.

—"Program Summary: Belgrade Radio," Belgrade Radio Beograd in Serbo-Croatian, 2 July 2000, in FBIS Document EUP20000702000030, 2 July 2000; "FRY, Iraqi Trade Delegations Agree to Boost Cooperation Despite Sanctions," *Belgrade BETA* in Serbo-Croatian, 2 July 2000, in FBIS Document EUP20000702000071; Nur-al-Din Salih, "Secret Military Cooperation Agreement Between Baghdad and Belgrade," *Al-Sharq Al-Awsat* (London) in Arabic, 5 July 2000, p. 1, in FBIS Document GMP20000705000087, 5 July 2000.

July 2000

Former UNSCOM inspector Scott Ritter says that he believes Iraq has been free of all weapons of mass destruction since 1997.

—Ian Brodie, "Saddam 'Has No Missiles Left,'" *The Times* (London), 4 July 2000, www.the-times.co.uk.

July 2000

The Iraqi Ministry of Transport in Baghdad submits proposals to the Export Promotion Bureau of Pakistan by way of the Pakistani embassy in Baghdad, for the supply to Iraq of items including welding machines, air-compressors battery chargers, washing machines for buses, dump trucks, engine dynamometers, stationary and mobile generators, mobile workshops, truck-tractors, off-set machines, and high speed cutting machines.

—"Iraq Tenders for Supply of Pakistan Goods," *Asia Pulse*, 12 July 2000, in Lexis-Nexis, <http://web.lexis-nexis.com>.

28 June-3 July 2000

A Serbian Science and Technology Ministry delegation led by Minister Branislav Ivkovic visits Iraq. Iraqi Deputy Prime Minister Tariq Aziz receives the delegation and says that cooperation in science and technology sectors is in the mutual interest of both countries, including in terms of their comprehensive development and preservation of their sovereignty.

—"Serbian Science and Technology ministry Delegation Ends Visit to Iraq," *Belgrade Tanjug* in English, 3 July 2000, in FBIS Document EUP20000703000134, 3 July 2000.

27-30 June 2000

US officials believe that the new missile Iraq tested on 26 June is ready for deployment. They also conclude that Iraq has significant problems with the missile, particularly concerning guidance and engines. A senior Clinton administration official says, "The US government isn't particularly concerned by this week's test because it is legal, because it has happened before, because it appears to be a technical test of the rocket, rather than of a warhead, and because there is no indication that Iraq tries to put chemical or biological warheads atop the test missiles."

However, US military officials view the testing as evidence that Iraq continues to pursue refinement of its ballistic missile technology, which could also be adapted to longer range missile programs.

—Steven Lee Myers, "Flight Tests Show Iraq Has Resumed a Missile Program," *The New York Times*, 1 July 2000, p.

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1, in Lexis-Nexis, <http://web.lexis-nexis.com>; Thomas E. Ricks, "Iraq tests Short-Range Missile: U.S. Monitors Flight and Says It Doesn't Violate U.N. Restrictions," *The Washington Post*, 1 July 2000, p. A10.

26 June 2000

Iraq conducts a test on the 150-km-range Al-Samoud liquid fueled surface-to-surface missile (SSM), which is capable of carrying conventional, chemical and biological warheads. The test indicates that Iraq has rebuilt the missile production facilities destroyed by US-British strikes in 1998. This missile program also is allegedly at the center of a secret agreement between Iraq and Yugoslavia.

—David C. Isby, "Iraq continues tests of Al Samoud SSM," *Jane's Missiles and Rockets*, 1 August 2000, in Lexis-Nexis, <http://web.lexis-nexis.com>.

26 June 2000

US General Anthony Zinni says, "What [Saddam Hussein] learns from these [missile] tests, the technological developments and the other things he picks up, are transferable to longer-range missiles...."

—Steven Lee Myers, "Flight Tests Show Iraq Has Resumed a Missile Program," *The New York Times*, 1 July 2000, p. 1.

June 2000

Saddam Hussein orders his air-defense units to make greater efforts to shoot down US warplanes patrolling Iraqi airspace.

—"Saddam Orders Air Defences to Step up Efforts to Shoot down US Planes," Agence France Presse, 19 June 2000.

24 May 2000

Former UNSCOM Executive Chairman Richard Butler says that in the absence of inspectors, Iraq has increased the range of its missiles to 600km. Butler says that he had "seen evidence they [the Iraqis] have been attempting to procure missile manufacturing equipment from the West through front companies."

—Ewen MacAskill, "Iraqi Nerve Gas 'Could Paralyze Western Cities,'" *The Guardian* (London), 24 May 2000, p. 17, in Lexis-Nexis, <http://web.lexis-nexis.com>.

11 May 2000

Iraq's chief of air defenses, General Shahin Yassin, says that Baghdad has managed to neutralize the US anti-radar AGM-88 High-Speed Anti-Radiation Missile (HARM). However, the United States denies the general's claim, saying Iraq has not even turned on its radar, much less tested any new anti-HARM technology.

—"Saddam Orders Air Defenses to Step up Efforts to Shoot down US Planes," Agence France Presse, 19 June 2000; Leon Barkho, "Iraq Claims It can Mislead HARM Missiles Fired by U.S., British Planes," Associated Press Worldstream, 11 May 2000.

16 April 2000

Sultan Hashim Ahmad and a group of high ranking Iraqi military officials meet with Russian Defense Minister Igor Sergeyev in Moscow.

—"Iraqi Defense Minister has Visited Moscow," Interfax, 16 April 2000; in Lexis-Nexis, <http://web.lexis-nexis.com>.

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April 2000

Iraqi Defense Minister Sultan Hashim Ahmad visits Moscow to make a deal with Russian companies for the construction of ballistic missile facilities in Iraq.

—Michael Evans, "Saddam Seeks Russian Missile Deal," *The Times* (London), 14 August 2000.

March 2000

Husayn 'Ali al-Ni'mah, the director-general of the Iraqi State Construction Industries Company, reveals that his company is able to manufacture high-density polyethylene pipes in 75 and 50mm diameters. He claims that the company relies on local materials produced by the State Petrochemical Industries Company in Al-Basrah.

—*Al-I'lam* (Baghdad) in Arabic, "Construction Industries Company Produces New Type of Pipes," 15 March 2000, p. 2, in "Iraqi Economic Media Report: 11-19 Mar," FBIS Document GMP20000325000150, 26 March 2000.

March 2000

Industry and Minerals Minister 'Adnan 'Abd-al-Majid says that his ministry has organized five specialized symposiums designed to activate the private sector and rehabilitate non-operational factories in various fields. Al-Majid says that the five symposiums include two for automobile industry workers, two for pharmaceutical sector workers, and one for mechanical industries workers, particularly those involved in the manufacture of irrigation sprinkler systems. Al-Majid also says that the Iraqi government prepares workshops at the State Mechanical Industries Company so as to encourage private sector assistance in increasing sprinkler irrigation system production. 'Abd-al-Rahman al-'Azzawi, director-general of the Automobiles Manufacturing Company, says, "The company has created 26 investment opportunities for the private sector in the areas of manufacturing glass, seats, silencers, hydraulic systems, and presses."

—"Industry Minister, Other Officials Cited on Efforts to Activate Private Sector," *Al-Thawrah* (Baghdad) in Arabic, 13 March 2000, p. 5.

1 March 2000

The US Department of Defense (DOD) says there is no hard evidence to prove that Iraq has been able to rebuild its weapons of mass destruction. A DOD spokesman also says that since the United States destroyed some of Iraq's machinery such as "very large sophisticated metal presses," it would be difficult, if not impossible, for Iraq to replace or rebuild its weapons programs while under economic sanctions.

—"Iraq is Rebuilding Its Missile Facilities," *Jane's Missiles and Rockets*, 1 March 2000.

27 February-4 March 2000

Iraqi and North Korean officials allegedly meet in Khartoum to discuss plans related to missile factory construction in Sudan. [NOTE: See 1998 and 13-19 February 2000.]

—"Iraq Rumored to Build Missile Factory in Sudan," IPR Strategic Business Information Database, 2 April 2000.

24 February 2000

A BND intelligence assessment concludes that Germany is the hub of Iraq's secret weapons procurement activities. Iraq allegedly favors Germany as a prime source for so-called dual-use equipment with both military and civilian applications. Such equipment includes lathes, steel rolling machinery and presses, which are ideal for production

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of equipment ranging from cannons to missile firings.

—Friedrich Kuhn, "News Feature: Intelligence Report Says Iraq Could Nuke Neighbors," Deutsche Press-Agentur, 24 February 2000.

24 February 2000

Uzi Rubin, a member of the Israeli National Security Council and former head of Israel's Homa anti-missile defense program, tells the Israel Annual Conference on Aerospace Sciences that Saddam Hussein's regime has managed to conceal 50 Al-Hussein missiles. He says, "There is a shortfall of about 50 missiles which are probably stashed somewhere--Scud derivatives," that can be deployed on short notice. He further points out that Iraq's defense industry develops ground-to-ground missiles with a range of 150km, and he claims that once UN sanctions are lifted, Baghdad will resume developing missiles with an even greater range.

—*Middle East Newsline* (Jerusalem) E-mail-Text in English, 25 February 2000, in "Israel: More on Warnings of Arab Missile Capabilities," FBIS Document GMP20000225000110, 25 February 2000.

23 February 2000

German chancellery head Frank-Walter Steinmeier submits a report to the German cabinet that has been prepared by the German foreign intelligence agency, the Bundesnachrichtendienst (BND). The report says that within five years, Iraq will possess missiles with a range of 3,000km and the capacity to hit targets in western Europe. The report also notes that the Iraqis purchase important components for both missiles and weapons factories through subcontractors and mock companies in Germany. The BND believes that Iraq produces ammonium perchlorate, a key ingredient in solid fuel propellant for long-range missiles. In addition, the BND claims that Saddam has accelerated programs to develop a new solid fueled short-range missile called the Ababil-100 and to improve the accuracy of "a small, covert force of Scud missiles like those used in the Gulf War."

—"German Assessment: Iraqi missiles will reach Europe by 2005," Deutsche Presse Agentur (Berlin), 23 February 2000; Josef Hufelschulte, "German Helpers," *Focus* (Munich) in German, 28 February 2000, pp. 44-46, in "Embargo Violations Reportedly Insufficiently Prosecuted," FBIS Document EUP20000229000402, 28 February 2000; Stefan Kornelius, "Everybody Is Building Missiles--BND sees Europe Endangered By Iraq's and Iran's Arms Projects," *Sueddeutsche Zeitung* (Internet Version) (Munich) in German, 24 February 2000, in "BND Report Views Iran, Iraq Missile Threat," FBIS Document EUP20000223000461, 24 February 2000; "Saddam Close to Building N-missile; German Report Claims Iraq Has Speeded Up Secret Program," *The Herald* (Glasgow), p. 2.

21-26 February 2000

The first session of the Belarusian-Iraqi Cooperation Commission takes place in Baghdad. Hikmat al-Azzawi leads the Iraqi delegation, and Deputy Prime Minister Uladzimir Zamyatalin represents Belarus. They sign an agreement to provide Iraq with 150 trucks and 10,000 tires produced at the Minsk Automobile Factory, as allowed under the United Nations oil-for-food program in Baghdad. They also sign 16 other contracts wherein Zamyatalin agrees to provide Iraq with products from the Minsk Tractor Works, the Minsk Automobile Factory, the Mahilyow Automobile Factory, the Babruysk-based tire maker named Belshyna, as well as Homel's Homselmash agricultural equipment factory. [NOTE: Zamyatalin meets with Saddam Hussein, and holds talks with Iraqi Vice-President Taha Yassin Ramadan and Deputy Prime Minister Tariq Aziz. He also meets with Iraqi ministers of trade, foreign affairs, oil, industry and mineral resources, transport and communications, agriculture, construction, higher education and

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scientific research, defense industry, and power industry.]

—*Belapan* (Minsk) in English, 3 March 2000, in "Belarus to Deliver Automobile Industry Products to Iraq," FBIS Document CEP20000303000054, 3 March 2000.

13-19 February 2000

An Iraqi army defector claims that Saddam Hussein has continued a chemical weapons program since UN inspectors left Iraq a year ago. He claims that his special security unit delivered warheads to a secret missile launch site where they were loaded with chemicals, then returned to their hiding place in the Baghdad area. [NOTE: This defector has served in the Iraq Army for two decades. Until his defection, he worked in Amn al-Khas, Saddam's special security organization. The defector's unit had been trained since 1990, he says, to guard the hidden sites of the warheads and ballistic missiles and to deliver the warheads to launch sites. Military sources believe Saddam has rebuilt hundreds of military and industrial sites bombed in 1998.]

—Marie Colvin and Uzi Mahnaimi, "Saddam's Elite Troops Prime Poison Missiles," *The Sunday Times* (London), 20 February 2000.

13-19 February 2000

A group of North Korean technical experts arrive in Khartoum, the capital of Sudan. The North Koreans allegedly work on building a ballistic missile plant near Khartoum, using \$475 million in Iraqi financing. When complete, this facility will enable Iraq to refurbish old missiles as well as build new, longer range missiles. [NOTE: See 1998.]

—William Safire, "Essay; Saddam's Sudan?" *The New York Times*, 23 March 2000, p. 27; in Lexis-Nexis, <http://web.lexis-nexis.com>.

10 February 2000

US warplanes strike an Iraqi military site in the northern no-fly zone.

—"U.S. Warplanes Hit Iraq Again in Northern Zone," Deutsche Presse-Agentur, 10 February 2000, in Lexis-Nexis, <http://web.lexis-nexis.com>.

9 February 2000

US and British aircraft retaliate against Iraqi anti-aircraft fire by striking sites in northern Iraq, including missile installations, military radar systems, and anti-aircraft artillery positions.

—"U.S. Warplanes Hit Iraq again in Northern Zone," Deutsche Presse-Agentur, 10 February 2000, in Lexis-Nexis, <http://web.lexis-nexis.com>.

2 February 2000

At a meeting of the US Senate Select Committee on Intelligence, CIA Director George J. Tenet states that over the next 15 years, cities in the United States will face ballistic missile threats from a wider variety of actors including North Korea, probably Iran, and possibly Iraq. Tenet also says that given the continuation of Iraqi missile development efforts, the CIA believes Iraq could develop an inter-continental ballistic missile (ICBM) sometime in the next decade, especially if Iraq is provided with foreign assistance. In addition, Tenet names Iraq as a country that currently imports missile-related technology and that may emerge in the next few years as a supplier of such technology.

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—George J. Tenet, "Statement by Director of Central Intelligence George J. Tenet before the Senate Select Committee on Intelligence on the Worldwide Threat in 2000: Global Realities of Our National Security," Central Intelligence Agency, 2 February 2000.

1 February 2000

US Department of Defense (DOD) spokesman Kenneth Bacon says that given the difficulty and expense of procuring materials under sanctions, it would be hard for Iraq to rebuild machinery, such as sophisticated metal presses in its missile manufacturing and repair facilities.

—Kenneth H. Bacon, "DoD News Briefing," U.S. Department of Defense, 1 February 2000.

1 February 2000

A delegation of aircraft manufacturers from Russia's Altai territory in Siberia goes to Iraq. The group includes Ivan Komarov, the general-director of the Altai aircraft manufacturing enterprise, and experts from the state enterprise Goskonsim. The goal of their visit is to finalize a contract for the repair and replacement of equipment at a steel mill in Iraq. Komarov tells journalists, "The company management hopes that the delegation will develop relations with Iraqi partners which were established during the first visit of an Altai delegation to Iraq at the end of October 2000."

—Interfax (Moscow) in English, 1 February 2001, in "Delegation of Russian Aircraft-Builders Goes to Iraq," FBIS Document CEP20010201000401, 1 February 2001.

February 2000

The Yugoslav company Yugoimport allegedly establishes contacts with the Iraqi firm, Al Fatah Company, regarding development of a cruise missile program.

—"Supplier: Yugoimport, Al Fatah Company, Infinity, Brunner, GVS, Temex and Interdeal," in Iraq Watch Iraq Supplier Database, Wisconsin Project on Nuclear Arms Control, www.iraqwatch.org.

February 2000

A high-ranking Belarusian delegation visits Baghdad. Belarus signs a \$90 million deal to upgrade Saddam Hussein's air-defense system, re-equip the Iraqi air force, and provide air-defense training for Iraqi troops.

—Douglas Davis, "Russia to Upgrade Iraqi Air-Defense System," *Jerusalem Post* (Internet), 17 April 2000, www.jpost.com; Con Coughlin, "Russia Brokers Arms Deal to Rebuild Iraq's Air Defences," *Telegraph* (Internet), 16 April 2000, www.telegraph.co.uk.

21-24 January 2000

A group of Iraqi military officers are accused of smuggling artillery shells and missile capsules from the Hutin Establishment in Baghdad. The Iraqi Special Security apparatus, controlled by President Saddam Hussein's son Qusay, responds with a series of arrests at this establishment. According to Iraqi sources, the arrests and interrogations focus on 15 officers and 130 technicians and engineers. The investigation is supervised by the Special Security apparatus, along with officials from the president's office, the Military Industrialization Establishment, and General Intelligence.

—Shimal 'Aqrawi, Saman Nuh, and Nidal al-Laythi, "The Headquarters of the Islamic Unity Movement Blown up in

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Arbil. Baghdad Arrests 15 Officers and 130 Technicians Accused of Stealing Military Equipment," *Al-Zaman* (London) in Arabic, 26 January 2000, p. 1, in "Iraqi Army Officers Arrested after Blast, Arms Theft," FBIS Document FTS20000126001034, 26 January 2000.

13 January 2000

US warplanes attack an Iraqi air-defense system in response to artillery fired at the planes during patrols over the northern no-fly zone.

—"U.S. Fighter Planes Bomb Iraqi Air Defense System," Associated Press, 13 January 2000, in Lexis-Nexis, <http://web.lexis-nexis.com>.

January-April 2000

Saddam Hussein holds several meetings with various military industry experts.

—Ali Abd-al-Amir, "Iraqi Engineer Reveals the Regime's Resumption of Military Industrialization," *Al-Hayah* (London) in Arabic, 25 April 2000, p. 8, in "Iraqi Resumption of Arms Program Viewed," FBIS Document GMP20000425000205, 25 April 2000.

2000

Belarus reportedly supplies Iraq with \$7.8 million worth of tires, tractors, trailers, and automotive parts. Belarus plans to increase the amount of its exports to Iraq to \$35 million in 2001.

—"Iraqi Industry Minister Holds Talks in Belarus, Week after He Was Reported Dead," BBC Worldwide Monitoring, 31 March 2001, in Lexis-Nexis, <http://web.lexis-nexis.com>.

2000-2001

Iraq and Ukraine exchange visits by delegations from their respective governments. Iraq allegedly seeks missile parts, particularly missile guidance systems, from Ukraine during these meetings.

—*Zerkalo Nedeli* (Kiev) in Russian, 15 December 2001, in "Ukraine: Paper Analyses Signs of Ukrainian-Iraqi Rapprochement," FBIS Document CEP20011223000042, 15 December 2001.

2000

The port of Odessa in Ukraine is a main hub in smuggling operations involving weapons and other forbidden items in transit to Iraq. It is reported that Ukrainians at the port dismantle the smuggled items then store them in boxes hidden amidst regular cargo destined for shipment to countries near Iraq. From there, the illegal cargo is transported by land or sea to Iraq, where officers and engineers in the Military Industrialization Body, supervised by Russian and Ukrainian experts, reassemble the goods. [NOTE: The ships engaged in these smuggling operations are owned reportedly by the Russian and Ukrainian mafia. In addition, Ukrainian arms dealer Lee Alexander Jikiyof plays an important role in these transactions.]

—"Smuggling of Russian Missiles, Military Equipment and Weapons to Iraq; Baghdad Intelligence Controls the Ukrainian Port of Odessa," *Al-Mutamar*, 7 September 2001.

2000

Iraq pursues an unmanned aerial vehicle (UAV) program. US surveillance aircraft document a new series of aerial tests involving L-29s in Iraq. The US Central Intelligence Agency (CIA) suspects that Iraq has modified these

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refurbished trainer aircraft for delivery of chemical or, more likely, biological warfare agents. [NOTE: See 17 December 1998 and 1995.]

—Jody Warrick, "Uncertain Ability to Deliver a Blow; Iraq Cobbles Together Weapons System with Mixed Results, Analysts Say," *The Washington Post*, 5 September 2002, p. A1, www.washingtonpost.com; Central Intelligence Agency, "Unclassified Report to Congress on the Acquisition of Technology Relating to Weapons of Mass Destruction and Advanced Conventional Munitions, 1 January Through 30 June 2001," www.cia.gov.

Early 2000

US officials discern that Iraq has completed reconstruction of many military facilities, including the Ibn Al-Haytham Missile Center, that were damaged or destroyed by the United States and Great Britain in December 1998.

—Steven Lee Myers, "Flight Tests Show Iraq Has Resumed a Missile Program," *The New York Times*, 1 July 2000, p. 1; Andrew Koch, "Baghdad Tests New Short-Range Ballistic Missile," *Jane's Intelligence Review*, 1 August 2000.

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1999

26 December 1999

According to Branimir Milanovic, the Chairman of the Board of Managers of the Yugoslavian Gosa Holding Corporation in Smedervska Palanka, the company initiates negotiations with Iraq regarding the renewal of its exports to Iraq. [NOTE: Gosa produces industrial equipment and vehicles. The company has agreed to produce equipment for fodder plant, silos and large cranes for Russia, as well as silos for Romania. Gosa also exports metallurgy equipment to Russia on a continual basis.]

—*Belgrade Tanjug* in English, 26 December 1999, in "Gosa's Director Outlines Factory's Role in Reconstruction," FBIS Document FTS19991226000316, 26 December 1999.

December 1999

The Iraqi State Mechanical Industries Company calls on industrialists in the Iraqi private sector to manufacture some parts for the Al-Nida tractor. [NOTE: Iraq attempted to modify flatbed trailers suitable for the construction of indigenous mobile missile launchers.]

—*Al-Qadisiyah* in Arabic, 26 December 1999, p. 4, in "Iraqi Economic Media Report: 16-31 Dec 99," FBIS Document FTS20000107000667, 7 January 2000.

18 December 1999

Iraqi first Deputy Foreign Minister Nuri Al-Wayyis makes an official visit to Ukraine to meet with the Supreme Council chairman and the foreign minister at the Ministry of Industrial Policy. They discuss strengthening their trade and economic relations.

—Nuri al-Wayyis and Yuliya Mostovaya, *Zerkalo Nedeli* (Kiev) in Russian, 18 December 1999, p. 3, in "Iraqi Official Interviewed on Economic Ties to Ukraine," FBIS Document CEP19991222000057, 18 December 1999.

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18 December 1999

Iraq formally rejects the new arms inspection plan that the UN Security Council adopted on 17 December 1999.

—Barbara Crossette, "Iraq Rejects U.N. Decision to Create New Arms Inspection Plan," *The New York Times*, 19 December 1999, in Lexis-Nexis, <http://web.lexis-nexis.com>.

17 December 1999

The UN Security Council adopts Resolution 1284, which orders that the United Nations Monitoring Verification and Inspection Commission (UNMOVIC) replace UNSCOM in Iraq.

—United Nations Monitoring, Verification and Inspection Commission, "UNMOVIC: Basic Facts," www.un.org.

December 1999

Tajikistan authorities arrest three Iraqis and one Uzbek in Tajikistan for attempting to smuggle approximately 170 tons of aluminum from the country. Policemen in the Tursunzade district staged this operation that led to the confiscation of seven KamAZ truckloads of aluminum.

—Valery Zhukov, "Four Arrested in Tajikistan for Trying to Smuggle out Metal," TASS, 17 December 1999.

1999

The Serbian Trepca battery plant in Bujanovac exports "batteries" to Iraq.

—*Belgrade Tanjug* in English, 3 December 1999, in "Bujanovac Plant Official Says KFOR Hindering Business," FBIS Document FTS19991203000465, 3 December 1999.

24 November 1999

Iraqi security personnel discover a truck mounted with four timed rockets located near a Mojahedin-e Khalq camp to the north of Baghdad. One of the rockets explodes at the site, but experts are able to defuse the other three rockets.

—Baghdad Iraq Television Network in Arabic, 25 November 1999, in "Rockets near Mojahedin-e Khalq Base Defused," FBIS Document FTS19991125001116, 25 November 1999.

24-28 November 1999

An Iraqi delegation led by Agriculture Minister Abd al-Allah Hamid Muhammad Salih arrives in Minsk for a working visit. The aim of the visit is to discuss trade and economic cooperation commensurate with UN Security Council resolutions. The visit includes meetings at the Ministry of Industry, the Ministry of Agriculture and Food, the Belarusian National Academy of Sciences, and the Belarusian Agriculture and Technical University. During visits to a number of industrial companies, including the Minsk Tractor Works and the Minsk Automobile Works, discussions include the possible shipment of Belarusian tractors and vehicles to Iraq.

—*Belapan* (Minsk) in Belarusian, 24 November 1999, "Iraqi Delegation in Belarus to Discuss Cooperation," in FBIS Document FTS19991124001453, 24 November 1999.

November 1999

Defense Intelligence Agency Director Vice Admiral Thomas Wilson says that Iraqi efforts related to its missile-test programs have been unsuccessful since the end of Desert Fox.

—John Donnelly, "Verbatim: Once Around the World with the DIA Chief," *Defense Weekly*, 22 November 1999.

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November 1999

The Pentagon's senior intelligence officer says that Iraq has begun to rebuild military installations that the United States and Britain destroyed last December.

—Steven Lee Myers, "U.S. Thinks Iraq Is Rebuilding Ruined Military Installations," *The New York Times*, 18 November 1999, p. A6, in Lexis-Nexis, <http://web.lexis-nexis.com>.

25 October 1999

According to a US military source, US jets patrolling the no-fly zone over northern Iraq bombed a SAMs storage facility south of Mosul.

—"US Jets Attack Iraqi Missile Depot," Associated Press (Online), 25 October 1999.

October 1999

The Russian Prosecutor General's office conducts an investigation at the Russian Space Agency, the Academy of Sciences, the Economics Ministry, and the Atomic Energy Ministry regarding the alleged involvement of former foreign minister Yevgeny Primakov in nuclear arms cooperation with Iraq.

—"Russian Prosecutor Gives Primakov Nuclear All Clear," Moscow Interfax in English, 14 October 1999.

11 October 1999

Saddam Hussein executes the head of the Iraqi intelligence, Rafa Daham al-Tikriti (Saddam's second cousin). Al-Tikriti is accused of leaking Saddam's secret military deals with Russia. The deals include the supply of Russian satellite intelligence photographs to Iraq, as well as spare parts for the Iraqi Air Force and anti-aircraft missile systems. Iraqi intelligence officials are closely involved in arranging the multi-million-pound arms deals.

—Con Coughlin, *Sunday Telegraph* (London), 17 October 1999, in "Iraq Execution Blamed on Feud over Succession," FBIS Document FTS19991017000743, 17 October 1999.

3-9 October 1999

Russian Fuel and Energy Minister Victor Kalyuzhny encourages Russian companies to ignore trade sanctions and engage in business relations with Iraq.

—Con Coughlin, *The Sunday Telegraph* (London), 10 October 1999, p. 34, in "Iraq to Buy Satellite Intelligence Photos from Russia," FBIS Document FTS19991010000448, 10 October 1999.

27 September 1999

US intelligence believes that the increasing costs of maintaining and upgrading older SA-2s, SA-3s, and SA-6s will motivate Iraq to upgrade to the far more capable group of Russian SAMs that includes the SA-10s or SA-12 (S-300 family).

—Robert Wall, "Russia's Premier SAMs Seen Proliferating Soon," *Aviation Week and Space Technology*, 27 September 1999, p. 36.

September 1999

The US National Intelligence Council believes that Iraq would possibly threaten the United States with intercontinental ballistic missiles (ICBM) in the next 15 years. The Council also believes that Iraq could test a North Korean-type ICBM, which could deliver a several-hundred-kilogram payload to the United States, in the last half of

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the next decade depending on the level of foreign assistance. However, most intelligence analysts believe that if it began development immediately, Iraq could test an ICBM capable of delivering a lighter payload to the United States in a few years, basing the ICBM on its failed satellite launch vehicle (SLV) or the Taepo Dong-1.

—"Foreign Missile Developments and the Ballistic Missile Threat to the United States through 2015," National Intelligence Council, 1 September 1999.

September 1999

Iraq allegedly hides at least seven complete missile systems and major components. Iraq also allegedly possesses "single-use liquid missile propellant and indigenous missile production" programs that are hidden from inspectors.

—Matthew Campbell, "West Fears Saddam is on Brink of Building Nuclear Missile," *The Sunday Times* (London), 5 September 1999; Bill Gertz, "Saddam Secretly Making Weapons," *The Washington Times*, 2 September 1999.

September 1999

Iraq receives a CD-ROM containing satellite intelligence photographs from Russia to use for targeting its missiles at neighboring countries. This transaction is based on a deal made in August. [Note: See August 1999.]

—Con Coughlin, "Iraq to Buy Satellite Intelligence Photos from Russia," *The Sunday Telegraph* (London) in English, 10 October 1999, in FBIS Document FTS19991010000448, 10 October 1999.

September 1999

Saddam Hussein orders that 100 million dinars be allocated to establish a faculty of sciences in Dhi Qar that will be affiliated with Al-Basrah University.

—"Iraqi Economic Media Report: 10-20 September," 24 September 1999, in FBIS Document FTS19990924000924, 24 September 1999.

September 1999

A White House report to Congress notes that Iraq carries out activities at sites known to be capable of producing long-range ballistic missiles. The report adds that there is also concern about Iraq's "long-established" covert procurement activities that may include dual-use items with weapons applications.

—Bill Gertz, "Saddam Secretly Making Weapons," *The Washington Times*, 2 September 1999, p. 2.

September 1999

According to Iraqi opposition sources, a number of officials from the Iraqi military industrial establishment accompany Russian experts in artillery round production on a visit of the Al Qa-Qa factories in Baghdad. They are allegedly part of a secret operation that includes the transport of 17 sealed plastic crates weighing 50kg from the factories to a secret location belonging to the military industrial establishment in the suburbs of Baghdad. Special armed groups accompany the shipments, the contents of which are unknown.

—"New Round of Dismissals of High-Ranking Officers," *Al-Mutamar*, 4 December 2000, Issue 232, p. 2, <http://209.50.252.70/AlMutamar/AlMutamar.htm>.

September 1999-November 2000

The Iraqi air-defense command receives a shipment of spare parts for missile transport and command vehicles from Germany.

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—"German Companies Provide the Regime with Weapon Transport Trucks and Spare Parts," *Al-Mutamar*, 6 November 2000, p. 2, <http://209.50.252.70/AlMutamar/AlMutamar.htm>.

September 1999

The Iraqi Vice Minister of Military Industry and Ja'afar Dhiya' Ja'afar, an advisor to President Saddam Hussein, meet with the head of the German Industrialist Union, as well as representatives from a number of weapons and spare parts companies in Abu Dhabi. The German delegation says the meeting concerns contracts for goods and medicines that fall within the constraints of the UN's Oil for Food program. However, sources close to the Iraqi Military Industrialization Ministry say the meeting produces an agreement for the German company Vaughn to equip Iraq with spare parts for 250 broken vehicles that will be delivered through a bogus Iraqi firm named Al Rashid Company. Major General Walid Muhammad al Shaykhail, the director of foreign relations in Iraqi Intelligence, runs the Al Rashid Company's operations in Jordan and the United Arab Emirates. The spare parts will provide the Iraqi military with the capability to move radar equipment and missile launchers at an average of 10 trucks per battery.

—"German Companies Provide the Regime with Weapon Transport Trucks and Spare Parts," *Al-Mutamar*, 6 November 2000, p. 2, <http://209.50.252.70/AlMutamar/AlMutamar.htm>.

1999

Saddam Hussein holds a series of meetings with air-defense and military industrialization officials "to secure a new, effective air-defense system," especially since the daily raids by US aircraft on the no-fly zones in the north and south "have decommissioned" most of the anti-aircraft missile batteries. Brigadier General 'Imad Muhammad 'Ali, an Iraqi military intelligence official, supervises the import of equipment for Iraqi air defenses from different sources, likely including France. Major General Hamid Salih 'Atiyah, an official in the special department for Iraqi Army purchases, visits Pakistan, India, China, and South Africa to conclude deals on weapons, which they claim are "not covered under Security Council resolutions."

—"Al-Hayah: Iraq Uses New Missiles, Warned of US Attack," *Al-Hayah* (London) in Arabic, 14 August 1999, pp. 1, 6, in FBIS Document FTS19990814000465, 14 August 1999.

17 August 1999

Iraq tracks US planes and fires missiles using radar. Iraq usually fires ballistic missiles without radar guidance.

—Kenneth Bacon, "DOD Daily Briefing," Department of Defense via Federal News Service, 19 August 1999.

13 August 1999

Iraqi air defense fires missiles at a US aircraft on its mission to bomb anti-aircraft batteries and a communications center in the northern Iraq no-fly zone.

—"Al-Hayah: Iraq Uses New Missiles, Warned of US Attack," *Al-Hayah* (London) in Arabic, 14 August 1999, pp. 1, 6, in FBIS Document FTS19990814000465, 14 August 1999.

4 August 1999

Iraq intensifies its efforts to acquire an updated air-defense system that will counter US and British fighter aircraft,

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as well as repair the extensive damage they have inflicted on Iraq's existing anti-aircraft network.
—Michael Evans, "Iraq Intent on Buying Air Defence System," *The Times* (London), 4 August 1999.

Early August 1999

Iraqi air-defense commander Staff General Shahin Yashin announces the operation of a new missile system recently obtained by Baghdad. He says that the Iraqi air defenses are now ready to face US and British aircrafts.
—"Al-Hayah: Iraq Uses New Missiles, Warned of US Attack," *Al-Hayah* (London) in Arabic, 14 August 1999, pp. 1, 6, in FBIS Document FTS19990814000465, 14 August 1999.

August 1999

According to Clinton administration sources, Iraq reconstructs some WMD-related buildings that the United States bombed, although there is no evidence regarding the resumption of its weapons production.
—Robert Burns, "Unseen by U.N. Inspectors, Has Iraq Advanced Weapons Programs?" Associated Press, 7 August 1999.

August 1999

An Iraqi delegation visits Moscow to attend the annual International Air Show. The delegation finalizes a deal to buy satellite intelligence photographs from Russian firms. [NOTE: Iraq contracts with Russian satellite imagery specialization firm NPO Mashinostroyeniya for approximately 200,000 pounds. The company agrees to provide Iraq with 220 high and medium resolution images of Iraq's immediate neighbors. The photographs will enable Saddam Hussein to target his missiles at neighbors.]
—Con Coughlin, "Iraq to Buy Satellite Intelligence Photos from Russia," *The Sunday Telegraph* (London) in English, 10 October 1999, in FBIS Document FTS19991010000448, 10 October 1999.

29 or 30 July 1999

At the inauguration ceremony for the Al-'Ubur state aluminum foundry, its director Major General Engineer Mustafa Abd al-Qadir Hasan says the new company is a strategic project for Iraq given the variety of founding techniques that will be employed.
—"First Iraqi Aluminum Foundry Inaugurated," *Al-Thawrah* (Baghdad) in Arabic, 30 July 1999, p. 3, in "Iraqi Economic Media Report: 30 Jul-4 Aug," FBIS Document FTS19990811000078, 11 August 1999.

8 July 1999

Foreign Report alleges that a team of Russian air-defense experts are stationed in Iraq and provide assistance to Iraq's air-defense network. The team supposedly aids the regular operations of Iraq's air-defense with equipment maintenance and installation as well as combat training and military doctrine. It allegedly supervises the restoration of the main missile and radar maintenance facility in Taji after a US attack damaged it in December 1998.
—"Is Russia Helping Iraq?" *Foreign Report*, 8 July 1999.

June-July 1999

Iraqi sources indicate that several Russian experts arrive in Iraq under "an agreement providing for Russian supervision of the re-deployment and modernization of an Iraqi defense network."

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—*Al-Hayah* (London) in Arabic, 14 August 1999, pp. 1, 6, in "Al-Hayah: Iraq Uses New Missiles, Warned of US Attack," FBIS Document FTS19990814000465, 14 August 1999.

1 July-31 December 1999

The CIA believes that Iraq continues to work on its unmanned aerial vehicle (UAV) program, which involves the conversion of L-29 jet trainer aircraft originally acquired from Eastern Europe. It is suspected that these modified and refurbished L-29s will be used as delivery vehicles for chemical or biological agents.

—"Report by CIA to Congress on the Acquisition of Technology Relating to Weapons of Mass Destruction and Advanced Conventional Munitions, 1 July through 31 December 1999," Central Intelligence Agency, 31 December 1999.

1999

According to US Brigadier General David Deptula, Iraq modifies a BM-21 surface-to-surface multiple launch rocket system and converts it into an anti-aircraft system several months before November 1999.

—Vince Crawley, "Iraq is European Command's Longest Conflict since WWII," *Defense Week*, 22 November 1999, p. 12.

31 May 1999

Advanced telecommunications technology with a variety of battlefield and civilian applications is transferred from AT&T to Galaxy New Technology in China through the SC&M Brooks firm in St. Louis. This transfer is known as the Hua Mei project. It is suspected that the Chinese repackaged the same system and sold it to Iraq. [NOTE: According to *Insight on the News*, the fiber-optic technology sold to Galaxy New Technology is not a weapon itself, but is used to greatly enhance the command and control system linking the Chinese army, navy, and air force. According to *Aviation Week & Space Technology*, Iraq's air-defense system, code-named "Tiger-Song" by NATO commanders, is an advanced internet for SAM batteries using secure fiber-optic communications. One of the advantages of Tiger-Song is that it allows the Iraqi radar installations not associated with Iraqi missile batteries to lock in on US aircraft and transfer the information to the missile operators through the secure fiber-optic network.]

—Charles Smith, "A Sale to Red China We Will One Day Regret," *Insight on the News*, 31 May 1999.

27 May 1999

Jerry Bradecki, a board president of the Polish Ferrum SA steel work, says his company may sell pipes to Iraq for use in its petroleum industry.

—"Ferrum Steel Work Wants to Increase Exports, Win New Markets," PAP New Wire, 27 May 1999.

25 May 1999

Foreign Report alleges that Saddam Hussein orders Iraqi representatives abroad to accelerate their purchases of equipment for use in making ballistic missiles and nuclear weapons.

—*Foreign Report* (London) in English, 2 June 1999, in "Saddam Rearming, Bin-Ladin Contacts," FBIS Document FTS19990602001704, 2 June 1999.

24 May 1999

An Iraqi delegation led by Ahmad Murtada Ahmad and a Syrian delegation led by Transportation Minister Mufid

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Abdul Karim hold talks in Damascus. They discuss means of maintaining cooperation in the areas of land, sea, and railway transport between the two countries, including the monitoring of trucks and general transport means, as well as the maintenance of vehicles, tankers, and trucks.

—"Syrian-Iraqi Transport Talks in Damascus; Syria-Iraq, Economics," Arabic News.Com, 25 May 1999, www.arabicnews.com.

21 May 1999

Romanian authorities admit that a Romanian industrial plant signed an agreement with Iraq in 1995 for cooperation in the field of missile-equipped weapons.

—"Window to the World of Arms," *Tehran Saff* in Persian, 21 May 1999, pp. 17-19, in "Tehran Daily on Arms Deals in Middle East," FBIS Document FTS19990708000673, 21 May 1999.

21 May 1999

Iraqi Minister of Foreign Affairs Mohammad al-Sahhaf says, "Iraq is making preparations for testing a short range missile." He adds, "We have already begun to produce missiles of 150-km-range as well as two missile types named 'Samoud' and 'Ababil.'" He further says that Iraq is ready to test these missiles and that a group of experts have been dispatched to the test site where 150-km-range missiles are ready to be fired.

—"Window to the World of Arms," *Tehran Saff* in Persian, 21 May 1999, pp. 17-19, in "Tehran Daily on Arms Deals in Middle East," FBIS Document FTS19990708000673, 21 May 1999.

17-19 May 1999

An Iraqi delegation composed of Iraqi Mining Ministry officers and managers of Iraqi companies visit Omsk in western Siberia. They go to Omsk's largest plants, including the Polyot air-space corporation, the Baranov motor works, and the Mikrokriogentekhnika chemical plant. The delegates also meet with Omskoblresursi enterprise spokesmen. The purpose of their visit is to investigate procurement of oil processing equipment manufactured in Omsk within the framework of the "Sibneftegas-2000" military industrial complex program. The delegation's visit to Omsk is expected to lead to several contracts being signed in the future.

—Aleksandr Korshunov, *RIA* (Moscow), 19 May 1999, in "Russia: Iraq Mining Ministry Officials End Omsk Visit," FBIS Document FTS19990519001937, 19 May 1999.

4 May 1999

The Al-Rayah State Company opens its phenol molding production project that will provide raw materials for use in several local industries in Iraq. Military Industrialization Minister Abd-al-Tawwab Abdallah al-Mulla Huwaysh inaugurates the project.

—"Iraqi Economic Media Report: 3-9 May," FBIS Document FTS19990520000183, 25 May 1999.

May 1999

A Russian air-defense adviser reportedly is wounded in Iraq during US attacks on Iraqi command and control and air-defense installations in the north.

—"Is Russia Helping Iraq?" *Foreign Report*, 8 July 1999.

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May 1999

Iraq resumes Al-Samoud flight testing, including firing a missile into the desert west of Baghdad. [Note: The Al-Samoud is a short-range, liquid fueled ballistic missile with a range less than 150km.]

—Steven Lee Myers, "Flight Tests Show Iraq Has Resumed a Missile Program," *The New York Times*, 1 July 2000, p. 1; "By 27 June 2000, Iraq conducted 7 more tests; David C. Isby, "Iraq continues tests of Al Samoud SSM," *Jane's Missiles And Rockets*, 1 August 2000, in Lexis-Nexis, <http://web.lexis-nexis.com>.

April-May 1999

According to the Supreme Assembly of the Islamic Revolution in Iraq (SAIRI), Iraq reinforces its missile concentration in the Jabal Sanam area on the Kuwaiti border by adding a number of modern SSMs with a 25-km-range.

—"SAIRI on Iraqi Reinforcements near Kuwait Border," *Al-Sharq al-Awsat* in Arabic, p. 4, in FBIS Document FTS19990506000830, 6 May 1999.

1999

Saddam Hussein allegedly transfers the Al Taw'han, also known as the Fire Ray, mid-range air-to-air missile project technology to Yugoslav President Slobodan Milosevic. [NOTE: The Fire Ray is an air-to-combat missile that 21 Brazilian experts from the HOP Company built by the end of the 1980s. Brazilian experts also participated in the development of this project to equip Iraqi supersonic fighter jets.]

—Roberto Godoy, "Saddam Passes Brazilian Missile Technology to Milosevic," *Sao Paulo O Estado de Sao Paulo* (Internet Version) in Portuguese, 30 April 1999.

23 April 1999

According to an Iraqi diplomatic source, Iraq will introduce advanced SAMs into the Iraqi air-defense system during the week of 25April.

—"Iraqi Offices Attacked; New Anti-Aircraft Weapons Due," *Al-Hayah* (London), p. 2, in FBIS Document FTS19990423000689, 23 April 1999.

13 April 1999

In an interview with *Al-Ittihad*, the head of Thabit al-Baldawi Aluminum Company says the Iraqi leadership installed the first industrial site for aluminum production in the Dhi Qar Governorate, where there is a high percentage of aluminum and manpower available. The Ur Engineering Industries Company in Dhi Qar is assigned to manufacture aluminum sheets there.

—*Al-Ittihad* (Baghdad), 13 April 1999, p. 2, in "Iraqi Paper on Aluminum Industry," FBIS Document FTS19990511000360, 13 April 1999.

8 April 1999

A US Navy FA-18 aircraft bombs an Iraqi anti-ship missile site on the Al Faw Peninsula. The bombing is in response to the repositioning of anti-ship cruise missile launchers at the site that aims them towards coalition naval operations and maritime vessels.

Related content is available on the website for the Nuclear Threat Initiative, www.nti.org.



—"U.S. Planes Strike Iraqi Missile Site U.S. Planes Strike Iraqi Anti-ship Missile Site along Persian Gulf," Associate Press (Online), 8 April 1999.

April 1999

Iraq relocates SSM batteries to the coastal area of the Al Faw Peninsula. These missiles are with a range of nearly 96km.

—William J. Clinton, "Letter to Congressional Leaders on Iraq's Compliance with United Nations Security Council Resolutions," Public Papers of the Presidents, 19 May 1999.

April 1999

Iraqi Oil Minister Amir Rashid visits Moscow. He negotiates a deal to purchase satellite intelligence photographs from Russia.

—Con Coughlin, "Iraq to Buy Satellite Intelligence Photos from Russia," *The Telegraph* (London), 10 October 1999, p. 34.

27 March 1999

A British Foreign Office spokesman says that his office is aware of reports linking Iraqi and Serbian regimes.

—Con Coughlin, "Milosevic in Arms Pact with Saddam EXCLUSIVE," *The Telegraph* (London), 28 March 1999, p. 1.

After 23 March 1999

According to a US senior defense official, Yugoslav military experts begin advising Iraq about improvements to its air-defense system.

—"China, Yugoslavs Helping Iraq Fine-tune Attack in No-fly Zone," *The Houston Chronicle*, 24 February 2001, p. 28.

1999

Iraq receives a shipment of advanced Russian-made radar systems for the SAM-6 missile network. [NOTE: Iraq plans to use the new radar systems within the huge "Mother of Battles" air-defense system it started in 1992. Military sources say this air-defense system consists mainly of French radar systems and short-range Roland-type missiles, in addition to Russian long-range SAM-6 missiles that are dubbed "the three-dimensional radar." However problems, including a lack of some high precision equipment and spare parts, have kept the system frozen since 1995. The main system will be responsible for distributing Roland radar-guided SAM-6 missile batteries to 54 branch systems. Only 22 branch systems have been completed by the engineers and technicians thus far, including two branch systems that they built under the supervision of Hussein Kamil in 1992. The northern and southern air-defense sectors, and the commands of the northern and southern Republican Guard Corps, received advanced Russian-made computer and radar systems but on a smaller scale.]

—"Iraqi Regime Acquires Russian-Made Air Defense System," (Internet) Iraqi National Congress in Arabic, 22 March 1999.

17 March 1999

The Minsk tractor factory named MTZ considers participation in an enterprise to assemble "Belarus" tractors on Iraqi territory.

—"Industry and Production," *Economic Press Review*, 17 March 1999.

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12 March 1999

Hasan Fahmi Jumah, the Iraqi ambassador to Russia, Ukraine, Belarus, Kazakhstan, and Tajikistan, says that Iraq is extremely interested in purchasing Belarusian tractors, wood, cellulose, and other products and in return providing Belarus with oil.

—"Envoy Says Iraq Wants Belarusian Products," *Minsk Belorusskaya Delovaya Gazeta* in Russian, p. 2, in FBIS Document FTS19990323000572, 23 March 1999.

Early March 1999

According to General Sir Charles Guthrie, the chief of the Defense Staff of Britain, a Serb delegation tours Iraqi air-defense sites to learn tactics for downing allied aircraft. Guthrie says that Iraqi tactics have already been put into practice in Serbia, and that the Yugoslav Army is hiding its SAMs as well as constructing dummy SAM sites in an effort to foil NATO bombers. He adds that the Iraqis probably also advised the Serbs to preserve their most potent SAM systems, such as the SAM-6, until a later point in the allied air campaign.

—Michael Evans, "Serbs 'Get Defence Tips from Saddam,'" *The Times* (London), 1 April 1999.

Early March 1999

A delegation of Serb military experts travels to Baghdad to formalize an alliance with Iraq. Serbia's Deputy Defense Minister, Lieutenant-General Jovan Djukovic, leads the Serb delegation. Saddam Hussein reportedly agrees to provide Serbia with oil and cash in return for Serbia's assistance in rebuilding Iraqi air defenses. [NOTE: Iraq wants Serbia to provide it with the advanced SA-7 anti-aircraft missile system. Originally built from a Soviet design and upgraded by the Serbs, the SA-7 could seriously threaten allied warplanes. It is believed that Serb technicians are already assisting the Iraqis in preparing air-defense traps for allied warplanes.]

—Con Coughlin and Peter Almond, "The War against Serbia: Milosevic and Saddam Plot Joint Revenge," *The Telegraph* (London), 28 March 1999, p. 7; Douglas Davis, "Serbia, Iraq Forge Secret Military Pact," *The Jerusalem Post*, 29 March 1999, p. 1, in Lexis-Nexis, <http://web.lexis-nexis.com>.

4 March 1999

British Defense Secretary George Robertson tells the Commons that Iraq uses heavy SSMs as improvised anti-aircraft weapons. A senior defense officer says that Iraq also fires large numbers of missiles at aircraft from primitive versions of multi-launch rocket systems.

—"British Planes in Raids on Iraqi Air Defence System," *The Herald*, 5 March 1999, p. 3, in Lexis-Nexis, <http://web.lexis-nexis.com>.

25 February 1999

Ambassadors of Arab states, including Iraq, complete an official visit to Minsk, Belarus. Belarus provides a draft of a special investment program to each Arab diplomat in an effort to launch mutually beneficial cooperative business endeavors. The program features the Minsk tractor factory (MZKT), the Svyatlahorsk chemical fibers factory, the Belarusian optomechanical enterprise (BelOMO), and the wheeled truck tractors factory.

—Andrey Makhowski, "Arab Diplomats' Visit to Minsk Viewed," *Minsk Belorusskaya Delovaya Gazeta* in Russian, 26 February 1999, p. 1, in FBIS Document FTS19990302001404, 26 February 1999.

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22 February 1999

A Washington report says Russia has sold missiles to Iraq capable of shooting down patrol aircraft over the no-fly zones. According to the Israeli sources, three Russian companies identified as Techmashimport, Vneshtechnika and Mashinoimportinvest, have recently made a weapons deal with Saddam Hussein and have sent some hardware to Iraq.

—Hugo Gurdon, "International: Russians Accused of Re-arming Saddam," *The Daily Telegraph* (London), 23 February 1999, p. 16.

16 February 1999

US Department of Defense spokesman Kenneth Bacon says that he does not have any proof to confirm the report of a Russian arms deal with Iraq. He says, "It would strike me as a particularly dangerous act on the part of any country to sell weapons to Iraq in violation of the UN arms embargo...."

—Kenneth Bacon, "Defense Department Regular Briefing," Federal News Service, 16 February 1999.

14 February 1999

Russian Foreign Minister Igor Ivanov denies the report that Russia has signed a \$163 million contract to improve Iraq's air-defense system.

—"Russian Foreign Denies Report of Russia-Iraq Deal," Deutsche Presse-Agentur, 14 February 1999.

14 February 1999

Iraq and Russian firm Mapo-MiG discuss creating a new contract to enable Iraq to lease combat-ready planes, as well as to purchase new advanced air-defense batteries and surplus batteries from the Russian army. Top secret talks on these and other subjects take place in Baghdad with officials from the Iraqi Military Industrial Commission (MIC) and a representative of the Russian state-run Rosvooruzheniye Company. An official at Mapo-MiG firmly denies doing business with Iraq, while Avtoexport and the Russian Foreign Ministry both refuse to comment. Western diplomats estimate that the deal with Mapo-MiG is worth more than 60 million pounds.

—Con Coughlin, "The Re-Arming of Saddam: Russia and Iraq," *The Sunday Telegraph* (London), 14 February 1999, p. 22; Con Coughlin, "International: Russian Weapons Experts Confirm Baghdad Connection," *The Sunday Telegraph* (London) 21 February 1999, p. 30.

4 February 1999

US officials say that Iraq begins withdrawing air-defense batteries, artillery, troops, and other material from its northern and southern "no-fly" zones in response to US and British airstrikes.

—Paul Richter and Robin Wright, "Allied Strikes Set Back Iraq Defenses, U.S. Says," *Los Angeles Times*, 5 February 1999, p. 1.

1999

According to secret NATO Report MC 161/96, Libya has made missiles with a range of 1,000 to 3,000km available to Saddam Hussein which, beginning in the year 2006 or earlier, could target NATO's southern flank with a chemical and biological charge.

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—Vladimir Alexe, *Bucharest Adevarul*, in Romanian, 6 February 1999, p. 2, in "Saddam, Al-Qadhdhafi Said to Aid Romania's Tudor," FBIS Document FTS19990226001534, 6 February 1999.

2 February 1999

Lieutenant General Patrick M. Hughes, the Director of the Defense Intelligence Agency, tells the Senate Armed Services Committee that Iraq could acquire hundreds of theater ballistic and cruise missiles by 2020.

—Patrick M. Hughes, "Global Threat and Challenges: The Decades ahead," Senate Armed Service Committee, 2 February 1999.

2 February 1999

US planes bomb an Iraqi anti-ship missile launch battery shortly after Iraq moves it into position in the Al Faw Peninsula. Iraq's CSSC-3 anti-ship cruise missiles are an older Russian designed weapon with an approximate range of 96km.

—"U.S. Planes Strike Iraqi Missile Site U.S. Planes Strike Iraqi Anti-ship Missile Site along Persian Gulf," Associated Press (Online), 8 April 1999.

February 1999

Four members of the Yugoslavian air-defense team spend two days visiting the Iraqi military headquarters in Baghdad.

—John Diamond, "U.S. Intelligence Suspects Yugoslav Military Getting Help from Iraq," Associated Press, 29 March 1999, in Lexis-Nexis, <http://web.lexis-nexis.com>.

February 1999

Iraqi military intelligence officer Brigadier General Imad Muhammad Ali and Iraqi Transportation and Communication Minister Ahmad Murtada Ahmad participate in talks in Moscow to arrange a Russian arms deal for Iraq.

—"Al-Hayah: Iraq Uses New Missiles, Warned of US Attack," *Al-Hayah* (London), 14 August 1999, pp. 1, 6, in FBIS Document FTS19990814000465, 14 August 1999.

Late January 1999

A Ukrainian delegation visits Iraq. An Iraqi senior diplomat and the representatives of an Iraqi arms company represent Iraq, while the chief executives of two arms manufacturers represent Ukraine. The representatives sign a document that follows up on an agreement made in November 1998. In the first stage of this agreement, Ukraine will sell Iraq engines for tractors, trucks, and heavy vehicles; generators; tires; gears; and electrical circuitry. These items will be declared as agricultural equipment to Customs, although some sources believe the equipment could be put to military use, including for the overhaul of missile launchers and the upgrade of tanks with the help of Ukrainian experts. According to the agreement, Iraq will pay using dollars obtained from oil sales to Ukraine. The transaction is to be handled by a company set up in Amman, Jordan.

—"An Iraq-Ukraine Deal?" *Foreign Report*, 22 April 1999.

29 January 1999

Commenting on an explosion, the Turkish military confirms that no missile attack on Turkey occurred. A US

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Defense Department spokesman says, "The commander of the 39th wing at Incirlik air base, based on reports of a possible ballistic launch from northern Iraq, initiated standard protection procedures and put the US forces into protective gear." US officials say that there is no proof that an abortive missile launch caused the explosion.

—Alan Philips, "International: British Air Base on Scud Alert after Iraq 'Fires Missile,'" *The Daily Telegraph* (London), 29 January 1999.

28 January 1999

The Incirlik air base in southern Turkey goes on alert briefly as a result of a reported potential missile threat from Iraq. [NOTE: Incirlik is home to US and British planes that monitor the "no-fly" zone in northern Iraq under the name "Operation Northern Watch."]

—"Incirlik Alert Was Due to Potential Missile Threat, US Embassy Says," Agence France Presse, 28 January 1999.

28 January 1999

In a statement before the US Senate Armed Services Committee, the Commander in Chief of US Central Command, General Anthony Zinni, says that the destruction of key missile production facilities and specialized equipment in Iraq has set back Iraq's ballistic missile program by one to two years.

—Anthony C. Zinni, "Prepared Statement of General Anthony C. Zinni Commander in Chief U.S. Central Command before the Senate Armed Services Committee," Federal News Service, 28 January 1999.

22 January 1999

An Iraqi opposition group claims Iraq is amassing troops near the Iraqi borders with Kuwait and Saudi Arabia.

—"Opposition Group Says Iraqi Troops, Missiles Massing In South," Agence France Presse, 22 January 1999.

20 January 1999

Russian Lieutenant General Vadim Kyrpichinka, a senior advisor to the Russian External Intelligence Service, says there are no means to carry weapons of mass destruction (WMD) in Iraq.

—Doha Qatar al-Jazirah Space Channel Television, 20 January 1999, in "Russian Intelligence Official on Iraq, US," FBIS Document FTS19990121000933, 20 January 1999.

17-23 January 1999

The United States installs Patriot anti-missile defenses at the Incirlik base in Turkey because it fears that Saddam Hussein may escalate the confrontation with the West by launching ballistic missiles. US aircrafts drop three bombs on an anti-aircraft site north of Mosul that had fired upon them.

—Alan Philips, "International: British Air Base on Scud Alert after Iraq 'Fires Missile,'" *The Daily Telegraph* (London), 29 January 1999.

13 January 1999

According to a US intelligence estimate, Iraq possesses approximately 110 SAM launchers that are spread throughout the country. A senior US official says the locations of 13 of these launchers remain unknown.

—Robert Burns, "Iraq Said to Have Double Defenses," Associated Press (Online), 13 January 1999.

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13 January 1999

US officials say that Iraq has nearly doubled the number of SAM batteries in the no-fly zones.

—Robert Burns, "Iraq Said to Have Double Defenses," Associate Press (Online), 13 January 1999.

12 January 1999

A US F-16 warplane fires a missile at an Iraqi early-warning radar. According to Pentagon spokesman Navy Captain Mike Doubleday, the early warning radar is linked to at least one SAM installation near Mosul.

—Robert Burns, "Iraq Said to Have Double Defenses," Associated Press (Online), 13 January 1999.

10-14 January 1999

Iraq's Transport and Communications Minister Ahmed Murtada Ahmed Khalil visits Moscow with representatives of the Iraqi Military Industrial Commission (MIC). His mission supposedly involves the purchase of Russian-built civilian aircraft, ships, and vehicles. The Iraqi delegation visits a number of Russian defense plants, including three factories in Nizhniy-Novgorod and Fazotron in Moscow. The three factories in Nizhniy-Novgorod manufacture MIG spare parts, while Fazotron develops weapons-control systems. Khalil signs a number of arms contracts that Russian First Deputy Premier Yuri Maslyukov approves himself.

—Con Coughlin, "The Re-Arming of Saddam: Russia and Iraq," *The Telegraph* (London), 14 February 1999, p. 22.

6 January 1999

According to Iraqi Embassy sources in Jordan, Iraq introduces a SAM into military service. Sources say that Iraq will conduct tests on similar missiles and that Iraq has been in contact with an unnamed Arab country regarding carrying out the tests on its territory.

—"Iraq Said Developing Surface-to-Air Missile," *Beirut al-Bilad* in Arabic, 9 January 1999, p. 9, in FBIS Document FTS19990113000995, 9 January 1999.

1 January 1999

According to Iraqi diplomatic sources in Amman, Iraq prepares to announce "an important step" during the annual anniversary of the Iraqi Armed Forces on 6 January. Iraq says that it intends to carry out a host of tests on recently produced intermediate-range missiles.

—"3rd Army Corps Mutiny Reported in South Iraq," *Al-Hayah* (London) in Arabic, p. 3, in FBIS Document FTS19990101000423, 1 January 1999.

January 1999

The Iraqi Civil Defense Directorate defuses 58 unexploded missiles and bombs launched by the United States and Britain in Baghdad and the surrounding governorates. According to Civil Defense Director-General Major Qasim Muhammad Nuri, the Iraqis defuse 24 missiles and bombs in Al-Karkh, 15 in Al-Rasafah, one in Al-Qadisiyah, three in Wasit, eight in Al-Basrah, five in Dhi Qar, and two in Babil.

—"Civil Defense Teams Defuses 58 Unexploded Missiles, Bombs," Baghdad INA in Arabic, 4 January 1999, in FBIS Document FTS19990104000762, 4 January 1999.

January 1999

The Iraqi Civil Defense Department defuses several cruise missiles that US and UK aircrafts dropped on several

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areas in the Al-Ta'mim Governorate.

—Baghdad Iraq Satellite Channel Television, 30 January 1999, in "Iraq Defuses Cruise Missile, Cluster Bombs," in FBIS Document FTS19990130000628, 30 January 1999.

January 1999

The Iran-based Supreme Council for Islamic Revolution in Iraq (SCIRI) says there is a major deployment of SAMs set up with an army brigade, Republican Guard troops, and Ba'ath Party units along the Amara-Basra road that leads to the Kuwait and Saudi borders. In addition, it is estimated that Iraq deploys 25 missiles near the border, possibly all SAMs but maybe some Scuds. Iraq also deploys Scud rockets to the southern provinces of Basra and Nasiriya with more troops for reinforcement.

—"Opposition Group Says Iraqi Troops, Missiles Massing In South," Agence France Presse, 22 January 1999.

January 1999

Sources at the Iraqi embassy in Jordan say that Iraq will test missiles "similar" to a surface-to-surface missile (SSM). They also claim that Iraq maintained contacts with an unnamed Arab state regarding the possibility of conducting tests on that state's territory.

—*Al-Bilad* (Beirut), 9 January 1999, p. 9, in "Iraq Said Developing Surface-to-Air Missile," FBIS Document FTS19990113000995, 9 January 1999.

Beginning of 1999

Moscow signs agreements with Iraq worth more than 100 million pounds. The contracts guarantee Iraq will receive military equipment from Russia in defiance of UN sanctions. The military equipment will include motor vehicles, ships, and airplanes. The Iraqis express interest in the goods produced at the GAZ Plant, the Sokol Aviation Building Plant, and the Krasnoye Sormovo Shipbuilding Plant. [NOTE: Russian Foreign Minister Igor Ivanov denies this report. Ahmed Murtada Ahmed Khalil, Iraq's Transport and Communications Minister who allegedly negotiated the deal along with Russian Prime Minister Yevgeny Primakov, served from 1987 to 1990 as director of the Technical Research Center at the secret Salman Pak facility on the outskirts of Baghdad.]

—Con Coughlin, "Revealed: Russia's Secret Deal to Re-Arm Saddam," *The Sunday Telegraph* (London, Internet), 14 February 1999, www.telegraph.co.uk; Vladimir Dunayev, "Souvenir Photos Saddam Husayn Uses Russian Photos To Keep an Eye on His Neighbors from Space," *Moscow Izvestiya*, 20 October 1999, p.1, in "Izvestiya Rebuts Space Photos for Iraq Story," FBIS Document FTS19991019001002, 20 October 1999; Con Coughlin and Peter Almond, "The War against Serbia: Milosevic and Saddam Plot Joint Revenge," *The Sunday Telegraph* (London, Internet), 28 March 1999, www.telegraph.co.uk; Con Coughlin, "International: Russian Weapons Experts Confirm Baghdad Connection," *The Sunday Telegraph* (London, Internet), 21 February 1999, www.telegraph.co.uk; "Russian Foreign Denies Report of Russian-Iraq Deal," Deutsche Press-Agentur, 14 February 1999.

1999

A large Russian corporation signs a five-year contract with Baghdad to improve Iraq's surface-to-air missile (SAM) systems. The 300 million pounds deal includes the corporation's providing seven advanced SAM-10 missile systems, the improvement of SAM weapons, and the administration of technical assistance and maintenance services. Iraq and Russia agree to set up a high-level Iraqi military and security committee in Baghdad to

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coordinate the arrangements. Intelligence sources approximate that 15 Russian air-defense specialists are in Iraq helping with the operation of the air-defense system.

—Michael Evans, "Iraq Intent on Buying Air Defence System," *The Times* (London), 4 August 1999.

Early 1999

Yugoslavian President Slobodan Milosevic dispatches officials including director Major-General Jovan Cetkovic of Jugoimport, Yugoslavia's defense procurement agency, to Iraq and Libya.

—"Serbia's Grain Trade: Milosevic's Hidden Cash Crop," *ICG Balkans Report*, No. 93, 5 June 2000.

1999

According to satellite photographs and US intelligence reports, Iraq rebuilds military and industrial sites that were damaged by US and UK air strikes in late 1998.

—Steven Lee Myers, "Signs of Iraqi Arms Buildup Bedevil U.S. Administration," *The New York Times*, 1 February 2000, p. A1, in Lexis-Nexis, <http://web.lexis-nexis.com>.

1999

Iraq builds a facility for the production of ammonium perchlorate at the Al-Ma'moun fuel manufacturing plant. This chemical is one of the three components necessary for solid fuel production. NEC Engineers Private Limited, a New Delhi-based Indian chemical engineering firm, acts as an overseas buyer for the project. The firm delivers products to Iraq by way of Dubai and Malaysia. [NOTE: NEC Engineers Private Limited is on the German Economics Ministry's list of enterprises known to have been involved in arms proliferation.]

—Johannes Leithaeuser, *Main Frankfurter Allgemeine* (Frankfurt), 24 February 2001, in "German Intelligence Service Reports Expansion of Iraqi Weapons Program," FBIS Document EUP20010224000093, 24 February 2001.

1999

Germany's Federal Intelligence Service, the Bundesnachrichtendienst (BND), believes that Iraq forges ahead with preparations for a large missile delivery system. BND estimates that Iraq could potentially construct a missile with a range of 3,000km by 2005.

—Johannes Leithaeuser, *Main Frankfurter Allgemeine* (Frankfurt), 24 February 2001, in "German Intelligence Service Reports Expansion of Iraqi Weapons Program," FBIS Document EUP20010224000093, 24 February 2001.

1999

According to Arab diplomatic sources in Damascus, Maher Assad, the brother of the Syrian president, makes a secret two-day visit to Baghdad to discuss military cooperation with Iraq. During his visit, he meets with Qusay Hussein, the younger son of Saddam Hussein. Maher Assad appoints a committee of military and intelligence officials headed by Vice President Abdul Halim Khaddam to oversee military ties with Iraq.

—Gary C. Gambill, "Syria's Foreign Relations: Iraq," *Middle East Intelligence Bulletin*, Vol. 3, No. 3 (March 2001), www.meib.org.

1999

A North Korean delegation visits Baghdad and meets with Iraq's chief engineer, Ra'ad Ismail Jamil. It is suspected that this meeting is a continuation of discussions about Scud missiles dating back to Iraqi Oil Minister Amir Rashid's

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1998 visit to Pyongyang.

—William Safire, "Essay; Saddam's Sudan?" *The New York Times*, 23 March 2000, p. A27, in Lexis-Nexis, <http://web.lexis-nexis.com>.

1999

A North Korean delegation visits Baghdad and meets with Iraqi Oil Minister Amir Rashid. They discuss plans to build a missile factory in Sudan. Rashid is a chief procurer of ballistic missiles for Iraq.

—"Iraq Rumored to Build Missile Factory in Sudan," *IPR Strategic Business Information Database*, 2 April 2000.

1999

A senior official from the Iraqi Military Industry Ministry visits Russia. His visit allegedly initiates military cooperation between Russia and Iraq. [NOTE: See April 2000, 16 April 2000, August 2000.]

—Michael Evans, "Saddam Seeks Russian Missile Deal," *The Times* (London), 14 August 2000.

1999

The US Department of Defense (DOD) believes that Iraq continues to work on two ballistic missile systems with ranges of less than 150km. These missiles are the liquid propellant Al-Samoud and the solid propellant Ababil-100. The DOD believes that the Al-Samoud missile has an inherent potential to exceed 150km. [NOTE: The Al-Samoud is essentially a "scaled-down" version of the Scud missile. Its development may allow Iraq to apply the technology to a longer range missile program.]

—U.S. Department of Defense, "Proliferation: Threat and Response," 10 January 2001.

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1998

Early 1998

Raafat Abbas, the director-general of Al-Azal Trading Corporation, arranges a \$160 million arms purchase from Russia for Iraq. Al-Azal is the largest privately owned conglomerate in Iraq.

—Jamie Dettmer, "Russia Becomes Saddam's Military Superstore," *Insight on the News*, 15 March 1999, p. 6.

1998

Iraqi Oil Minister Amir Rashid visits Pyongyang, North Korea, and meets North Korea's missile dealer, Chon Byong-Ho. They discuss building a Scud missile factory in Sudan. Rashid also visits the Chang Gwang Sinyong Corporation, a major international supplier of illicit weapons.

—"Iraq Rumored to Build Missile Factory in Sudan," *IPR Strategic Business Information Database*, 2 April 2000; William Safire, "Essay; Saddam's Sudan?" *The New York Times*, 23 March 2000, p. 27, in Lexis-Nexis, <http://web.lexis-nexis.com>.

January 1998-December 1999

The Trepca battery plant in Bujanovac, in the southern part of the Yugoslav Republic of Serbia, exports 10 percent

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of its battery production to Iraq, Russia, Ukraine, and Libya.

—"Bujanovac Plant Official Says KFOR Hindering Business," *Belgrade Tanjug* in English, 3 December 1999, in FBIS Document FTS19991203000465, 3 December 1999.

27 January 1998

At a meeting with representatives from American Jewish organizations in New York, United Nations Special Commission (UNSCOM) Executive Chairman Richard Butler reveals that UNSCOM still cannot account for approximately 45 chemical or biological warheads for Al-Hussein missiles. He says, "There remain some very serious residual questions about the extent to which [Iraq] indigenously produced long-range missiles."

—"Butler Warns of 'truly serious' Danger from Iraq as US & UK Prepare for Attack," Center for Defence and International Security Studies, February 1998, www.cdiss.org.

28 January 1998

Western sources are quoted as saying that Saddam Hussein has enough biological weapons to equip 25 surface-to-surface missiles (SSMs). The sources also claim that Iraq continues to conceal 75 non-conventional warheads.

—Dafana Linzer, "Report: Iraq Can Arm 25 Bio Weapons," Associated Press (Online), 28 January 1998; Harel Amos, "Iraq Can Arm 25 Missiles with Biological Warheads," *Haaretz* (Online), 28 January 1998.

1 February 1998

The Technical Evaluation Meeting (TEM), which convenes to account for Iraq's special missile warheads, takes place in Baghdad at the request of Iraqi officials. Iraqi officials and an expert team sent by UNSCOM offer presentations about their views of Iraq's missile warhead capabilities related to biological and chemical weapons.

—"Letter Dated 19 February 1998 From The Executive Chairman of The Special Commission Established by the Secretary-General Pursuant to Paragraph 9 (b) (i) Of Security Council Resolution 687 (1991)," S/1998/176, 27 February 1998.

2 February 1998

The TEM examines issues related to missile warhead material balance and accounting.

—"Letter Dated 19 February 1998 From The Executive Chairman of The Special Commission Established by the Secretary-General Pursuant to Paragraph 9 (b) (i) Of Security Council Resolution 687 (1991)," S/1998/176, 27 February 1998.

3 February 1998

The TEM examines issues related to missile warhead designs and testing.

—"Letter Dated 19 February 1998 From The Executive Chairman of The Special Commission Established by the Secretary-General Pursuant to Paragraph 9 (b) (i) Of Security Council Resolution 687 (1991)," S/1998/176, 27 February 1998.

4 February 1998

The TEM examines issues related to special missile warheads, and missile warhead material balance and accounting.

—"Letter Dated 19 February 1998 From The Executive Chairman of The Special Commission Established by the

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Secretary-General Pursuant to Paragraph 9 (b) (i) Of Security Council Resolution 687 (1991)," S/1998/176, 27 February 1998.

5 February 1998

The TEM examines issues related to missile warhead material balance and accounting.

—"Letter Dated 19 February 1998 From The Executive Chairman of The Special Commission Established by the Secretary-General Pursuant to Paragraph 9 (b) (i) Of Security Council Resolution 687 (1991)," S/1998/176, 27 February 1998.

6 February 1998

The TEM examines issues related to missile warhead material balance and accounting, and warhead production. It concludes the session.

—"Letter Dated 19 February 1998 From The Executive Chairman of The Special Commission Established by the Secretary-General Pursuant to Paragraph 9 (b) (i) Of Security Council Resolution 687 (1991)," S/1998/176, 27 February 1998.

February 1998

Iraq admits that P3 at Nabai was a special warhead disposal site. [NOTE: See 1997, August 1997, March 1998.]

—"Summary of UNSCOM Presentation to UNSC on Iraq WMD," *Washington File*, 25 June 1998, <http://usinfo.state.gov>; "Iraq Special Collection; Missile-Related Issues," Center for Nonproliferation Studies, <http://cns.miis.edu>.

February 1998

The Russian Federal Security Service formally ends its investigation of the alleged shipment of Russian missile-guidance gyroscopes and accelerometers to Iraq.

—Vladimir Orlov and William C. Potter, "The Mystery of the Sunken Gyros," *Bulletin of the Atomic Scientists*, Vol. 54 (November/December 1998), www.bullatomsci.org.

February 1998

According to the *Mlada fronta Dnes*, the United States accuses Iraq of attempting to illegally purchase the Czech Tamara radar system for \$375 million with the help of Czech arms dealers. The radar is reportedly capable of monitoring US Stealth combat aircraft. [NOTE: See October 1997.]

—"Iraq Trying to Get Tamara Radar despite Embargo," Czech News Agency (CTK) National News Wire, 24 August 1998, in Lexis-Nexis, <http://web.lexis-nexis.com>; "Arms Transfers Continue from NATO Member to Hostile States," STRATFOR's Global Intelligence Update, 14 May 1999, www.nyu.edu.

13 February 1998

Iraqi Foreign Minister Mohammed Saeed al-Sahaf confirms Iraq's first test-launch of a new medium-range missile with a reported range of 150km.

—Anthony Goodman, "UN Council Told New Iraqi Missile in November," Reuters, 13 February 1998.

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23 February 1998

Iraqi Deputy Prime Minister Tariq Aziz and the UN Secretary General Kofi Annan sign the Memorandum of Understanding (MOU). The MOU reaffirms UNSCOM's right to inspect any site at any time. The parties also agree to apply special procedures to UNSCOM's mandated inspections at the eight presidential sites in Iraq.

—"Letter Dated 25 February 1998 From the Secretary-General Addressed to the President of the Security Council," S/1998/166, 27 February 1998.

2 March 1998

The UN Security Council adopts Resolution 1154, which endorses the provisions of the MOU that Tariq Aziz and Kofi Annan signed on 23 February 1998.

—United Nations, "Resolution 1154," S/RES/1154, 2 March 1998, www.un.org.

March 1998

Iraq declares that it destroyed 10 chemical weapons warheads and 15 special warheads at the P3 warhead destruction site. [NOTE: See 1997, August 1997, February 1998.]

—"Iraq Special Collection; Missile-Related Issues," Center for Nonproliferation Studies, <http://cns.miis.edu>.

22-26 March 1998

UNSCOM and Iraqi officials, including General Amir Rashid, hold a Technical Evaluation Meeting (TEM) concerning special missile warheads. The Commission's experts address the discrepancies that appear to exist regarding the timing and methodology of the unilateral destruction of special warheads by the Iraqis. In response, Iraqi General Rashid states that Iraq undertook the unilateral destruction in the summer of 1991 at Nabai. Richard Butler also reiterates that certain other major issues related to general missile production remain unresolved, such as the indigenous production of missile engines and the need for a full accounting of missile propellants.

—United Nations, "Letter Dated 27 March 1998 from the Executive Chairman of the Special Commission Established by the Secretary-General Pursuant to Paragraph 9 (b) (i) of Security Council Resolution 687 (1991) Addressed to the President of the Security Council," S/1998/278, 27 March 1998.

April 1998

Saddam Hussein orders the creation of a department of astronomy that will train qualified personnel to work in that field.

—"Saddam Confers with Baghdad University Professors on Astronomy," Baghdad Republic of Iraq Television in Arabic, 7 November 2001, in FBIS Document 20011107000271, 7 November 2001.

May 1998

A team of Iraqi engineers headed by Dr. Hamid Halil Ibrahim al-Azawi visits Bucharest, Romania, in an attempt to obtain sophisticated missile guidance equipment through intermediaries from the Romanian firm, Aerofina.

—"Iraqis Attempted to Buy Missile Guidance Equipment from Romania, CNN Learns," Cable News Network (Online), 30 November 1998, www.cnn.com.

Mid-1998

Iraq begins to assemble and install a large vacuum furnace at one of its declared facilities for missile engine

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production. [NOTE: Iraq imported this furnace in 1994 specifically for producing engines for Al-Hussein missiles. UNSCOM placed the facility under its monitoring protocol. See January 1994.]

—United Nations, "Report on Status of Disarmament and Monitoring," S/1999/94, 29 January 1999, www.un.org.

24 June 1998

Richard Butler tells the UN Security Council that US Army tests leave "no doubt" that Iraq placed VX nerve gas in missile warheads. UNSCOM sends missile material to France and Switzerland for further tests.

—Judy Aita, "UNSCOM Chief Says Iraq Put Chemical Weapons in Warheads," *USIS Washington File*, 24 June 1998, www.fas.org; United States Information Agency: U.S. Policy on Iraq, <http://usinfo.state.gov>.

July 1998

UNSCOM sends an international team of experts to Baghdad. The team determines that by the end of 1990, Iraq had the capability to assemble a limited number of liquid propellant engines for Al-Hussein class missiles but was still experiencing production related problems.

—United Nations, "Report on Status of Disarmament and Monitoring," S/1999/94, 29 January 1999, www.un.org.

July 1998

UNSCOM asks Iraq for clarification of issues related to its missile warhead program in order to enable the Commission to verify this area of interest. [See July 1997-June 1998, 1-6 February 1998, November 1998.]

—United Nations, "Report on Status of Disarmament and Monitoring," S/1999/94, 29 January 1999, www.un.org.

15 July 1998

The US Commission to Assess the Ballistic Missile Threat to the United States submits a report to Congress. In the report, the Commission states that Iraq has maintained the skills and industrial capabilities required to reestablish its long-range ballistic missile program. It also states that Iraq has actively continued to work on the short-range liquid and solid fueled missile programs. The Commission estimates that once the United Nations lifts sanctions, Iraq could intensify its efforts to acquire necessary plants and equipment. The Commission further estimates that such an effort would allow Iraq to pose an inter-continental ballistic missile (ICBM) threat to the United States within 10 years. Iraq could develop a shorter range, covert, ship-launched missile that could threaten the United States in a very short time.

—"Executive Summary of the Report of the Commission to Assess the Ballistic Missile Threat to the United States," The Commission to Assess the Ballistic Missile Threat to the United States, 15 July 1998, www.fas.org.

August 1998

Yugoslavian officials travel to Iraq and Libya hoping to secure oil imports. [NOTE: Yugoslavia's Jugoimport firm will later establish a trade relationship with Iraq. Jugoimport mainly exports grain to Iraq, but it is also well known for producing strategic military equipment. See Early 1999.]

—"Serbia's Grain Trade: Milosevic's Hidden Cash Crop," *ICG Balkans Report*, 5 June 2000, No. 93.

3 August 1998

UNSCOM requests clarification from Iraqi officials regarding contradictions in the Iraqi declaration on the unilateral destruction of its special warheads and pertaining to the physical evidence UNSCOM collected at the destruction

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site.

—United Nations, "Note by the Secretary-General," S/1998/920, 6 October 1998.

Fall 1998

Director General Raafat Abbas of Iraq's largest privately owned conglomerate, Al Azal Trading Corporation, reportedly arranges deals involving Iraq and the Russian companies Techmashimport, Vneshtekhnika, and Mashinoimportinvest. The deals are for the purchase of components necessary in the manufacturing of surface-to-surface missiles, as well as navigational equipment for fighters and anti-aircraft missiles. Another Russian firm, Ramenskoe, is also involved in these transfers. Ramenskoe specializes in navigation and airflow systems for aircraft and missiles.

—Jamie Dettmer, "Russia Becomes Saddam's Military Superstore," *Insight on the News*, 15 March 1999, p. 6; Hugo Gurdon, "Russia Accused of Re-arming Saddam," *Daily Telegraph* (London), 23 February 1999, p. 16; "Iraqi Entity: Al Azal Trading Co.," in Iraqi Entity Database, Wisconsin Project for Nuclear Arms Control, www.iraqwatch.org.

21 September 1998

Swiss and French analysts find no evidence of VX nerve gas on missile warheads recovered by UNSCOM.

—Craig Turner, "European Tests Find No Nerve Gas on Iraqi Missiles," *Los Angeles Times*, 22 September 1998, p. A4; in Lexis-Nexis, <http://web.lexis-nexis.com>.

6 October 1998

A UN diplomat says that French laboratory tests found traces of lethal VX nerve gas on Iraqi warheads.

—"French Tests Find Nerve Gas on Iraqi Warheads: Diplomat," Agence France Presse, 7 October 1998, in Lexis-Nexis, <http://web.lexis-nexis.com>.

21 October 1998

Viktor Sigayev, the deputy director-general of Russia's Energomash, tells the BBC that his company never held talks or concluded any contracts with Iraqi officials concerning the sale of rocket engines, equipment, or services in violation of UN sanctions. Sigayev "categorically" denies having met Iraqi experts or having sold them liquid-propellant rocket engines with thrusts of approximately four tons.

—"Russian Company Denies Selling Rocket Engines to Iraq," BBC Worldwide Monitoring, 22 October 1998, in Lexis-Nexis, <http://web.lexis-nexis.com>.

22 October 1998

Russian Foreign Ministry spokesman Vladimir Rakhmanin denies the report by *The Washington Times* on 18 October that Russia delivered missile components to Iraq, including 800 gyroscopes that were allegedly sent from Moscow to Iraq in 1995.

—"Moscow Did Not Deliver Missile Homing Systems to Iraq," Interfax, 22 October 1998, in "Foreign Ministry Spokesman Denies Russia Has Breached UN Sanctions Against Iraq," BBC Worldwide Monitoring, 22 October 1998, in Lexis-Nexis, <http://web.lexis-nexis.com>.

22-23 October 1998

Military and science experts convene in New York to examine whether Iraq has been able to equip missiles with

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the VX nerve agent.

—Youssef M. Ibrahim, "Issues at U.N. Again: Iraq, Nerve Gas and Weapons Inspections," *The New York Times*, 23 October 1998, in Lexis-Nexis, <http://web.lexis-nexis.com>.

26 October 1998

United Nations weapons experts confirm that a French laboratory found a trace of a nerve agent on an Iraqi missile warhead.

—Nicole Winfield, "Nerve Agent Found on Iraqi Warhead," Associated Press (Online), 26 October 1998, in Lexis-Nexis, <http://web.lexis-nexis.com>.

27 October 1998

Iraqi Ambassador to Ukraine Hasan Fahmi Jum'ah meets with representatives of a number of enterprises and scientific research institutes located in the Ukrainian district of Kharkov regarding trade cooperation between the two countries. According to Yuriy Orshanskiy, the head of the Kharkov-based company Vostok, international pressure leads many Ukrainian state officials to fear contracting with Iraq. [NOTE: See Late November 1998.]

—"Ukraine: Iraqi Envoy Meets Kharkov Representatives," Kiev Intelnews in English, 27 October 1998, in FBIS Document LD2810222298, 27 October 1998.

28 October 1998

Iraq refuses a request by UNSCOM inspectors and chemical weapons experts to explain the presence of VX nerve agent on missile warheads.

—Nicole Winfield, "Iraq: Inspectors Seized on One Test," Associated Press (Online), 28 October 1998, in Lexis-Nexis, <http://web.lexis-nexis.com>.

November 1998

UNSCOM asks Iraq for clarification in their missile warhead reporting in order to enable the Commission to verify this area of interest. [See July 1997-June 1998, 1-6 February 1998, July 1998.]

—United Nations, "Report on Status of Disarmament and Monitoring," S/1999/94, 29 January 1999, www.un.org.

November 1998

The Iraqi Military Industrial Commission (MIC) submits a comprehensive purchase list comprised of Iraq's military requirements to its permanent representative from the Russian state-run arms exporting company Rosvooruzheniye. The list includes avionics systems, engines and other parts; MIG combat aircraft; and advanced air-defense batteries.

—Con Coughlin, "The Re-Arming of Saddam: Russia and Iraq," *Sunday Telegraph* (London), 14 February 1999, p. 22.

7-12 November 1998

UNSCOM inspectors leave Iraq as a result of Saddam's decision to halt all cooperation with the inspectors.

—"First Batch of U.N. Inspectors Prepare to Leave," Associated Press Worldstream, 7 November 1998, in Lexis-Nexis, <http://web.lexis-nexis.com>.

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14 November 1998

Tariq Aziz sends a letter to the United Nations conveying Iraq's decision to resume cooperation with UNSCOM.
—"Letter Dated 20 November 1998 From The Executive Chairman of The Special Commission Established by the Secretary-General Pursuant to Paragraph 9 (b) (i) of Security Council Resolution 687 (1991) Addressed to the President of the Security Council," S/1998/1106, 20 November 1998.

17 November 1998

UNSCOM inspectors return to Baghdad to continue their mission.
—"Iraq Slams UNSCOM as Inspectors Return to Baghdad," Agence France Presse, 17 November 1998, in Lexis-Nexis, <http://web.lexis-nexis.com>.

17 November 1998

Richard Butler sends a letter to Tariq Aziz in response to the 14 November letter sent to the UN from Iraq.
—"Letter Dated 20 November 1998 From The Executive Chairman of The Special Commission Established by the Secretary-General Pursuant to Paragraph 9 (b) (i) of Security Council Resolution 687 (1991) Addressed to the President of the Security Council," S/1998/1106, 20 November 1998.

19 November 1998

Richard Butler sends a letter to the Iraqi government requesting key documents related to the missile fuel propellant project that Iraq claims to have destroyed unilaterally in 1991. Butler also requests that Iraq hand over indigenously produced missile engine components for analysis. Iraq rejects these requests.
—"Iraq Balks at UN Request for Key Documents," Agence France Presse, 20 November 1998, in Lexis-Nexis, <http://web.lexis-nexis.com>; "Letter Dated 15 December 1998 from the Secretary-General Addressed to the President of the Security Council," S/1998/1172, 15 December 1998; Edith M. Lederer, "Iraq Reacts Positively to Some U.N. Demands, Rejects Others," Agence France Presse, 20 November 1998, in Lexis-Nexis, <http://web.lexis-nexis.com>.

20 November 1998

Iraq's Deputy Foreign Minister Riyadh al-Qaisi tells Richard Butler that Iraq destroyed many of the documents that the UNSCOM inspectors seek regarding the production of nuclear weapons, chemical and biological weapons, and missiles.
—"Crucial events in the confrontation between Iraq, U.S.," Associated Press, 17 December 1998, in Lexis-Nexis, www.lexis-nexis.com.

Late November 1998

An Iraqi senior diplomat and representatives of an Iraqi arms company visit Kiev, Ukraine. They sign a secret agreement for military cooperation with the chief executives of two Ukrainian arms manufacturing firms.
—"An Iraq-Ukraine Deal?" *Foreign Report*, 22 April 1999, www.foreignreport.com.

26 November 1998

Riyadh al-Qaisi informs Richard Butler that Iraq will submit a 42-page report to UNSCOM concerning the analyses of swab samples of special warhead remnants taken in July 1998.

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—United Nations Special Commission, "Report on the Activities of the Special Commission during the Period 17 November to 2 December 1998," 3 December 1998.

27 November 1998

In a letter to Tariq Aziz, Richard Butler reiterates the Commission's request that Iraq provide two specific batches of documentation that were referred to in the annex to Butler's letter of 17 November. One of the batches, comprised of 12 particular sets of documents, relates to the creation and armament of Missile Unit 223. Also included is a request for access to the relevant archives of Iraq's Ministry of Defense and Military Industrialization Corporation, as well as other government departments. [NOTE: In April 1990, Iraq established Unit 223, a new military unit of brigade size to be equipped with operational missile assets.]

—United Nations Special Commission, "Report on the Activities of the Special Commission during the Period 17 November to 2 December 1998," 3 December 1998; United Nations, "Final Compendium," S/1999/94, 25 January 1999.

30 November 1998

Iraq delivers to UNSCOM a nearly 64-page document related to Missile Unit 223. This document details personnel and non-combat equipment, such as radios and cars, which are assigned to the units. It does not, however, contain the information regarding combat supplies that UNSCOM wants.

—United Nations Special Commission, "Report on the Activities of the Special Commission during the Period 17 November to 2 December 1998," 3 December 1998; United Nations, "Final Compendium," S/1999/94, 25 January 1999.

December 1998

The Romanian National Defense Ministry admits that a representative for the state company Aerofina signed a contract in 1995 to provide Iraq with short-range missile components. Those components were to be delivered to Iraq through a Jordanian company serving as an intermediary.

—"Arms Production, Exports and Decision-Making in Central and Eastern Europe; Bulgaria," Safer World, July 2002, www.saferworld.co.uk.

December 1998

Iraq relocates SSM batteries to the coastal area of the Al Faw Peninsula. The missiles have a range of nearly 96km.

—William J. Clinton, "Text of a Letter from the President to Congress on Iraq," M2 Presswire, 4 March 1999.

December 1998

Richard Butler says that Iraq claims attempts are underway to illegally "extend their missile program."

—Joie Chen and David Ensor, "A Look at What U.S. Intelligence Thinks Iraq Is Doing Behind the Scenes," CNN The World Today, 2 December 1999.

December 1998

According to *Haaretz*, Saddam Hussein pre-authorizes his district commanders to launch Scud missiles armed with chemical warheads in the event that communication with Baghdad is lost.

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—Amos Har'el, "Saddam Said Assumes Power to Operate Chemical Weapons," *Haaretz* in Hebrew, 11 August 2000; in FBIS Document GMP20000811000129, 11 August 2000.

December 1998

Iraq and Russia move quickly to complete an arms deal that has been under negotiation since early December. Russian Prime Minister Yevgeny Primakov unofficially approves a 100 million pounds arms deal with Iraq.

—Con Coughlin, "The Re-Arming of Saddam: Russia and Iraq," *Sunday Telegraph* (London), 14 February 1999, p. 22.

3 December 1998

UNSCOM-259/BM70 arrives in Baghdad to perform preliminary technical work for enhanced monitoring of missile tests.

—"UNSCOM Report on Its Activities, Nov 17 to Dec 2," Center for Nonproliferation Studies, <http://cns.miis.edu>.

3-7 December 1998 (two weeks before US-UK air raids)

Tariq Aziz and senior members of the Iraqi Military Industrial Commission (MIC) visit the Russian headquarters of the Mapo-MIG Company, makers of Russia's MIG jet fighters, and Avtoexport, a major exporter of military vehicles and spare parts. Aziz and Russian Prime Minister Yevgeny Primakov sign a military procurement agreement.

—Con Coughlin, "The Re-Arming of Saddam: Russia and Iraq," *Sunday Telegraph* (London), 14 February 1999, p. 22; Jeffrey Smith, "Did Russia Sell Iraq Germs Warfare Equipment? Document Seized by UN Inspectors Indicates Illicit Deal," *The Washington Post*, 12 February 1998, p. A1.

7 December 1998

Iraqi Foreign Minister Mohammed Saeed al-Sahaf announces that Iraq is preparing to test-fire the Al-Samoud and Al-Ababil short-range missiles.

—"Iraqi Foreign Minister on Test-Firing Missiles," Agence France Presse (Paris), December 7, 1998, in FBIS Document NES-98-342, 8 December 1998.

9 December 1998

Iraq refuses UNSCOM's no-notice inspection in Baghdad, barring inspectors from Ba'ath Party headquarters.

—"Crucial Events in the Confrontation between Iraq, U.S." Associated Press, 17 December 1998, in Lexis-Nexis, <http://web.lexis-nexis.com>; "Attack on Iraq," *The New York Times*, 17 December 1998.

12-15 December 1998

UN weapons inspectors resume full-scale operations, as teams from the IAEA and UNSCOM visit 24 sites.

—United States Information Agency: U.S. Policy on Iraq, <http://usinfo.state.gov>.

December 1998

UN inspectors estimate that Iraq still possesses up to nine ballistic missiles as well as imported guidance components.

—Kelly Motz, "What Has Iraq Been Up To Recently in Its Weapon Programs; Is Iraq Rebuilding Its WMD Sites?" Iraq Watch, www.iraqwatch.org.

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16 December 1998

UNSCOM withdraws its staff from Iraq.

—UNSCOM Chronology of Main Events, www.un.org.

16 December 1998

In response to Richard Butler's report that Iraq again thwarted the inspectors' work, US President Bill Clinton authorizes an air strike against Iraq. The attack is named Desert Fox.

—"Attack on Iraq," *The New York Times*, 17 December 1998, p. A16, in Lexis-Nexis, <http://web.lexis-nexis.com>.

16-19 December 1998

According to the Iraqi Broadcasting Corporation (IBC), British and US military air strikes destroy: 22 SSMS, 13 surface-to-air missiles (SAMs) and six missile launchers at Al-Taji; an anti-aircraft battery containing 18 anti-aircraft guns and missiles belonging to Al-Nida forces; three launchers for SAMs and Roland missiles belonging to Nebuchadhnasser forces; 19 anti-aircraft batteries belonging to Al-Medina Al-Munawera forces; six SAM launchers belonging to Adnan forces; two anti-aircraft batteries comprised of 42 anti-aircraft guns and SAMs; and, several mobile radar units together with the Al-Rashid armory that belonged to the Baghdad Forces Command.

—"INC Details Saddam's 'Desert Fox' Losses," Iraqi National Congress, 7 January 1999, www.inc.org.

16-19 December 1998

US and British planes strike approximately 100 targets in Iraq. Twelve out of the 100 sites are industrial and military factories involved in Iraq's missile program. These 12 sites include one in the Taji military complex, a machine tool plant at Zaafaranyah, a target at Shahiyat where missile and rockets are tested, and one at the nearby Ibn al-Haytham missile center where Iraq produces the Al-Samoud missile. According to US General Anthony Zinni, the US-British air strikes have severely damaged facilities and equipment that Iraq would otherwise have to obtain from abroad.

—Steven Lee Myers, "Flight Tests Show Iraq Has Resumed a Missile Program," *The New York Times*, 1 July 2000, p.1, in Lexis-Nexis, <http://web.lexis-nexis.com>; "Iraq Rebuilds Its Arsenal," New East Report, 24 July 2000, www.us-israel.org; "The Facility at Zaafarniyah was under the Control of the Iraqi Ministry of Industry and Military Production," Federation of American Scientists, www.fas.org; "Special Defense Department Briefing with General Anthony Zinni, Commander, U.S. Central Command," Federal News Service, 8 January 1999.

17 December 1998

British Tornado jets attack Iraq's Talil air base southeast of Baghdad. Photos of the ruined base reveal rows of drones, which Iraq has hidden inside a hangar at the remote base. [NOTE: The drones are identified as Czech-made L-29s, a light trainer jet model that Iraq purchased in the late 1960s then converted to unmanned aerial vehicles (UAVs). Tests of drones have been underway.]

—Jody Warrick, "Uncertain Ability to Deliver a Blow; Iraq Cobbles Together Weapons System with Mixed Results, Analysts Say," *The Washington Post*, 5 September 2002, p. A1, www.washingtonpost.com.

December 1998-27 January 2000

According to the Pentagon and other officials, Iraq rebuilds many of the 100 damaged installations, including the

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Al-Taji missile complex north of Baghdad.

—Steven Lee Myers, "Signs of Iraqi Arms Buildup Bedevil U.S. Administration," *The New York Times*, 1 February 2000, p. A1, in Lexis-Nexis, <http://web.lexis-nexis.com>.

Post-16 December 1998

Baghdad initiates reconstruction efforts for facilities destroyed by Coalition bombing, including several critical missile production complexes. Iraq continues work on its L-29 UAV program, which involves the modification of L-29 jet trainer aircraft originally acquired from Eastern Europe.

—Central Intelligence Information Agency, "Acquisition of Technology Relating to Weapons of Mass Destruction and Advanced Conventional Munitions," Unclassified Report to Congress, 1 January 2001, www.cia.gov.

Post-6 December 1998

Iraq continues to pursue development of the short-range ballistic missile (SRBM) systems that the United Nations does not prohibit and may be expanding to longer range systems. Development of UN-permitted missiles allows for the creation of technological improvements and infrastructure that Iraq could apply to a longer range missile program.

—"Acquisition of Technology Relating to Weapons of Mass Destruction and Advanced Conventional Munitions," Unclassified Report to Congress, 1 January 2001, www.cia.gov.

Post-16 December 1998

According to Richard Butler, Iraq is developing missiles with a range of 600km.

—Ewen MacAskill, "Iraqi Nerve Gas 'Could Paralyse Western Cities,'" *The Guardian* (London), 24 May 2000, p.17; in Lexis-Nexis, <http://web.lexis-nexis.com>.

December 1998-August 1999

Iraq conducts "significant" reconstruction work at a number of missile sites that the United States and Great Britain destroyed in December 1998. These sites include the Al-Taji missile complex.

—Steven Lee Myers, "In Intense but Little-Noticed Fight, Allies Have Bombed Iraq All Year," *The New York Times*, 13 August 1999, p. A1, in Lexis-Nexis, <http://web.lexis-nexis.com>; Steven Lee Myers, "Signs of Iraqi Arms Buildup Bedevil U.S. Administration," *The New York Times*, 1 February 2000, p. A1, in Lexis-Nexis, <http://web.lexis-nexis.com>.

1998-1999

Iraq says that it intends to carry out a number of tests of recently produced intermediate-range missiles.

—"3rd Army Corps Mutiny Reported in South Iraq," *Al-Hayah* (London), p. 3, in FBIS Document FTS19990101000423, 1 January 1999.

30 December 1998-1 January 1999

The Iraqi Civil Defense teams in the Wasit Governorate in southern Iraq defuse six missiles of various types that had been launched against Iraq by the United States and Britain.

—"Source Says Six Missiles from US-UK 'Aggression' Defused," Baghdad Iraq Satellite Channel Television in Arabic; in FBIS Document FTS19990102000420, 2 January 1999.

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1997

1997

Iraq declares that it has removed 10 chemical warheads from hiding near Fallujah and brought them to Nabai. However, the United Nations Special Commission on Iraq (UNSCOM) possesses aerial photographic imagery which indicates there was no activity at the professed site near Fallujah at the time Iraq claims the warheads were moved.

—"Summary of UNSCOM Presentation to UNSC on Iraq WMD," *Washington File*, 25 June 1998,
<http://usinfo.state.gov>.

1997

Iraq claims that it removed biological weapons warheads stored at a site along the Tigris Canal on 7 July 1991 and transported them to another location for decontamination. UNSCOM again uses aerial photographic imagery to dispute this claim.

—"Summary of UNSCOM Presentation to UNSC on Iraq WMD," *Washington File*, 25 June 1998,
<http://usinfo.state.gov>.

January 1997

Iraq's Military Industrial Commission orders that work stop on the Ababil-600 solid propellant motor.

—UN reports and interviews with UN personnel.

January 1997

UNSCOM inspectors discover a copy of a software package from an Iraqi computer that simulates the launch and probable trajectory of long-range ballistic missiles. This is considered evidence that Iraq continues to conduct research and development of these missiles. [NOTE: The software was apparently obtained illegally after the 1990-1991 Gulf War. According to UN officials, the software could help Iraq develop missiles with ranges of up to 1,600km.]

—Barbara Crossette, "UN Says Iraq May Be Hiding More Missiles Than Suspected," *The New York Times*, 19 December 1996; R. Jeffrey Smith, "UN Finds New Evidence of Iraqi Long-Range Missile Research," *The Washington Post*, 5 February 1997, p. A20.

5 January 1997

Amer Hammoudi al-Saadi, an adviser to Iraq's presidential office, says efforts are underway in Baghdad to produce evidence that will counter UNSCOM's assertions about Iraq's possession of banned missiles.

—Leon Barkho, Reuters, 7 January 1997 in "Iraq Digs for Missile Parts under Eyes of UN," Executive News Service, 8 January 1997; Leon Barkho, "UN Experts to Oversee Iraqis Dig for Missiles," Reuters, 5 January 1997, in Executive News Service, 8 January 1997.

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6 January 1997

UNSCOM-177/BM47 (Ballistic Missile Team 47) arrives in Iraq to supervise the excavation of a ballistic missile site near Baghdad. Their objective is to verify that Iraq did in fact destroy all of its operational Soviet-made long-range missiles by the end of 1992.

—United Nations, "Third Report under Resolution 1051," S/1997/301, 11 April 1997; Charles Aldinger, Reuters, 4 February 1997, in "US Dampens Speculation on Iraq Attack," Executive News Service, 5 February 1997.

7 January 1997

UN experts believe Iraq may possess more than 100 Scud missile engines.

—Leon Barkho, Reuters, 7 January 1997; in "Iraq Digs for Missile Parts under Eyes of UN," Executive News Service, 8 January 1997.

13 January 1997

The Iraqi Foreign Ministry issues a statement claiming that an inspection team comprised of UNSCOM inspectors and Iraqi authorities has discovered four dismantled missile engines at the same excavation site near Baghdad where UNSCOM uncovered some destroyed missiles in 1992. In the statement, a Ministry spokesman states that the discovery confirms Iraq's claim that it destroyed all prohibited missiles. [NOTE: See 28 January 1997]

—Ed Blanche, "Iraq Says Missile Dig Will Prove It Has No 'Scuds,'" *Jane's Defence Weekly*, 22 January 1997, p. 5; "UN Teams Discover Four Engines of Destroyed Missiles in Iraq," Xinhua News Agency, 13 January 1997, in Lexis-Nexis, <http://web.lexis-nexis.com>; "Four Missile Engines Discovered," *Baghdad INA* in Arabic, 13 January 1997, in FBIS Document FTS19970113000343, 13 January 1997; "Iraq Says Missing Missile Engines Found," United Press International, 13 January 1997, in Lexis-Nexis, <http://web.lexis-nexis.com>.

13-18 January 1997

The United Kingdom's Department of Trade and Industry (DTI) says it has received reports from British companies regarding suspected Iraqi arms orders. It is believed that Iraq is covertly attempting to purchase British machines for possible use in the production of Scud missiles.

—David Leppard, Tim Kelsey, Jason Burke, "Saddam in Secret UK Arms Offensive," *The Sunday Times* (London), 19 January 1997; in Lexis-Nexis, <http://web.lexis-nexis.com>.

24 January 1997

UNSCOM Executive Chairman Rolf Ekeus says UNSCOM is confident that Iraq is not currently producing long-range missiles, nor is it capable of doing so.

—David Leppard, Tim Kelsey, Jason Burke, "Saddam in Secret UK Arms Offensive," *The Sunday Times* (London), 19 January 1997; in Lexis-Nexis, <http://web.lexis-nexis.com>.

25 January 1997

UNSCOM-177/BM47 leaves Iraq. UNSCOM and Baghdad disagree over where and how to analyze the more than 100 missile parts extracted from sites near Baghdad. [Note: UNSCOM insists that the items be analyzed in the United States, while Iraq wants them shipped to Russia or France for analysis. UNSCOM seeks to determine if the missile parts were substitutions or the original Scud missile engines.]

Related content is available on the website for the Nuclear Threat Initiative, www.nti.org.



— Leon Barkho, Reuters (Baghdad), 28 January 1997; in "UN Still Not Satisfied with Iraqi Disarmament," Executive News Service, 29 January 1997.

28 January 1997

Roger Knight, assistant director of the UN's Ongoing Monitoring and Verification Center (OMV) in Baghdad, says UNSCOM is skeptical of Iraq's claim that all of its banned missiles have been destroyed.

—Leon Barkho, Reuters (Baghdad), 28 January 1997; in "UN Still Not Satisfied with Iraqi Disarmament," Executive News Service, 29 January 1997.

28 January 1997

CIA director George Tenet testifies before the US Senate Intelligence Committee regarding the proliferation of weapons of mass destruction (WMD). Tenet asserts that Iraq continues to hide equipment and materials critical for its WMD program from UN inspectors.

—"Hearing of the Senate Intelligence Committee: World Threat Assessment," Federal News Service, 28 January 1998.

29 January 1997

Rolf Ekeus estimates that Iraq possesses 18 to 25 Scud, or Scud variant, missiles.

—Howard Diamond, "UNSCOM Head Says Iraq Has Operational' Missile Force," *Arms Control Today* (January/February 1997), www.armscontrol.org.

23 February 1997

Iraq agrees to allow the removal of the remnants of prohibited missile engines from the country for technical analysis by UN inspectors.

—"Iraq, UN Reach Accord," *The Washington Post* (Online), 24 February 1997, p. A20, www.washingtonpost.com.

Spring 1997

Iraq reaches an agreement to purchase 120 accelerometers, the principal components of advanced guidance and control systems, from a Russian company. A Jordanian company named al-Khayrat reportedly serves as an intermediary in the deal.

—Michael Evans, "Russian Deal to Sell Saddam Key Missile Parts," *The Times* (London), August 4, 1998.

March 1997

Iraq reportedly transfers production plans for the Al-Taw'han (Fire Ray) medium-range air-to-air missile to Yugoslavia's state-owned Vazduhoplovna Industrija firm, based on the terms of a military technology cooperation agreement signed in 1996 by Saddam Hussein and Yugoslav President Slobodan Milosevic. [NOTE: Twenty-one missile experts from a Brazilian firm directed by Hugo de Oliveira Piva traveled to Iraq in the late 1980s to develop the Fire Ray missile for use with Iraqi fighter aircraft. Military Industry Minister Kamal al-Majid, cousin and son-in-law of Iraqi President Saddam Hussein, headed the project to develop the 40-km-range Fire Ray.]

—Roberto Godoy, "Saddam Passes Brazilian Missile Technology to Milosevic," *Sao Paulo O Estado de Sao Paulo* (Internet Version) in Portuguese, 30 April 1999, in FBIS Document FTS19990430001254, 30 April 1999.

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8-9 March 1997

UNSCOM sends parts from approximately 130 destroyed Iraqi missiles in Iraq to the US Department of Defense laboratory in Huntsville, Alabama, for analysis. The lab is responsible for determining if the parts came from Soviet-made systems and if critical components that Iraq is unable to produce indigenously were removed before the missiles were destroyed.

—"Iraq Missile Parts Arrive in US for Tests," *Arms Control Today*, March 1997, p. 29.

May 1997

UNSCOM establishes the requirement that Iraqi officials provide monthly declarations of missile component production in an attempt to track Iraq's production of non-proscribed missiles more effectively.

—United Nations, "Fourth Report under Resolution 1051," S/1997/774, 6 October 1997.

2 May 1997

Richard Butler of Australia is appointed the Executive Chairman of UNSCOM.

—"Statement by the Minister for Foreign Affairs, the Hon Alexander Downer MP Appointment of Richard Butler as Chair of UNSCOM," www.dfat.gov.au.

3 May 1997

The German government launches 16 criminal proceedings against individuals involved in arms transfers to Iraq. Thirteen German companies are suspected of having assisted Iraq in the construction of nuclear facilities and the development of its Scud missile program. Illegal exports from Germany to Iraq include missile parts, aluminum pipes for producing gas ultracentrifuges, and design plans for nuclear technology.

—Richard Voelkel, "Did 16 German Company Bosses Help Iraq?," *Hamburg Bild* in German, 3 May 1997, p.1, in FBIS Document FTS19970503000370, 3 May 1997; "Secret Report: German Companies Investigated for Illegal Iraq Trade," Deutsche Presse-Agentur, 3 May 1997, in Lexis-Nexis, <http://web.lexis-nexis.com>.

10 June 1997

Iraqi officials prevent UNSCOM-188/BM56 from entering what inspectors suspect is a prohibited weapons-procurement facility.

—United States Information Agency: U.S. Policy on Iraq, <http://usinfo.state.gov>; "Iraqis hamper U.N. inspection flights, Ekeus says," Deutsche Presse-Agentur, 11 June 1997, in Lexis-Nexis, <http://web.lexis-nexis.com>.

18 June 1997

Rolf Ekeus tells the UN Security Council that UNSCOM inspectors witnessed Iraqis burning, shredding, and fleeing with stacks of documents while inspectors were blocked from entering the site.

—United States Information Agency: U.S. Policy on Iraq, <http://usinfo.state.gov>.

21 June 1997

The UN Security Council adopts Resolution 1115 (SCR 1115), which condemns the Iraqis' repeated denial of access to UNSCOM inspectors at various sites in Iraq. This is noted to be a clear and flagrant violation of the provisions of SCR 687, 707, 715, and 1060.

—UNSCOM Chronology of Main Events, www.un.org.

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1 July 1997

Richard Butler of Australia replaces Rolf Ekeus as Executive Chairman of UNSCOM.

—"Composition Reporting Requirements Mandate," United Nations Special Commission, www.un.org.

Mid-July 1997

Richard Butler visits Iraq and addresses UNSCOM's discovery that, contrary to a 1992 declaration, the Iraqis had not destroyed 14 missile launchers in July 1991.

—United Nations, "Fourth Report under Resolution 1051," S/1997/774, 6 October 1997.

July 1997-June 1998

Iraq declares all purported sites where warhead remnants are located. UNSCOM surveys and excavates the sites.

[NOTE: As of 25 January 1999, UNSCOM cannot account for approximately 25 imported warheads and approximately 25 Iraqi-manufactured warheads that were allegedly destroyed unilaterally by the Iraqis. See 1-6 February 1998, July 1998 and November 1998.]

—United Nations, "Report on Status of Disarmament and Monitoring," S/1999/94, 29 January 1999, www.un.org.

August 1997

In response to the issue Richard Butler raised during his visit to Iraq in July 1997 regarding the timing of destroying mobile missile launchers, Iraq admits that it destroyed five imported launcher chassis in October 1991, not in July 1991 as it had previously reported.

—United Nations, "Report on Status of Disarmament and Monitoring," S/1999/94, 29 January 1999, www.un.org.

August 1997

UNSCOM identifies remnants of 10 imported launcher vehicle chassis, launching arms, and stools. [NOTE: UNSCOM supervised the destruction of five launchers, and Iraq unilaterally destroyed the other five.]

—United Nations, "Report on Status of Disarmament and Monitoring," S/1999/94, 29 January 1999, www.un.org.

August 1997

UNSCOM inspectors find a few remnants of undeclared chemical and biological warheads at the P3 site in Nabai.

—"Summary of UNSCOM Presentation to UNSC on Iraq WMD," *Washington File*, 25 June 1998,

<http://usinfo.state.gov>; "Ambassador Richard Butler's Presentation to the UN Security Council, JUN 3, 1998,"

www.fas.org.

August 1997

Iraq provides a new declaration concerning its proscribed weapons in an attempt to eliminate uncertainties about their movement and concealment prior to their destruction.

—United Nations, "Fourth Report under Resolution 1051," S/1997/774, 6 October 1997.

September 1997

Richard Butler visits Iraq. He requests that Iraqi officials carry out specific actions to enable UNSCOM to verify the accounting of special missile warheads.

—United Nations, "Fourth Report under Resolution 1051," S/1997/774, 6 October 1997.

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September 1997

UNSCOM asks Iraq to explain the "operational requirements" for the proscribed missile assets that Iraq had retained and concealed after the adoption of SCR 687. However, the Deputy Prime Minister of Iraq orders the Iraqi experts not to discuss such issues with the Commission.

—United Nations, "Fourth Report under Resolution 1051," S/1997/774, 6 October 1997; United Nations, "Final Compendium," S/1999/94, 25 January 1999.

10 September 1997

An Iraqi Broadcast Corporation (IBC) correspondent in Baghdad reports that Iraq's Military Industrialization Organization (MIO) is involved in several strategic projects, including an "anti-missile unit" in operation since 1992 that can track more than one missile at a time. The system is being developed to counter cruise missiles. Another project is the modification of surface-to-air missiles (SAMs) into surface-to surface missiles (SSMs). This project is centered at the Al-Karama facility near Baghdad. There is also a project to improve the Russian-made "Volga" (NATO designation SA-5) missile. This project, based at the Al-Harith facility in Baghdad, is focused on the replacement of analog controls with digital controls.

—Iraqi National Congress (On-Line), "Iraq: IBC Cited on 'Strategic Projects,' 'Military Capability,'" 10 September 1997, in FBIS Document TAC-97-253, 10 September 1997.

September 1997

Richard Butler says that the Commission has located and destroyed or incapacitated "all but a handful" of Iraq's Scud SSMs.

—Betsy Pisik, "Counting Missiles," *The Washington Times*, 22 September 1997, p. 14.

September 1997

UNSCOM attempts to verify Iraq's claim that it had been unable to produce engines for banned liquid-fueled missiles. An inspection team finds the remains of missile engine components that Iraq claimed to have unilaterally destroyed at a site in Al-Alam, north of Baghdad. However, the remnants account for just 10-15 percent of the quantities that should have been found there based on Iraqi declarations. After UNSCOM's inspection, Iraqi officials claim that the majority of engine components had been removed from the Al-Alam site and melted down at foundries. Iraqi government officials provide a list of guidance components that they claim were destroyed. UNSCOM officials assert that the Iraqis' list is incomplete.

—United Nations, "Fourth Report under Resolution 1051," S/1997/774, 6 October 1997; Paul Mann, "Iraq's Stratagem: Conceal and Comply," *Aviation Week and Space Technology*, 24 November 1997.

24 September 1997

Iraq declares that it secretly excavated the Al-Alam site between April and May 1992 without UNSCOM's supervision. Iraq states in its declaration that "the majority of components have been removed from the site and melted at foundries, in an effort to conceal from UNSCOM the extent of Iraq's missile engine production accomplishments." [NOTE: This is the first time that Iraq offers this version of its concealment activity.]

—United Nations, "Fourth Report under Resolution 1051," S/1997/774, 6 October 1997.

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October 1997

UNSCOM reports that Iraq "continues to conceal documents describing its missile propellants and the material evidence relating to its claims to have destroyed its indigenous missile production capabilities." UNSCOM suspects that Iraq "might have destroyed less than a tenth of what it claimed."

—Anthony H. Cordesman and Arleigh A. Burke, "Iraqi Military Forces Ten Years after the Gulf War," Center for Strategic Studies, August 2000, p. 81.

October 1997

The Russian Federal Security Service decides to close its investigation into the shipment of Russian missile-guidance gyroscopes and accelerometers to Iraq.

—Vladimir Orlov and William C. Potter, "The Mystery of the Sunken Gyros," *Bulletin of the Atomic Scientists*, Vol. 54 (November/December 1998), www.bullatomsci.org.

October 1997

Iraq conducts its first declared flight test of the Al-Samoud missile and pronounces it a success.

—"Ababil-100/Al-Samoud," in Iraq Special Weapons Program, www.fas.org.

October 1997

According to the Czech Defense Ministry, Turkish security forces warn the United States that Iraq is trying to acquire the Czech Tamara radar with the help of Kurdish extremists operating in the Czech Republic and in Russia.

—"Iraq Trying to Get Tamara Radar despite Embargo," Czech News Agency (CTK) National News Wire, 24 August 1998; in Lexis-Nexis, <http://web.lexis-nexis.com>.

6 October 1997

In his first major report to the UN Security Council, Richard Butler says that 817 out of a total 819 Iraqi-imported Scuds are now accounted for, indicating verification of nearly all of Saddam's former missile force. However, UNSCOM continues to be unable to establish verifiable material balances for many critical missile components and materials from Iraq's indigenous missile production program.

—United Nations, "Fourth Report under Resolution 1051," S/1997/774, 6 October 1997; Evelyn Leopold, "UN Arms Report Raps Iraq for Concealing Arms Data," Reuters, 6 October 1997.

16 October 1997

A UN official says that Iraq has threatened to ban UN weapons inspections and cut off all cooperation with the Security Council if the Council imposes further sanctions. UN officials say that Iraq appears "more upset than expected" over a report by Richard Butler. The report states that Iraq has made progress in some areas, but it also identifies problems that Butler describes as "numerous and grave." The report accuses Iraq of hiding information on ballistic missiles.

—"Iraq Threatens to Ban Weapons Inspections," *USA Today* (On-Line), 16 October 1997.

23 October 1997

The UN Security Council adopts SCR 1134, which condemns the Iraqis' repeated denial of access to UNSCOM inspectors at certain sites in Iraq. The Council decides that such refusals to cooperate constitute a flagrant violation

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of SCR 687, 707, 715, and 1060.

—UNSCOM Chronology of Main Events, www.un.org.

3 November 1997

Iraq says it will no longer cooperate with UN weapons inspection teams.

—"Attack on Iraq," *The New York Times*, 17 December 1998, in Lexis-Nexis, www.lexis-nexis.com.

3 November 1997

Saddam Hussein threatens to shoot down the US U-2 planes used by "international disarmament monitors." After meeting with the UN Security Council, Richard Butler says that inspectors are "fairly close to being sure" that Iraq no longer has any of the 819 long-range missiles it purchased from the former Soviet Union before the Gulf conflict.

—Barbara Crossette, "Iraq Threatens to Shoot down U.S. Spy Planes," *The New York Times*, 4 November 1997, pp. 1, 11; in Lexis-Nexis, www.lexis-nexis.com.

5 November 1997

The Sunday Times reports that German prosecutors opened the trial of four businessmen accused of exporting missile launchers for Scud SSMs to Iraq. The lead prosecutor says the former managers at Havert Industrie sold 35 missile launchers, along with the components for an additional 50 launchers, to Iraq's arms industry between 1988 and 1990. The accused -- Gerhard Paul, Hans-Jurgen Urner, Hans Friedrich, and Jurgen Bauer -- used faked documents to secure government export guarantees. In customs documentation, the managers described components for the missiles as "seamless pipes, round in diameter," while communications equipment was labeled as "erasers and school notebooks."

—"Germans 'Sold Scud Parts to Baghdad,'" *The Sunday Times* (London), 5 November 1997, in Lexis-Nexis, www.lexis-nexis.com.

5 November 1997

In a report to the UN Security Council, Richard Butler asserts that Iraqi officials appear to have moved "significant pieces of dual-capable equipment, subject to monitoring by the commission's remote camera monitoring system, out of view of the cameras." The dual-capable equipment is said to include devices used to balance precision gyroscopes for ballistic missiles. The report also notes there is evidence that indicates tampering with surveillance cameras occurred, such as covered camera lenses and diminished lighting in areas subject to monitoring.

—John M. Goshko, "Iraqis May Be Acting to Avoid Surveillance," *The Washington Post* (On-Line), 6 November 1997.

7 November 1997

Richard Butler reports that Iraqis move equipment beyond the range of surveillance cameras and obstruct camera operations. US State Department spokesman James Rubin says, "Iraqi President Saddam Hussein continues to exploit this period, to raise the prospect that he is hiding and moving weapons of mass destruction." In response, Iraqi Foreign Minister Mohammed Said Sahaf denies that Baghdad obstructed UN arms monitoring. However, Sahaf says that equipment has been moved to protect it from US air strikes and that a UN surveillance camera was

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damaged when a short-range missile engine exploded.

—John M. Goshko, "UN Diplomats Say Baghdad Resistant," *The Washington Post*, 7 November 1997, in Lexis-Nexis, www.lexis-nexis.com.

November 1997

Western analysts say that Iraq could have deployed chemical and biological weapons in the past using either a warplane or a warhead fitted to a long-range missile. Iraqi sources say that privately hired Russian scientists assisted in a project to enable up to 16 Al-Hussein long-range missiles to carry anthrax. It is estimated that Iraq could still be in possession of 12-16 Al-Hussein missiles with a range of 640km.

—Rowan Scarborough, "U.S. Puts Carrier Group in Place, Considers Force against Iraq," *The Washington Times* (Online), 7 November 1997; Marie Colvin and Uzi Mahnaimi, "Saddam Invents Germ Warfare Crop-Duster to Spray Cities," *The Sunday Times* (London), 9 November 1997; Marie Colvin and Uzi Mahnaimi, "Saddam's Domsday Option," *The Sunday Times* (London), 9 November 1997.

7 November 1997

US President Bill Clinton says that Saddam Hussein denies UN inspectors access to his weapons facilities because they are close to finding a hidden store of weapons. Kenneth Bacon, spokesman for US Secretary of Defense William Cohen, says, "the UN commission overseeing the inspections believes it has destroyed nearly all of Iraq's Scud missiles, but not the country's ability to start up a production line."

—Rowan Scarborough, "US Puts Carrier Group in Place, Considers Force against Iraq," *The Washington Times* (Online), 7 November 1997.

10 November 1997

UNSCOM produces a list documenting Iraq's noncompliance with Security Council resolutions.

—United States Information Agency: U.S. Policy on Iraq, <http://usinfo.state.gov>.

11 November 1997

Iraq strikes a deal with Czech military officers and Bulgarian arms dealers for the purchase of radar systems capable of detecting radar-evading US stealth warplanes. Bulgarian arms dealers, working together with members of the Czech military, intend to sell five Tamara radar systems, with a total value of \$375 million, to Iraq.

—"Czech Leader Denies Czech-Iraqi Arms Deal Report," Agence France Presse, 12 November 1997, in Lexis-Nexis, <http://web.lexis-nexis.com>; Jamie Dettmer, "Russia Becomes Saddam's Military Superstore," *Insight on the News*, 15 March 1999, p. 6.

12 November 1997

The UN Security Council adopts Resolution 1137, which condemns the limited access the Iraqis have provided to UNSCOM and restricts the international movement of Iraqi officials.

—UNSCOM Chronology of Main Events, www.un.org.

12 November 1997

During a meeting with Czech Prime Minister Vaclav Klaus, US Vice President Al Gore raises the issue of allegations that Bulgarian arms dealers, in conjunction with members of the Czech military, plan to sell five Tamara radar

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systems to Iraq. Klaus denies the reports.

—"Czechs to Try to Prevent Sale of Anti-Stealth System to Iraq," Agence France Presse, 13 November 1997; in Lexis-Nexis, <http://web.lexis-nexis.com>.

13 November 1997

Iraq says that weapons inspectors must leave Iraq immediately.

—"Attack on Iraq," *The New York Times*, 17 December 1998, in Lexis-Nexis, www.lexis-nexis.com.

13 November 1997

Pavel Musela, a CEO of Omnipol, the largest Czech arms exporter, denies to the Czech News Agency (CTK) that his company made a deal with Iraq related to the Tamara radar system.

—"Tamara Radar Exports Never Discussed--Omnipol," Czech News Agency (CTK) Business News Wire, 13 November 1997, in Lexis-Nexis, <http://web.lexis-nexis.com>.

16 November 1997

US Defense Secretary William S. Cohen says Iraq possesses missiles capable of traveling 3,000km.

—John F. Harris, "Cohen Cites Iraqi Ability on Weapons; 'Millions' Have been At Risk; Resumption of Production Feared," *The Washington Post*, 17 November, 1997, in Lexis-Nexis, <http://web.lexis-nexis.com>.

17 November 1997

The Iraqi National Congress reports that Iraq is concealing as many as 32 missiles in an orchard south of Baghdad. The report states that 32 "large missile transporters" left the Hattin facility near Baghdad and were dispersed into fruit orchards near the Tigris River in Al-Sulimaniyah. The missiles are reportedly being watched over by Iraq's Special Republican Guard.

—Iraqi National Congress, "INC Reports Iraqi Regime Hiding 32 Missiles Near Baghdad," 17 November 1997, in FBIS Document FTS19971118000912, 17 November 1997.

20 November 1997

Iraq accepts the return of UNSCOM inspectors following the intensive diplomatic activity of Russian officials.

—UNSCOM Chronology of Main Events, www.un.org.

21 November 1997

UNSCOM holds an emergency session at the request of the UN Security Council in an effort to improve the efficiency of UNSCOM activities. UNSCOM determines that accounting for seven indigenously produced missiles is one of the priority objectives for the Commission as this may involve operational missiles produced indigenously in Iraq. UNSCOM asks Iraq to provide verifiable physical evidence of the unilateral destruction of combustion chamber/nozzle assemblies for such missiles, along with documentary evidence that will permit a full accounting of all indigenously produced major missile parts and the verification of their unilateral destruction. [NOTE: Iraq previously declared that it destroyed these seven missiles unilaterally, although UNSCOM found no remnants which could prove such destruction. As of 25 January 1999, UNSCOM cannot verify the material balance of major proscribed components for indigenous missile production.]

—United Nations, "Report on Status of Disarmament and Monitoring," S/1999/94, 29 January 1999, www.un.org.

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22 November 1997

In a letter to the president of the UN Security Council, Richard Butler reports on the Commission's emergency session concerning proscribed missiles that took place on 21 November 1997. He reports that UNSCOM accounted for 817 of the 819 proscribed missiles Iraq imported from the Soviet Union. He also points out that Iraq must account for major missile parts and indigenously produced proscribed missiles, including seven missiles that Iraq claims were used for training. Butler also addresses the issue of unaccounted for conventional warheads, and warheads for chemical and biological agents.

—United Nations, "Report of UNSCOM Emergency Session," S/1997/922.

24 November 1997

UNSCOM attempts to verify Iraq's claim that it was unable to produce engines for banned liquid-fueled missiles.

—Paul Mann, "Iraq's Stratagem: Conceal and Comply," *Aviation Week and Space Technology*, 24 November 1997.

November 1997

Iraq declares that one of four 50 ton trailers suitable to accommodate an Al-Nida mobile launcher has been stolen.

—United Nations, "Report on Status of Disarmament and Monitoring," S/1999/94, 29 January 1999, www.un.org.

17 December 1997

Iraq rejects a UN offer to work out special arrangements that will allow UNSCOM to inspect its numerous presidential sites.

—D. Evans, "Iraq rules out UN inspections of its top security sites," *COURIER-MAIL*, 17 December 1997, in Lexis-Nexis, <http://web.lexis-nexis.com>; "Aziz denies experts' access to presidential sites," Xinhua News Agency, 17 December 1997, in Lexis-Nexis, <http://web.lexis-nexis.com>.

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1996

1996

UNSCOM inspectors conclude that Iraq produced 80 Scud-type missiles indigenously.

—"Al Hussein/Al-Husayn Al Hajarah," Federation of American Scientists, www.fas.org.

1996

Iraqi President Saddam Hussein and Yugoslav President Slobodan Milosevic sign a secret agreement to enhance technological cooperation between their two countries.

—Roberto Godoy, "Saddam Passes Brazilian Missile Technology to Milosevic," *Sao Paulo O Estado de Sao Paulo* (Internet Version), 30 April 1999.

1996

Iraq admits that it maintained a project to establish a "dedicated" facility for the indigenous production of

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proscribed missile propellants for Al-Hussein missiles after the adoption of Security Council Resolution (SCR) 687.
—United Nations, "Report on Status of Disarmament and Monitoring," S/1999/94, 29 January 1999, www.un.org.

1996

The Iraqi military upgrades some of its 12 French F-1 Mirage fighter aircraft by adding the substantially improved Magic 2 air-to-air missiles. [NOTE: Romanian company Aerofina manufactures the Magic 2 missiles, and Aerofina contracted with Iraq to supply it with short-range missile components.]

—Lisa Hoffman, "Diminished Iraqi Military Still Capable of Missile Strikes," *The Washington Times*, 14 November 1998, p. A8.

1996

UNSCOM finds sample gyroscopes in the Tigris River that Wi'am Gharbiya obtained from the Russian company NIIKhSM.

—Anna Otkina, "Lessons of 'The Gyroscope Deal,'" *Yaderny Kontrol Digest*, No. 7 (Spring 1998), pp. 3-18.

1996-January 1997

Iraq orders machines and parts that could be used in the production of Scud missiles from British manufacturers in London, Southampton, Birmingham, and Reading.

—Tim Kelsey and Jason Burke, "Saddam in Secret UK Arms Offensive," *Sunday Times* (London), 19 January 1997; in Lexis-Nexis, <http://web.lexis-nexis.com>.

January 1996

During the on-site inspection of a missile facility, an UNSCOM inspection team discovers computer files containing a missile simulation program. The team learns that Iraq carried out a flight simulation of a three-stage missile in July 1992.

—United Nations, "Report on Status of Disarmament and Monitoring," S/1999/94, 29 January 1999, www.un.org.

January 1996

UNSCOM decides to modify its monitoring modalities to have Volga/SA-2 missiles tagged in a mode similar to other missiles in Iraq. [NOTE: When its monitoring system was initially implemented in 1993, UNSCOM believed it would be sufficient to utilize video observation and other means to monitor sites at which main maintenance activities are carried out on Volga/SA-2 systems. However, because Iraq's disclosed program included flight tests of this system, UNSCOM modifies its monitoring modalities.]

—United Nations, "Second Report under Resolution 1051," S/1996/848, 11 October 1996.

January 1996

Iraqi Deputy Prime Minister Tariq Aziz visits Moscow and is asked by a Russian official about Iraq's long-range missile program. Aziz denies any knowledge of the program.

—Stewart Stogel, "Missile Plans by Iraq May Aim at Europe," *The Washington Times*, 16 February 1996, pp. A1, A19.

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January 1996

UN officials allege that companies from France, Germany, and Eastern Europe continue to supply Iraq with proscribed missile-related items.

—James Bruce, "Playing Hide and Seek with Saddam," *Jane's Defence Weekly*, 3 January 1996, pp. 18-19.

1 January 1996

Russia exports "the Reys system" to Iraq, Czechoslovakia, and Syria. The VR-3 Reys is Russia's unmanned aerial vehicle (UAV) system.

—Piotr Butowski, "Russian Reconnaissance UAVs-Part 2," *Jane's Intelligence Review Pointer*, January 1996, pp. 4, 5.

14 January 1996

UNSCOM-120/BM35 travels to Iraq to investigate a large number of missile guidance and control components pulled from the Tigris River in December 1995.

—United Nations, "First Report under Resolution 1051," S/1996/258, 11 April 1996.

January 1996

A report from Israel Defense Forces (IDF) asserts that Iraq's arsenal will include 10 Scud launchers and approximately 150 Scud missiles by 2000. Iraq could also deploy a "significant" number of short-range FROG missiles and launchers in any future attack against Israel.

—Alex Fishman, *Yedi'ot Aharonot* (Tel Aviv), 17 January 1996, p. 21; in "IDF Sees Iraqi, Syrian Missile Arsenals Growing," FBIS-NES-96-012, 17 January 1996.

Early February 1996

UNSCOM chairman Rolf Ekeus visits Moscow for discussions with members of the Russian Ministry of Foreign Affairs regarding Russian-made missile components found in the Tigris River. Russian officials acknowledge that the gyroscopes might be of Russian origin but insist their government did not provide approval for a transfer of such goods to Iraq.

—David Hoffman, "Iraq Sought Russian Arms Technology; Probe Details Moscow Deal For Missile Equipment in '94," *The Washington Post*, 18 October 1998, p. A4; Vladimir Orlov and William C. Potter, "The Mystery of the Sunken Gyros," *Bulletin of the Atomic Scientists*, Vol. 54 (November/December 1998), www.bullatombsci.org; Anna Otkina, "Lessons of 'The Gyroscope Deal,'" *Yaderny Kontrol Digest*, No. 7 (Spring 1998), pp. 3-18.

14 February 1996

Rolf Ekeus says that UN inspectors suspect Iraq is attempting to develop a longer range version of the Al-Hussein missile that will exceed the 3,200-km-range capability. A US intelligence source claims that Iraqi development of missiles capable of reaching Europe is in its "rudimentary stages."

—Stewart Stogel, "Missile Plans by Iraq May Aim at Europe," *The Washington Times*, 16 February 1996, pp. A1, A19.

27 February 1996

Iraq submits a document entitled, "Draft full, final and complete declaration of the Iraqi national ballistic missile

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programme." In this document, Iraq provides "substantial" information on the activities of Project 1728, which is Iraq's major project for development and production of long-range missiles with liquid propellant engines. Iraq also provides information on foreign assistance for the project.

—United Nations, "First Report under Resolution 1051," S/1996/258, 11 April 1996.

8 March 1996

UNSCOM-143/BM39 goes to Iraq to carry out a number of no-notice inspections. The team inspects a variety of sites including three administrative complexes in Baghdad, four military sites, and a number of industrial and storage locations.

—United Nations, "First Report under Resolution 1051," S/1996/258, 11 April 1996.

8 March 1996

UN officials in Baghdad announce the discovery of documents and parts related to chemical or biological warheads.

—"Standoff as U.N. Team Is barred from Iraqi Site," *The New York Times*, 9 March 1996, p. A2; in Proquest, www.proquest.umi.com.

8 March 1996

Iraqi officials prohibit UN inspectors from entering the Irrigation Ministry building in downtown Baghdad. Inspectors suspect that detailed military documents may be kept in this location.

—Leon Barkho, Reuters, 9 March 1996, in "Iraq Allows U.N. Arms Inspectors into Building," Executive News Service, 11 March 1996; R. Jeffrey Smith, "Iraq Bars U.N. Inspection Team Seeking Records," *The Washington Post*, 9 March 1996, p. A18, in Proquest, www.proquest.umi.com.

11 March 1996

Iraqi officials bar UN inspectors in Salabati from entering an underground barracks and a training facility for the Iraqi Republican Guard. UNSCOM intends to search the sites for documents related to Iraq's long-range missile programs. According to a US official, the installation may house banned launchers for Scud medium-range missiles.

—John M. Goshko, "U.N. Inspectors Enter Iraq Military Installation After 11-Hour Standoff," *The Washington Post*, 12 March 1996, p. A9; in Proquest, www.proquest.umi.com.

14 March 1996

The Iraqis keep UNSCOM inspectors from entering a vehicle repair site belonging to Iraq's Republican Guards for three hours.

—Evelyn Leopold, Reuters, 18 March 1996, in "U.N. Reports Arms Disputes With Iraq In Last 10 Days," Executive News Service, 18 March 1996.

15 March 1996

The Iraqis block UNSCOM inspectors' access to the Republican Guard's command center for four hours.

—Evelyn Leopold, Reuters, 18 March 1996, in "U.N. Reports Arms Disputes With Iraq In Last 10 Days," Executive News Service, 18 March 1996.

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17 March 1996

UNSCOM-143/BM39 (Ballistic Missile Team 39) ends its mission. The team finds no proscribed items or documents at the sites they inspected.

—United Nations, "First Report under Resolution 1051," S/1996/258, 11 April 1996.

21 March 1996

UNSCOM suspects Iraq has hidden between 6 and 16 ballistic missiles, with warheads containing lethal nerve agents or germ weapons, which are capable of reaching Israel, Kuwait, or Saudi Arabia. According to Rolf Ekeus, UN investigators believe the medium-range missiles are probably stored on Iraqi trucks and shuttled between military installations to prevent their discovery.

—Jeffrey R. Smith, "Iraq Is Hiding 6 to 16 Scuds, U.N. Suspects," *The Washington Post*, 21 March 1996, p. A1; in Proquest, www.proquest.umi.com.

27 March 1996

The UN Security Council adopts Resolution 1051, which approves the export/import monitoring mechanism for Iraq. It demands that Iraq unconditionally meet all its obligations under the mechanism and cooperate fully with UNSCOM and the Director-General of the IAEA.

—United Nations, "First Report under Resolution 1051," S/1996/258, 11 April 1996.

March-April 1996

Iraq repeatedly denies UNSCOM representatives the opportunity to question Lieutenant General Amir al-Saadi, who had previously been introduced as a specialist in the Iraqi missile program. UNSCOM seeks to speak with al-Saadi regarding Iraq's biological, chemical, and missile programs. Iraqi authorities tell UNSCOM that the earliest date al-Saadi will be available to speak with inspectors is 5 April 1996.

—Khalil Matar, *Al-Sharq Al-Awsat* (London), 1 April 1996, p. 2; in "Iraq: Possible 'Obstruction' of UN Arms Investigation Panel Seen," FBIS-NES-96-064, 1 April 1996.

9 April 1996

The Russian government initiates a criminal investigation into the shipment of 240 missile-guidance gyroscopes and accelerometers to Iraq.

—Vladimir Orlov and William C. Potter, "The Mystery of the Sunken Gyros," *Bulletin of the Atomic Scientists*, Vol. 54 (November/December 1998), www.bullatomsci.org.

9 April 1996

Another source reports that the Investigation Department of the Russian Federal Security Service (FSB) initiates a criminal inquiry of the alleged "illegal export of the equipment applicable in the construction of missile delivery systems for weapons of mass destruction" by the Research and Testing Institute of Chemical and Building Machines (NIIKhSM).

—Anna Otkina, "Lessons of 'The Gyroscope Deal,'" *Yaderny Kontrol Digest*, No. 7 (Spring 1998), pp. 3-18.

11 April 1996

In its first report under SCR 1051, UNSCOM expresses its concern about Iraq's procurement of prohibited and dual-

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use items from abroad. The Commission highlights the elaborate systems established by Iraq to acquire components and machine tools for its missile production efforts.

—United Nations, "First Report under Resolution 1051," S/1996/258, 11 April 1996.

11 April 1996

UNSCOM releases a report asserting that Iraq continues to conceal illegal missiles and equipment. The report claims that Iraq has provided the Commission with incomplete information and that Baghdad must "provide evidence to show that it no longer possesses proscribed weapons and related materials." Iraq denies UNSCOM's allegations and maintains it has complied with the UN's demands.

—Leon Barkho, Reuters, 22 April 1996; in "U.N. Arms Experts in Baghdad to Tag Missiles," Executive News Service, 22 April 1996.

22-27 April 1996

UNSCOM-141/BM38A conducts its mission, which includes identifying and tagging Iraqi missiles with ranges of less than 150km. The mission aims to ensure that Iraq will not modify the ranges of these missiles beyond what is permitted under the terms of the 1991 Gulf War ceasefire agreement.

—United Nations, "Second Report under Resolution 1051," S/1996/848, 11 October 1996.

29 April 1996

According to the Pentagon's Ashton Carter, UN officials have discovered that Iraq "designed and prepared for firing" a chemical warhead for a Scud surface-to-surface missile (SSM).

—James R. Asker, "Dirty Little Secrets," *Aviation Week & Space Technology*, 29 April 1996, p. 23.

May 1996

Iraq provides UNSCOM with a "full, final and complete disclosure on its missile programs." Iraq insists that it has provided all documents related to its missile programs. However, UNSCOM experts emphasize that Iraq must provide substantial evidence that would allow for the verifiable accounting of all missiles, launchers, propellants, and major components.

—United Nations, "Second Report under Resolution 1051," S/1996/848, 11 October 1996.

1 May 1996

The US Central Command (CENTCOM) is concerned that Iran may obtain from Iraq the technology to extend the range of its Scud missiles. US Commander-in-Chief of CENTCOM, General Binford Peay, says that Iraq still maintains more than 40 Scud missiles and may be able to extend their ranges. He also says that Iraq has tried to extend their ranges by strapping 5 Scud motors together to boost a second stage consisting of another Scud motor.

—"Iran's Tunnels Are Missile Sites, Says USA," *Jane's Defence Weekly*, 1 May 1996, p. 3.

10 June 1996

UNSCOM-150/BM41 arrives in Baghdad to conduct spot checks of several unspecified sites in Iraq.

—United Nations, "Second Report under Resolution 1051," S/1996/848, 11 October 1996; Reuters, 10 June 1996, in "More U.N. Arms Inspectors Arrive in Iraq," Executive News Service, 10 June 1996.

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11-14 June 1996

The Iraqis prevent UNSCOM-150/BM41 from entering five military installations near Baghdad, citing national sovereignty and security concerns. UNSCOM suspects that Iraq hides materials, documents, and equipment related to its ballistic missile program at the sites. [NOTE: Two of five sites publicized are Abu Gharaib and Al-Qadissiyah.] — "Iraq Bars U.N. Arms Experts from 2 More Suspected Sites," *The New York Times*, 14 June 1996; "Iraq Bars U.N. Inspectors From A Weapons Site," *The New York Times*, 12 June 1996, p. A8; Leon Barkho, Reuters, 12 June 1996, in "Iraq to Bar U.N. Inspectors from 'Sensitive' Sites," Executive News Service, 12 June 1996; "Iraq Blocks More Arms Searches," *Financial Times*, 14 June 1996, p. 6; Leon Barkho, Reuters, 14 June 1996, in "U.N. Destroys Iraqi Germ Warfare Plant," Executive News Service, 17 June 1996.

12 June 1996

The UN Security Council adopts Resolution 1060, which states that Iraqi actions, including the ongoing prevention of UNSCOM access to installations, are a clear violation of the provisions of the Council's resolutions.

—UNSCOM Chronology of Main Events, www.un.org.

16 June 1996

UNSCOM-150/BM41 leaves Baghdad by the order of UNSCOM chairman Rolf Ekeus as a result of the ongoing stand-off at military installations near Baghdad.

—United Nations, "Second Report under Resolution 1051," S/1996/848, 11 October 1996.

19 June 1996

Rolf Ekeus goes to Baghdad to solve the stand-off caused by the Iraqi denial of access to five military installations from 11-14 June. Iraq and UNSCOM agree on a Joint Program of Action, which focuses on Iraq's full, final, and complete disclosures, as well as the means and techniques to verify them.

—S.V. Venkatraman, "Iraq: UN's Ekeus Claims 'Breakthrough' In Uncovering Arms Program," Agence France Presse (Paris), 24 June 1996, in FBIS-NES-96-123, 25 June 1996; United Nations, "Second Report under Resolution 1051," S/1996/848, 11 October 1996.

19 June 1996

Rolf Ekeus tells the Saudi newspaper *Al-Sharq Al-Awsat* that Iraq still possesses six missiles with their launchers, and "perhaps more than that."

—"Iraq Still Armed and Dangerous," Agence France Presse, 19 June 1996, in Lexis-Nexis, <http://web.lexis-nexis.com>; UPI, 19 June 1996, in "U.N.: Iraq Made Missile Engines," Executive News Service, 19 June 1996.

20 June 1996

Major General Wafiq al-Samarra'i, former director of Iraqi military intelligence, tells *Al-Sharq Al-Awsat* that Iraq still possesses "scores of surface-to-surface missiles in the prohibited range." Al-Samarra'i cites "reliable information" that Iraq still possesses 40 Al-Hussein SSMs, 25 of which are "in a disassembled form," and 200 military germ substances.

—'Imad Al-Furaya, "Iraq: Oppositionist Claims to Reveal 'Truth' about Iraq CBW," *Al-Sharq Al-Awsat* (London), 21 June 1996, p.6; in FBIS-NES-96-122, 21 June 1996.

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22 June 1996

After four-day talks between Rolf Ekeus and Tariq Aziz, Iraq agrees to give UNSCOM "immediate, complete and unconditional access" to suspected weapons sites. Iraq also submits what it calls "final documents" on its biological and chemical weapon programs, but not on its missile programs. [NOTE: See 2 July 1996]

—Reuters, 10 June 1996, in "More U.N. Arms Inspectors Arrive in Iraq," Executive News Service, 10 June 1996; Leon Barkho, Reuters, 14 June 1996, in "U.N. Destroys Iraqi Germ Warfare Plant," Executive News Service, 17 June 1996; S.V. Venkatraman, Agence France Presse (Paris), 24 June 1996, in "Iraq: UN's Ekeus Claims 'Breakthrough' in Uncovering Arms Program," in FBIS-NES-96-123, 25 June 1996; "U.N.'s Inspector Wary Of Iraqis," *The Washington Times*, 25 June 1996, p. A15; "Iraq Gives UNSCOM 'Final Document' on Its Arms Programmes," Agence France Presse, 22 June 1996, in Lexis-Nexis, <http://web.lexis-nexis.com>.

24 June 1996

Rolf Ekeus says at a news conference that Iraq continues to hide weapons, components, and documentation. He says that Baghdad hides items by "static means" as well as on trucks that are able to travel around Iraq.

—Barbara Crossette, "Iraq Agrees to Ease Way for U.N. Monitors," *The New York Times*, 25 June 1996, p. A9; in Lexis-Nexis, <http://web.lexis-nexis.com>.

July 1996

According to Major General Wafiq al-Samarra'i, the former director of Iraqi military intelligence who defected to Syria in November 1994, Iraq's Special Security Apparatus uses 50 flatbed trucks to move physical evidence away from areas where UNSCOM inspectors might discover it.

—Paige Bowers, "Exile Says Iraqis Are Fooling U.N. on Missile Count," *The Washington Times*, 31 July 1996, p. A15.

July 1996

UNSCOM inspectors discover a convoy of trucks leaving a Special Republican Guard installation and carrying what the Iraqis admit looks like prohibited Scud missiles.

—R. Jeffrey Smith, "Iraq Accused of Hiding Prohibited Weapons," *The Washington Post*, 12 October 1996, p. A25.

1 July 1996

Rolf Ekeus states at a news conference in Kuwait City that Iraq may conceal between 6 and 16 long-range ballistic missiles capable of delivering conventional, biological and chemical warheads.

—"Iraq May Have 16 Banned Missiles," *The Washington Times*, 2 July 1996, p. A12; UPI, 1 July 1996, in "UN Inspections to Step up Iraq Activities," Executive News Service, 2 July 1996; Kuna (Kuwait), 1 July 1996, in "Kuwait: Rolf Ekeus Says Iraq Still Possesses Long-Range Missiles," FBIS-NES-96-128, 1 July 1996; Sulayman Al-'As'usi, MBC Television (London), 1 July 1996, in "Kuwait: Ekeus Sets Conditions For Lifting Iraqi Embargo," FBIS-NES-96-128, 1 July 1996; *Al-Quds Al-'Arabi* (London), 2 July 1996, p. 15, in "Iraq: Ekeus Missile Claim Said Part of U.S. Plan to Starve Iraqis," FBIS-NES-96-129, 2 July 1996; Reuters, 1 July 1996, in "Iraq May Still Be Hiding Prohibited Arms-Ekeus," Executive News Service, 2 July 1996; Reuters, 1 July 1996, in "Iraq May Have Up To 16 Banned Long-Range Missiles," Executive News Service, 2 July 1996; Reuters, 1 July 1996, in "Iraq May Have up to 16 Banned Missiles-U.N. Official," Executive News Service, 2 July 1996.

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2 July 1996

Iraq submits its third "full, final and complete disclosure of its prohibited missile program." In this report, Iraq continues to state that it destroyed 14 operational mobile missile launchers in the summer of 1991.

—United Nations, "Second Report under Resolution 1051," S/1996/848, 11 October 1996; UNSCOM Chronology of Main Events; United Nations, "Note by the Secretary-General," S/1997/774, 6 October 1997.

7 July 1996

General Wafiq al-Samarra'i tells the London-based MBC television network that Iraq possesses 40 Al-Hussein missiles armed with conventional, chemical, and bacteriological warheads. He says Rolf Ekeus' calculation that Iraq possesses 6 to 16 long-range missiles is a low estimate.

—Nicole Tannuri, "Iraq: Defector Claims Regime Has 40 Missiles, Biological Shells," MBC Television (London), 7 July 1996, in FBIS-NES-96-131, 7 July 1996; Paige Bowers, "Exile Says Iraqis Are Fooling U.N. on Missile Count," *The Washington Times*, 31 July 1996, p. A15.

11 July 1996

According to an unidentified military source quoted by the national South Korean news agency, North Korea pushes to sell new missiles with a longer range to Iraq, Iran, Syria, and Libya.

—"Report: North Korea Sells Hundreds of Scud Missiles to Arab Countries," Associated Press, 11 July 1996, in Lexis-Nexis, <http://web.lexis-nexis.com>.

16 July 1996

Iraq refuses to allow UN weapons inspectors to search a weapons storage installation near Baghdad. The Iraqis stop the inspectors on the road to Saddam Hussein International Airport claiming they had entered a "presidential area." The inspectors are scheduled to search the installation for remnants and documentation from Iraq's missile, chemical, and biological weapons programs.

—"Iraq Again Blocks U.N. Arms Inspectors," *The New York Times*, 18 July 1996, p.A5; UPI, 23 August 1996, in "U.N. Reminds Iraq of Weapons Duties," Executive News Service, 26 August 1996; Evelyn Leopold, Reuters, 22 August 1996, in "Iraq And United Nations Clash Again On Arms Probe," Executive News Service, 26 August 1996.

18 July 1996

UNSCOM-155/BM42 ends their mission after Iraq refuses to grant them access to the installation near Baghdad for 60 hours.

—"Iraq Again Blocks U.N. Arms Inspectors," *The New York Times*, 18 July 1996, p. A5; "U.N. Plans to Find out How Iraq Hides Arms," *The New York Times*, 20 July 1996, p. A4.

19 July 1996

The United Nations establishes a special mission to study the techniques Iraq used to hide weapons. The UN Security Council orders Iraq to grant UNSCOM unrestricted access to its weapons facilities.

—"Iraq Again Blocks U.N. Arms Inspectors," *The New York Times*, 18 July 1996, p. A5; "U.N. Plans to Find out How Iraq Hides Arms," *The New York Times*, 20 July 1996, p. A4.

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19-22 July 1996

UN Special Mission conducts its mission.

—United Nations, "Second Report under Resolution 1051," S/1996/848, 11 October 1996.

22 July 1996

Iraqi Deputy Prime Minister Tariq Aziz agrees that his country will offer unconditional access to the military installations from which inspectors had previously been barred.

—"Iraq Again Blocks U.N. Arms Inspectors," *The New York Times*, 18 July 1996, p. A5.

28 July 1996

The London-based newspaper *Al-Majallah* quotes the Iraqi General Wafiq al-Sammara'i as saying that Iraq may be able to conceal Scud missiles by burying them in containers after removing sensitive components. Al-Sammara'i also says Iraq had imported approximately 1,000 Scud R17 missiles from the Soviet Union and subsequently established domestic production of those missiles and their engines in Iraq. Al-Sammara'i adds that the Iraqi regime's relationships with those Western firms that provided WMD-related technology and materials to Iraq in the past "are essentially there" and ready to be rekindled once sanctions are lifted.

—Ghalib Darwish, "Iraq: Al-Samarr'a'i Assesses Saddam's Position," *Al-Majallah* (London), 28 July 1996, pp. 30-31; in FBIS-NES-96-149, 3 August 1996.

3-4 September 1996

US ships and airplanes fire approximately 44 cruise missiles at Iraqi anti-missile air-defense sites to punish the Iraqi military for venturing into the Kurdish "safe haven" in northern Iraq. As many as 11 of the 15 intended targets are damaged or destroyed by the attacks, including the severe destruction of five out of eight Iraqi missile sites and the damage or abandonment of another. Two other missile sites suffer either minor or no damage. However, US defense analysts believe Iraq maintains mobile launching platforms and important facilities hidden in concrete bunkers.

—Dana Priest, "Iraq Rebuilt Missile System After U.S. Attacks, Official says," *The Washington Post*, 15 October 1996, p. A12, in Proquest, www.proquest.umi.com; United States Information Agency: U.S. Policy on Iraq; Art Pine, "U.S. Pilots Are Expected to Face More Peril on Iraq Patrol," *Los Angeles Times*, 7 September 1996, p.12, in Proquest, www.proquest.umi.org.

4-10 September 1996

According to officials of the US Department of Defense, Iraqi forces are "jury-rigging" surface-to-air missile (SAM) sites using parts retrieved from the damage caused by US attacks.

—Philip Shenon, "Iraq Repairing Air-Defense Sites Hit by Missiles, Pentagon Says," *The New York Times*, 11 September 1996, p. A1; in Proquest, www.proquest.umi.org.

7 September 1996

Iraq says it has fired missiles at US planes policing "no-fly" zones, but no targets have been hit.

—"Iraq Says It Fired Missiles at U.S. Planes Policing the 'No-Fly' Zones," *The Washington Post*, 8 September 1996, p. A.28; in Proquest, www.proquest.umi.org.

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8 September 1996

The United States threatens to launch an attack if Iraq does not stop rebuilding air-defense installations immediately.

—Robin Wright, "U.S. Warns Iraq to Halt Rebuilding of Air Defense Sites," *Los Angeles Times*, 9 September 1996, p. A1; in Proquest, www.proquest.umi.com.

11 September 1996

Iraqi forces fire a missile at two US F-16s in the northern no-fly zone.

—"Crucial events in the confrontation between Iraq, U.S.," Associated Press, 17 December 1998.

13 September 1996

Pentagon officials say the Iraqis appear to have stopped their repair of the air-defense sites recently damaged by US missile attacks in southern Iraq.

— Philip Shenon, "Iraq Orders Halt to Missile Strikes on American Jets," *The New York Times*, 14 September 1996, p.1; in Proquest, www.proquest.umi.com.

16 September 1996

An Iraqi opposition group against the Saddam Hussein regime claims that Abdal Baqi al-Sadun, a member of the Regional Command of the Ba'ath Party in Iraq, said during a meeting with other area officials that the Iraqi regime has positioned long-range missiles with chemical warheads in the Diyala Governorate and will launch them against Kuwait "if Iraq faces a direct threat from the US." Al-Sadun says the missiles are mounted on trucks that are constantly being moved around in an effort to avoid US air-strikes. According to other sources from the Islamic revolution mujahadeen in Al-Basrah, trailers carrying SSMs set up camp north of Al-Amarah along with the 130th Artillery Brigade. The sources say Republican Guard armored units and several missile launchers have been deployed in the Gulf area in Umm Qasr District, and some units had been moved to Sanam Mountain on Iraq's border with Kuwait.

—Voice of Rebellious Iraq (Clandestine), 16 September 1996; in "Iraq: Opposition Radio--Regimen Directs Missiles toward Kuwait," FBIS Document FTS19960916000432, 16 September 1996.

16-17 September 1996

Iraq completes the rebuilding of the SAM network in southern Iraq that the United States had destroyed less than two weeks earlier.

—Dana Priest, "Iraq Rebuilt Missile System after U.S. Attacks, Official says," *The Washington Post*, 15 October 1996, p. A12; in Proquest, www.proquest.umi.com.

20-24 September 1996

UNSCOM-162/BM43 conducts its mission, which concentrates on the material balance and the issue of unilateral destruction. The team deals with two topics: the operational missiles, and the equipment and components from Project 1728. [Note: Later, UNSCOM concludes that Iraq's statements in its full, final, and complete disclosure (FFCD) about these two topics are not complete and in certain aspects are even misleading. The Commission is particularly concerned that some key items Iraq declared as unilaterally destroyed in the summer of 1991 had in

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fact been diverted from destruction and concealed.]

—United Nations, "Second Report under Resolution 1051," S/1996/848, 11 October 1996.

11 October 1996

UNSCOM accuses Iraq of deliberately hiding significant quantities of proscribed ballistic missiles, poisonous gases, and germ weapons at those sites controlled by the country's elite military and security forces that UNSCOM has been continuously barred from inspecting.

—Jeffrey R. Smith, "Iraq Accused of Hiding Prohibited Weapons," *The Washington Post*, 12 October 1996, p. A25; in Proquest, www.proquest.umi.com.

11 October 1996

Rolf Ekeus submits the UNSCOM semi-annual report on Iraq's missile and WMD programs to the UN Security Council. According to the report, Iraq still has not fully accounted for all of the banned weapons, items, or capabilities in its ballistic missile program. The report says UNSCOM "continues to believe that limited but highly significant quantities (of arms) may remain, as Iraq has not been able to account for a number of proscribed missiles and certain high-quality chemical warfare agents."

—R. Jeffrey Smith, "Iraq Accused of Hiding Prohibited Weapons," *The Washington Post*, 12 October 1996, p. A25.

6 November 1996

UNSCOM-158/BM45 begins excavation activities at a site where missile remnants are buried.

—United Nations, "Third Report under Resolution 1051," S/1997/301, 11 April 1997.

8 November 1996

Rolf Ekeus and UNSCOM inspectors say that Saddam Hussein continues to hide missiles and chemical weapons in the Iraqi desert.

—Jim Hoagland, "A Deadly Silence on Iraq," *The Washington Post*, 8 November 1996, p. A31; in Proquest, www.proquest.umi.com.

14 November 1996

UNSCOM-158/BM45 removes approximately half of the 130 missile remnants from an excavation site at Taji and transports them to the Commission's Baghdad Monitoring and Verification Centre to prepare for their removal from the country. However, the Iraqi Lieutenant General Amer Rashid says that Iraq will not permit the Commission to export the excavated items from the country.

—United Nations, "Third Report under Resolution 1051," S/1997/301, 11 April 1997.

Mid-November 1996

Baghdad prevents UNSCOM inspectors from shipping abroad the remains of Iraqi long-range missile engines. The engines and other missile parts are due to be sent to a laboratory in the United States for analysis to determine if they were produced in Iraq or in the Soviet Union. UNSCOM has approximately 60 missile engines stored in boxes at its headquarters in Baghdad, while approximately 20-25 engines remain buried at two locations near the Iraqi capital.

—Reuters, 2 December 1996, in "Iraq Keen to End Missile Saga with UN Minister," Executive News Service, 2

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December 1996; Anthony Goodman, Reuters, 6 December 1996, in "UN Demands Iraqi Cooperation Over Missile Engines," Executive News Service, 9 December 1996.

16 November 1996

Two American F-16 pilots fire missiles at Iraqi radar sites near the 32nd parallel in the southern no-fly zone.
—"Crucial events in the confrontation between Iraq, U.S.," Associated Press, 17 December 1998.

22 November 1996

UNSCOM Deputy Chairman Charles Duelfer arrives in Baghdad to discuss the Commission's weapons monitoring system with Iraqi officials, including Dhaif Abdul-Majeed, head of Iraq's Military Industrial Commission.
—Hassan Hafidh, Reuters, 22 November 1996; in "UN Arms Inspector Arrives in Baghdad," Executive News Service, 22 November 1996.

24 November 1996

Rolf Ekeus tells the Associated Press that Iraq may have removed "advanced" rocket engines from prohibited missiles and replaced them with useless, locally manufactured motors before destroying the missiles in 1991 and 1992. UNSCOM wants to test debris from 130 missile engines destroyed in that time period, but Iraqi officials have prevented the Commission from removing the material from the country.
—Adnan Malik, "U.N. Inspector: Iraq May Be Hiding Advanced Missile Engines," Associated Press, 24 November 1996; in Lexis-Nexis, <http://web.lexis-nexis.com>.

December 1996

According to the Romanian Ministry of National Defense, the Romanian government ends all contracts and deals with Iraq, including missile transactions.
—"Romania Admits Making Arms Deals with Iraq," BBC News, 3 December 1998, <http://news.bbc.co.uk>; "Arms Production, Exports and Decision-Making in Central and Eastern Europe, Bulgaria," Safer World, July 2002, www.saferworld.co.uk.

2 December 1996

Iraqi Foreign Minister Mohammed Saeed al-Sahaf says Baghdad is working to resolve a dispute with UNSCOM over Iraq's alleged possession of prohibited long-range missiles.
—Anthony Goodman, Reuters, 6 December 1996, in "UN Demands Iraqi Cooperation Over Missile Engines," Executive News Service, 9 December 1996; Reuters, 2 December 1996, in "Iraq Keen to End Missile Saga with UN Minister," Executive News Service, 2 December 1996.

8-11 December 1996

Rolf Ekeus travels to Baghdad to meet with Iraqi officials. He presents Iraqi documents that prove the Soviet Union exported specific missiles to Iraq, each with its own unique identification number. He also provides Iraqi data proving receipt of the missiles. However, Ekeus is unable to resolve the discrepancy between this import documentation and what UNSCOM has been able to verify during 15 hours of technical meetings with Iraqi Deputy Prime Minister Tariq Aziz.
—"Iraq Likely Has Hidden Missiles, Inspector Says," *The Washington Times*, 19 December 1996, p. A13; Anthony

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Goodman, Reuters, 18 December 1996, in "UN Believes Iraq Still Has 'Missile Force,'" Executive News Service, 27 December 1996; Michael Theodoulou, "UN Chief Says Iraq Arms Trip Failed," *The Times* (Online), www.sunday-times.co.uk, 12 December 1996.

18 December 1996

Rolf Ekeus reports to the UN Security Council that he believes Iraq retains "a significant number of operational missiles, which could constitute a complete missile force," including support equipment, rocket launchers, fuel, and a command system to "make a missile force of significance." Inspectors suspect that there may be as many as 18 to 25 Iraqi missiles unaccounted for, an increase from their previous estimation of 16 missiles.

—Anthony H. Cordesman and Arleigh A. Burke, "Iraqi Military Forces Ten Years after the Gulf War," Center for Strategic Studies, August 2000, p.81; Barbara Crossette, "U.N. Says Iraq May Be Hiding More Missiles Than Suspected," *The New York Times*, 19 December 1996, p. A5, in Proquest, www.proquest.umi.com; Anthony Goodman, Reuters, 18 December 1996, in "UN Believes Iraq Still Has 'Missile Force,'" Executive News Service, 27 December 1996; Michael Theodoulou, "UN Chief Says Iraq Arms Trip Failed," *The Times* (Online), 12 December 1996, www.sunday-times.co.uk; UPI, 18 December 1996, in "Iraq Gives No Account of Missing Missiles," Executive News Service, 18 December 1996; Anthony Goodman, Reuters, 4 December 1996, in "UN's Ekeus to Check On Missiles During Iraq Trip," Executive News Service, 4 December 1996; Leon Barkho, Reuters, 11 December 1996, in "Iraq, UN Freeze Dispute over Missile Engines," Executive News Service, 11 December 1996; "Iraq Likely Has Hidden Missiles, Inspector Says," *The Washington Times*, 19 December 1996, p. A13.

Late December 1996

Klaus Loze, the Chairman of the German Bundestag's National Defense Committee, identifies Iraq, Iran, and Syria as countries developing missiles capable of reaching European targets using technology from North Korea.

—*Chungang Ilbo* (Seoul), 22 December 1996, p.1; in "South Korea, North Korea: Iran, Iraq, Syria, Reportedly Developing No-don-Type Missile," FBIS-TAC-97-003, 22 December 1996.

30 December 1996

The UN Security Council criticizes Iraq for its refusal to let UNSCOM ship more than 100 missile engines to the United States for analysis.

—"Security Council Censures Iraq on Missile Oversight," *The Washington Post*, 31 December 1996, p. A14; United Nations, "Third Report under Resolution 1051," S/1997/301, 11 April 1997.

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1995

Early 1995

Iraq begins work on a turbo pump to simultaneously fuel four Volga/SA-2 missile engine combustion chambers.

—United Nations, "Report on Status of Disarmament and Monitoring," S/1999/94, 29 January 1999, www.un.org.

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1995

Iraq declares for the first time that it conducted four flight tests of missiles with indigenously produced engines under Project 1728. All tests took place in 1990. Iraq also declares that it succeeded in the indigenous production of the whole missile airframe and warhead as well as missile launchers.

—United Nations, "Report on Status of Disarmament and Monitoring," S/1999/94, 29 January 1999, www.un.org.

1995

Iraq admits that it produced "major subsystems" of Scud-type engines and conducted a covert program to develop and produce a surface-to-surface missile (SSM) subsequent to the adoption of Security Council Resolution (SCR) 687.

—Thomas Stock, Maria Haug, and Patricia Radler, "Chemical and Biological Weapon Developments and Arms Control," *CBW Year Book 1996*, www.sipri.org.

1995

UNSCOM finds 30 chemical warheads for Iraq's Scud missiles stored in the Dujael area, some 30 km away from the place Iraq previously declared. Sixteen of the warheads carry a unitary nerve agent and 14 carry binary agents.

—United Nations, "Note by the Secretary-General," S/1995/864, 11 October 1995, www.un.org.

1995

Iraq declares that it successfully manufactured and tested virtually all major components except for gyroscopes for its indigenous Scud-type missiles.

—"Ambassador Richard Butler's Presentation to the UN Security Council, JUN 3, 1998," www.fas.org.

1995

According to Iraqi scientists, Saddam Hussein becomes interested in drones and orders a crash program to manufacture new ones. [NOTE: UNSCOM discovered that Iraq had experimented with at least two unmanned aircraft before the 1991 war, including a modified version of the Russian-made MiG-21.]

—Jody Warrick, "Uncertain Ability to Deliver a Blow; Iraq Cobbles together Weapons System with Mixed Results, Analysts Say," *The Washington Post*, 5 September 2002, p. A1, www.washingtonpost.com.

1995

Iraq and Libya conduct a series of tests in the southwest Libyan desert to increase the range of Russian-made Scud missiles. According to Western intelligence services, Iraq shipped between 48 and 100 missiles to Tripoli, Lebanon from Baghdad.

—"Germans Involved in Libyan, Iraqi Missile Production," *Hamburg Stern* in German, 26 February 1998, p.3, in FBIS Document FTS19980226000293.

January 1995

Iraq concludes a framework agreement with Libya on the joint development of ballistic missiles. According to German investigators, those missiles aim to reach a range of 3,000 km.

—"Germans Involved in Libyan, Iraqi Missile Production," *Hamburg Stern* in German, 26 February 1998, p.3, in FBIS Document FTS19980226000293.

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January 1995

Iraqi missile experts from the Ibn Al-Haytham and Al-Karama missile facility visit the military firm Aerofina in Romania. The Iraqis sign a contract with Aerofina for 250 sets of missile-engine parts that Iraq cannot produce itself. Those missile parts include sealing rings, special valves, needles, and O-rings. [NOTE: See September 1995.]
—Charles Recknagel, "Iraq: U.S. Researchers Detail Iraqi-East European Arms Smuggling Efforts," Radio Free Europe Radio Liberty, 21 June 2001, www.rferl.org.

4-17 January 1995

Two Iraqi missile experts groups visit Romania. Razooki Mowaffak leads one group to discuss turbines. Modher Al-Sadiq leads the other group that visits military facilities, including Ploiesti and Aerofina. Modher observes two types of missile engines that Ploiesti produces. The first type is similar to the Volga/SA-2 while the second has lower thrust of 1-2 ton. Modher asks the Romanians to submit offers for engines. Iraq provides a list of machine tools required to Uzinexportimport. [NOTE: See March 1995 for Ploiesti.]
—UN reports and interviews with UN personnel.

7 January 1995

Aerofina signs the 2 October 1994 contract with Modern Technology for liquid propellant engine valves. Razooki Mowaffak states that Modern Technology signs the contract when the Iraqi delegation is in Jordan on its way to Romania.
—UN reports and interviews with UN personnel.

11 January 1995

A Romanian company Aerofina offers Iraq a centrifugal die casting machine and proposes a spring testing machine.
—UN reports and interviews with UN personnel.

12 January 1995

Razooki Mowaffak and Modher Al-Sadiq discuss a protocol with two Romanian companies GIA-RA and Romtechnica based on the August 1994 "Baghdad agreement." Mindruta Mircea and Apostol Dorin represent GIA-RA and Chelu Marian represents Romtechnica. Mowaffak and Modher visit GIA-RA factories and hold technical discussions with GIA-RA. Romania agrees to offer a feasibility study and J-V project in 60 days as well as technical assistance. Romania is to offer test benches for liquid propellant engine subsystems and supply 100 pieces of the afore-mentioned subsystems within 30 days.
—UN reports and interviews with UN personnel.

19 January 1995

Modher Al-Sadiq, Khalid Abood, and others hold the first meeting on the Volga/SA-2-based space launch vehicle in Ibn Al-Haytham.
—UN reports and interviews with UN personnel.

February 1995

UNSCOM decides to dispose of Project 1728 equipment. It claims that this project is intended specifically for the

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production of proscribed missiles, in particular their liquid propellant engines. Iraq protests the Commission's decision.

—United Nations, "Report on Status of Disarmament and Monitoring," S/1999/94, 29 January 1999, www.un.org.

9 February 1995

Khalid Abood reports to Modher Al-Sadiq the results of the simulation of a satellite launch vehicle (SLV) based on clustered Volga/Ababil-100. They reach a conclusion that Iraq needs to develop a 4.5 to 5 ton thrust engine for the SLV. [NOTE: See End of 1994 or Early 1995 and August 1995.]

—UN reports and interviews with UN personnel.

16 February 1995

GIA-RA submits to Iraq an offer to supply steel. The producer of steel is S.C. Blue Star SRL. [NOTE: See 1 March 1995]

—UN reports and interviews with UN personnel.

20 February 1995

A Romanian company Aerofina provides the second offer on a spring testing machine. It also provides offers on electrical standard parts and a gyro ball bearing tester. [NOTE: The gyro ball bearing tester is offered based on the 11 January 1995 agreement in Bucharest.]

—UN reports and interviews with UN personnel.

25 February 1995

Aerofina provides initial specs for roll, pitch, and yaw gyros. It also proposes a rotary table.

—UN reports and interviews with UN personnel.

28 February 1995

Ibn Al-Haytham and Wi'am Gharbiyah sign a contract for standard electrical parts for \$1.6 million, including \$1 million inflated value. This is the second contract they sign.

—UN reports and interviews with UN personnel.

March 1995

The Romanian company Romtechnica attempts to provide Iraq with engine-testing facilities.

—Gary Milhollin and Kelly Motz, "Shopping with Saddam," *The Review* (August 2001), www.ajiac.org.

Beginning of 1995

According to an Iraqi declaration, Iraq initiates work on a turbo pump to fuel simultaneously four Volga/SA-2 missile engine combustion chambers. [NOTE: Later, Iraq claims that this effort achieved no tangible results. A single stage missile with four engines of this type could have a range in excess of the permitted limit of 150 km.]

—United Nations, "Report on Status of Disarmament and Monitoring," S/1999/94, 29 January 1999, www.un.org.

1 March 1995

Ibn Al-Haytham signs a protocol on the request for offer for injectors with two Romanian companies

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Turbomecanica and Romtechnica. Dr. Karim Ahmed (Ahmad Hassan) signs for Ibn Al-Haytham. Turbomecanica and Romtechnica are to submit an offer for disassembled parts for a fuel/oxygen injector, and bi-injector including tools, jigs, and fixtures. They are also to offer production technology for valves plunger, needle, and piston, test benches for air reducer valve and a supply of fuel/oxygen start valves (200 pieces). [NOTE: Iraq makes a similar request to Ukraine on 26 April 1995 (some quantities are different).]

—UN reports and interviews with UN personnel.

1 March 1995

Ibn Al-Haytham signs a protocol on the request for offer for a turbo pump with two Romanian companies Turbomecanica and Romtechnica. Dr. Karim Ahmed signs it for Ibn Al-Haytham. Regarding the meeting in Baghdad on 28 February 1995, Turbotecnica and Romtechnica are to offer disc (250 pieces) OR blade (25,000 pieces); TP test bench; ball bearings. [NOTE: Iraq made a similar request to Ukraine on 26 April 1995 but some quantities are different). Iraq receives an incomplete offer, date unknown, kY-01 (from T/R or other group?). Iraq asks for turbine blade and additional information on turbine disc, TP test, and bearings.

—UN reports and interviews with UN personnel.

1 March 1995

Two Romanian companies Hidrojet and Romtechnica sign a protocol with Ibn Al-Haytham on the request for offers for injectors and turbo pump. Iraq made the same request with Turbomecanica and Romtechnica.

—UN reports and interviews with UN personnel.

1 March 1995

Ibn Al-Haytham and GIA-RA sign a protocol for complete missile engines. GIA-RA offers two types of missile engines that Modher Al-Sadiq observed when he visited Ploiesti missile engine production factories from 4-17 January 1995. Iraq is to choose one type. GIA-RA agrees to provide 100 units of missile engines. Iraq provides overall design specifications for Ibn Al Haytham's Ababil-100. Ibn Al-Haytham and GIA-RA also sign a protocol regarding the 16 February offer for steel. Ibn Al-Haytham requests a fifty percent reduction in the price of the first offer.

[NOTE: This protocol is conditionally linked to the 6 March 1995 contract with GIA-RA for testing facilities for engine subgroups: turbo pump, valves, start chamber (test benches first, followed by implementation of engine contract).]

—UN reports and interviews with UN personnel.

1995

Romania's Industrial Group of the Army agrees to help Iraq develop propellant for a solid-fueled missile for \$1.36 million.

—Gary Milhollin and Kelly Motz, "Shopping with Saddam," *The Review* (August 2001), www.ajiac.org; Wisconsin Project on Nuclear Arms Control, "Supplier: Industrial Group of the Army," June 2000, www.Iraqwatch.org.

6 March 1995

Dr. Karim from Contracting Investment Bureau (CIB) of Ministry of Industrial Commission (MIC), Romtechnica, and

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GIA-RA sign a contract for pumps and a request for offer on test benches in Baghdad. [NOTE: Hussein Kamel created CIB in MIC. CIB basically serves as an administrative office for smuggling activities that he controlled. It consists of Ministry staff. They supervise six to seven front companies, which are probably involved in some proliferation-related imports] These companies are to supply 100 pieces of V-750 (&V-755) pump (\$231,000) and offer for test bench: afore-mentioned pumps, regulating valve, reducer, injectors and injection head, start chamber, gas generator, start valve, shut-off valve. Contract is to come into effect when Iraqi receives technical specs on pumps and a price list on test benches. [NOTE: Iraq asks Ukraine for the same items on 26 April 1995.]
—UN reports and interviews with UN personnel.

6 March 1995

Ali H. Attawi of CIB-Modern Technology and Chelu Marin of CIB-Romtechnica (Romania) sign a contract for quality control equipment. Two of equipment are German-made and one is Swiss. Maximum value is \$350,000. Delivery time for smaller measuring devices is to take six weeks. [NOTE: Iraqis say that MIC does not approve the contract. According to Mowaffak's memo, " ...likely, denial was post-16 June based on Mowaffak memo (see 16 June 1995 memo)."]

—UN reports and interviews with UN personnel.

9 March 1995

Mindruta Mircea and Dorbre Valeriu of Romanian Industrial Group of the Army R.A. and Dr. Asir A. Saleh sign an agreement on solid propellant in Baghdad. [According to the 12 August 1994 Baghdad protocol and 12 January 1995 protocol in Bucharest, there is a general framework for cooperation on R&D/Z-lot manufacture (including ground-to-ground tests). No specific guidance is mentioned. In 45 days, Romania is to provide offers for materials such as ethyl cellulose, AG-4V, Poly Methyl methacrylate (AMMA), Methyl methacrylate (MMA), Tricresyl phosphate, asbestos powder, and heat resistance glue.

—UN reports and interviews with UN personnel.

21 March 1995

Uzinexportimport of Romania offers Iraq: steam turbine manufacturing, air compressor manufacturing, electrical standard parts, turbines and generator plant, and machine tools.

—UN reports and interviews with UN personnel.

21 March 1995

Director General Matache Nicolai of Uzinexportimport offers Modher Al-Saiq and Razooki Mowaffak a steam turbine based on the 12 January 1995 protocol. The offer is worth \$29.8 million. The manufacturer of the turbine is General Turbo.

—UN reports and interviews with UN personnel.

21 March 1995

Matache Nicolai of Uzinexportimport offers Modher Al-Sadiq and Razooki Mowaffak an air compressor based on the 12 January 1995 protocol. The offer is worth \$1.18 million. Integral Project designs the compressor and Faur

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manufactures them.

—UN reports and interviews with UN personnel.

21 March 1995

Matache Nicolai of Uzinexportimport offers Modher Al-Saiq and Razooki Mowaffak turbines and generator plant based on the 12 January 1995 protocol. The offer is worth \$315 million. Uzinexportimport also offers Iraq machine tools based on the list Modher Al-Sadiq provided in January 1995. The offer is worth \$12.46 million. The machines are intended for Ibn Al-Haytham, but there is no planning for a specific number. Modher just wanted to get price quotes. He finds the offer price is too high hence, requests more information. However, he does not get a response.

—UN reports and interviews with UN personnel.

26 March-10 April 1995

The Iraqi delegation led by Naim visit Ukraine. The delegation includes Dr. Modher Al-Sadiq of Ibn Al-Haytham, Col. Khalid Abood of Ibn Al-Haytham, Dr. Rawa (SRC), Col. Asir Ali Assour (AK), Col. Mahmood of Ibn Al-Haytham, Lt. Col. Abdul Salaam (AK), and Dr. Assad (SRC). This is their third trip to Ukraine. They discuss valves, discs, CNC machines, etc. The Iraqis ask Ukraine to supply them with those items. Modher discusses TEA plant. SRC is interested in satellite cooperation. They draft no contracts, except for the TEA plant.

—UN reports and interviews with UN personnel.

26 March-10 April 1995

Iraq negotiates a contract with Ukraine for a triethylamine production plant. [NOTE: Triethylamine is used as an ingredient (with xylonite) in the rocket fuel known as TG-02. TG-02 is the main fuel for the SA-2 and Al-Samoud missile and is the "start fuel" for the Scud missile.]

—UN reports and interviews with UN personnel.

April 1995

China along with North Korea continues to transfer missile technology to Iraq. China also maintains a recipient/supplier relationship with Israel, that Israel could exploit by persuading China not to sell more weapons in the Middle East.

—Pamela Pohling Brown, "Checkered Chums," *Strategic Digest* (April 1995), pp. 493-494.

April 1995

According to the US Department of Defense's fiscal year 1996 Electronic Warfare Plan, approximately 30 countries incorporate lasers into military systems including target designators and range finders. According to the plan, Iraq, Iran, Libya, North Korea, and Syria are all thought to be interested "in converting commercial-grade lasers into antihuman/electro-optic sensor weapons."

—"Proliferation of Electronic Warfare Systems Expanding," *Defense Daily* (On-line), 2 February 1996.

April 1995

Iraq prepares a test launch for a 150km-range SSM. Iraqi Foreign Minister Mohammed Al-Sahaf says, "We are at the moment producing missiles for our defense." He also says that Iraq prepares missiles, including Al-Samoud and

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Ababil, for tests. Iraqi scientific adviser General Amer Al-Saadi says that UNSCOM is aware of these missile programs.

—Ed Blanch, "Iraq Set to Test Maximum-range Missiles Allowed," *Jane's Defence Weekly*, 16 December 1998, p.3.

10 April 1995

UNSCOM concludes that Iraq produced no completed Badr-2000 missile. It believes that Iraq did not acquire any technology or equipment for the production of any other aspects or components of that system, such as guidance and control (G&C) and launchers. [NOTE: Iraq began the Badr-2000 program in 1985. It is a high-technology, two-stage missile system designed for a range of approximately 1,000 km.]

—United Nations, "Note by the Secretary-General," S/1995/284, 10 April 1995.

Early April 1995

Naim Bakr Ali signs a draft contract with Yuriy Orshansky of Ukraine for machine tools in Kharkov. The value of the deal is \$607,000. The break-down is \$457,000 for goods, \$150,000 for freight/insurance.

—UN reports and interviews with UN personnel.

15 April-1 May 1995

The Iraqi missile experts led by Razooki Mowaffak visit Ukraine for the fourth time. Mowaffak is from Turbines & Compressors Department of the Ibn Al-Haytham. The Iraqi delegation includes Engineer Maki (Al-Hartha power station), Engineer Raadi (Director of Bashra power station), Dr. Karim of Ibn Al Haytham, Major Khalid of Ibn Al-Haytham, Engineer Asir of Ibn Al Haytham. No Karama representatives are invited. They discuss liquid propellant engine materials, solid fuel, and power turbines. Discussions regarding missiles are to follow. Draft contracts for machine tools and raw materials are completed but never signed.

—UN reports and interviews with UN personnel.

17 April 1995

Iraq finalizes a contract with Ukraine for machine tools in Baghdad. Yuriy Orshansky sign the contract. Declared value of the deal is \$644,000. The break-down is \$537,000 for goods, 80,000 for transportation, and \$26,000 for customs. Iraq also signs contracts with Ukraine for steel. The declared value of the transaction is \$4,375,000. The break-down is \$4,100,000 for goods, \$123,000 for transportation, and \$512,000 for customs.

—UN reports and interviews with UN personnel.

21 April 1995

Wi'am Gharbiyah visits NIIKhSM in Moscow to finalize the deal that they initiated in November 1994. He purchases from Zagorsk 120 gyroscopes and 120 accelerometers from long-range Russian SS-N-18 missiles and other guidance system components from dismantled submarine-launched ballistic missiles. This dismantlement plant is located in Zagorsk (now called Sergiyev Posad). Gharbiyah is to pay part of the purchases by a line of credit established at the Moscow branch of Turkey's Yapy Toko Bank. Gharbiyah promises to pay his suppliers \$120,000 as soon as the end-user in Iraq accepts the goods. [Gharbiyah stays in Moscow until 30 June 1995.]

— UN reports and interviews with UN personnel; Vladimir Orlov and William C. Potter, "The Mystery of the Sunken Gyros," *Bulletin of the Atomic Scientists*, Vol. 54 (November/December 1998), www.bullatomsci.org; Charles

Related content is available on the website for the Nuclear Threat Initiative, www.nti.org.



Recknagel, "Iraq: U.S. Researchers Detail Iraqi-East European Arms Smuggling Efforts," Radio Free Europe Radio Liberty, www.rferl.org; Gary Milhollin and Kelly Motz, "Shopping with Saddam," *The Review* (August 2001), www.ajiac.org.

1995

A Moscow-based company Mars Rotor tests 120 accelerometers and gyroscopes Niikhism sold to Wi'am Gharbiyah in April 1995.

Wisconsin Project on Nuclear Arms Control, "Supplier: Mars Rotors," June 2001, www.Iraqwatch.org; Jeffrey Smith, "Did Russia Sell Iraq Germs Warfare Equipment? Document Seized by UN Inspectors Indicates Illicit Deal," *Washington Post*, 12 February 1998, p. A1, in ProQuest, www.proquest.umi.com.

26 April 1995

Iraq signs an agreement on a request for offer of mechanical parts with Ukraine. Yuriy Orshansky and Abdul Karim sign the agreement in Kharkov. Iraq submits drawings listed for 162 mechanical parts such as plungers, injectors, and rings to be manufactured per an earlier agreement between Modher Al-Sadiq and Orshansky. By 1 July 1996, Orshansky is to submit offer for tools, jigs, dies, attachments required to manufacture the parts on machines are to be supplied based on the Modher-Orshansky agreement. By 1 July, Orshansky is also to submit an offer for manufacturing these parts and to develop a high-speed test bench for existing machine. [NOTE: These requests for offer are similar to the 1 March 1995 one with Romania.]

—UN reports and interviews with UN personnel.

26 April 1995

Iraq signs an agreement on a request for an offer for turbo pump and solid rocket motor with Ukraine. Yuriy Orshansky, Abdul Karim, Iraqi missile engineer Asir Ali Assour from Ibn Al-Haytham sign the agreement in Kharkov. Orshansky is to submit offers for disc (250 pieces) and suggests welding technique, blade root design, etc. or 5000 blades; TP test bench; ball bearings (for 18500 rpm); injectors; prod means for swirler-oxygen injector, valve test benches (reducer, start, shut off, gaz generator, injector head). As for solid rocket motor, there is a request for offers for mandrel, battery 1/2, P cartridges, materials, calcium strips. Orshansky is to suggest possible cooperation for solid rocket motor design and technology. [NOTE: These are similar to the 1 March 1995 request for offer with Romania, but some quantities are different.]

—UN reports and interviews with UN personnel.

May-July 1995

UNSCOM addresses issues regarding Iraq's undeclared missile designs and components, missile fuels activities, and the connection between the missile program and other proscribed activities.

—United Nations, "Note by the Secretary-General," S/1995/864, 11 October 1995.

June 1995

Romania Industrial Export offers Iraq several production lines capable of producing 247,000 tons of nitric acid per year and 1,000 tons of ammonium nitrate per day. Iraq can use these materials for rocket propellant and high explosives.

Related content is available on the website for the Nuclear Threat Initiative, www.nti.org.



—Wisconsin Project on Nuclear Arms Control, "Supplier: Romania Industrial Export," September 2000, www.Iraqwatch.org.

June 1995

Wi'am Gharbiyah takes 10 samples of gyroscopes that he bought from the Russian Research and Testing Institute of Chemical and Building Machines (NIIKhSM) with him to Jordan and then goes on to Iraq.

—Anna Otkina, "Lessons of 'the Gyroscope Deal,'" *Yaderny Kontrol Digest*, No. 7 (Spring 1998), pp. 3-18.

June 1995

Rolf Ekeus visits Egypt to discuss with the Egyptian Foreign Minister Umar Musa his country's prior missile cooperation with Iraq. Ekeus seeks to examine information received from Iraq regarding the Egyptian-Iraqi-Argentinean Condor II missile program and the Egyptian-Iraqi chemical weapons programs.

—Voice of the Iraqi People (Clandestine), 7 June 1995, in "UN's Ekeus Investigates Past Weapons Cooperation," FBIS Document FBIS-NES-95-110, 7 June 1995.

June 1995

Hussein Kamel orders work on a seven-ton engine project. [NOTE: Such an engine could increase substantially the propulsive force of the then-declared missile system under development, which already has a range just below 150 km. As of 25 January 1999, Iraq had provided no documentation regarding this activity.]

—UN reports and interviews with UN personnel; United Nations, "Final Compendium," S/1999/94, 25 January 1999.

30 June 1995

Wi'am Gharbiyah leaves Moscow. Two Iraqi "experts" inspect his purchases. Some of the first batch of gyros, accelerometers, and other devices are forwarded to Baghdad.

—Anna Otkina, "Lessons of 'The Gyroscope Deal,'" *Yaderny Kontrol Digest*, No. 7 (Spring 1998), pp. 3-18; UN reports and interviews with UN personnel.

End of June 1995

The senior management at NIIKhSM of Moscow signs a contract with a front company, "SPM-Systema," registered in the name of Sergeyev Posad. NIIKhSM agrees to transfer approximately 800 sets of strategic inertial instruments (gyros and accelerometers) to SPM-Systema, which is to transfer the goods to Moscow in two lots. [NOTE: See By July 1995.]

—Anna Otkina, "Lessons of 'The Gyroscope Deal,'" *Yaderny Kontrol Digest*, No. 7 (Spring 1998), pp. 3-18.

By July 1995

NIIKhSM of Russia makes a final agreement with Wi'am Gharbiyah to sell him "a large amount of non-liquid equipment as well as gyroscope instruments from the command modules of decommissioned 3M-40 ballistic missiles."

—Anna Otkina, "Lessons of 'The Gyroscope Deal,'" *Yaderny Kontrol Digest*, No. 7 (Spring 1998), pp. 3-18.

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1995

Wi'am Gharbiyah shows samples of gyroscopes to Kamel Hussein, Saddam Hussein's son-in-law and the Minister of Industry, Trade, and Oil. The Russian gyroscopes are far more advanced than what Iraq is looking for.

—Anna Otkina, "Lessons of 'The Gyroscope Deal,'" *Yaderny Kontrol Digest*, No. 7 (Spring 1998), pp. 3-18.

July 1995

Iraq sends representatives from its Badr State Establishment to visit Belarusian Belstroyimpex in Minsk. They inspect production lines for manufacturing high-end machine tools, diamond-cutting tools, and for powder metallurgy.

—Charles Recknagel, "Iraq: U.S. Researchers Detail Iraqi-East European Arms Smuggling Efforts," Radio Free Europe Radio Liberty, www.rferl.org.

Early July 1995

Rolf Ekeus tells the UN Security Council that Iraq has procured five pieces of machinery that could be used to manufacture ballistic missiles to produce proscribed missile systems.

—Barbara Crossette, "Iraq Asks Delay on Destroying Missile-Linked Machinery," *The New York Times*, 9 July 1995, p.7.

7 July 1995

Iraq's representative to the UN, Nizar Harndoon, submits a letter to the UN Security Council requesting a delay in the destruction of five pieces of machinery that could be used to manufacture ballistic missiles. The letter indicates that Baghdad wants to postpone the destruction of these machines until the issue of Iraq's biological weapons has been resolved.

—Barbara Crossette, "Iraq Asks Delay on Destroying Missile-Linked Machinery," *The New York Times*, 9 July 1995, p.7.

July 1995

The Romanian company Aerofina reportedly agrees for \$1.16 million to supply Iraq with 20 sample gyroscopes for the Ababil-100 missile and the equipment needed to produce and test them.

—Charles Recknagel, "Iraq: U.S. Researchers Detail Iraqi-East European Arms Smuggling Efforts," Radio Free Europe Radio Liberty, www.rferl.org; Wisconsin Project on Nuclear Arms Control, "Supplier: Aerofina," June 2001, www.Iraqwatch.org.

8 July 1995

Iraq signs a contract with Romania in Baghdad on missile components such as covers roll, pitch, yaw gyros; accelerometer, electrical parts, spring tester, torque motor, rotary table, and ball-bearing tester. The Romanian Investment & Contracting Bureau and Danila Vasile and Apostol Dorin of Aerofina represent the Romanian side. [NOTE: Although in his letter to Aerofina, Modher Al-Sadiq originally had asked for 100 units of gyros, he asks only for 20 because the price Aerofina offered--\$2 million for 50 sets--was too high. Iraq would receive gyros as instruments not as part of a complete system. It also would receive all equipment and tools needed for producing

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for Ababil-100, not Al-Samoud.]

—UN reports and interviews with UN personnel.

15 July 1995

Wi'am Gharbiyah's shipment which contains gyros and accelerometers arrives in Amman. [See 27 April 1995 and July 27 1995.]

—UN reports and interviews with UN personnel; Gary Milhollin and Kelly Motz, "Shopping with Saddam," *The Review*, August 2001, www.aijac.org.

19 July 1995

A UN official says that Iraq agreed to the destruction of five machines and the establishment of a prohibition on the use of eleven machines in any missile-related production.

—"Iraq Agrees to Destroy Arms-Making Equipment," *The New York Times*, 20 July 1995, p. A4; United Nations, "Final Compendium," S/1999/94, 25 January 1999.

20-24 July 1995

Iraq destroys five machine tools at an undisclosed location. It could have used those tools in the production of ballistic missile components.

—James Bruce, "Iraqis in Surprise Move over Missile Tooling," *Jane's Defence Weekly*, 29 July 1995, p.13; Reuters, 24 July 1995, in "UN Says Iraq Has Destroyed Missile Equipment," *Executive News Service*, 24 July 1995.

20 July 1995

The United States claims to have satellite photos indicating that Baghdad has rebuilt its Al-Kindi missile research and development facility since the 1991 Gulf War.

—James Bruce, "Iraqis in Surprise Move over Missile Tooling," *Jane's Defence Weekly*, 29 July 1995, p.13.

27 July 1995

Some of the gyroscopes, accelerometers, and other devices that Wi'am Gharbiyah purchased from Russia arrive in Baghdad from Jordan. [See 27 April 1995, 15 July 1995.]

—Vladimir Orlov and William C. Potter, "The Mystery of the Sunken Gyros," *Bulletin of the Atomic Scientists*, Vol. 54 (November/December 1998), www.bullatomsci.org; UNSCOM report, S/1996/258, 17 December 1996; Gary Milhollin and Kelly Motz, "Shopping with Saddam," *The Review*, (August 2001), www.aijac.org.

30 July 1995

UNSCOM-122/BM33 completes the destruction or rendering harmless of pieces of equipment used for Project 1728.

—United Nations, "First Report under Resolution 1051," S/1996/258, 11 April 1996; United Nations, "Note by the Secretary-General," S/1996/848, 11 October 1996; United Nations, "Note by the Secretary-General," S/1995/864, 11 October 1995.

August 1995

Iraq makes disclosures to UNSCOM about its effort to develop a multi-stage space launch vehicle (SLV). It provides

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UNSCOM with simulations of the system's trajectory, some minutes of meetings, and a portion of the final report as supporting evidence. The chief engineer of the project states that he knew that UN SCR 715 prohibits Iraq from working on clustering and multi-stage techniques as well as separation techniques. [NOTE: See Late 1994 or Early 1995 and 9 February 1995.]

—United Nations, "Report on Status of Disarmament and Monitoring," S/1999/94, 29 January 1999, www.un.org.

8 August 1995

Iraqi General Hussein Kamel Hassan defects to Jordan. In light of his defection, Iraq admits that it achieved greater progress in its efforts to indigenously produce long-range missiles than it had declared previously.

—UNSCOM Chronology of Main Events, www.un.org.

Until mid-August 1995

Iraq denies the existence of any biological warheads, any test activity with chemical warheads, any work on advanced liquid propellant missile systems, any use of new materials for missile airframes (like aluminum), and missile fuels such as unsymmetrical dimethyl hydrazine.

—United Nations, "Note by the Secretary-General," S/1995/864, 11 October 1995.

1995

According to Rolf Ekeus, Iraq disposes of propulsion manufacturing plants because of technical failures. However, it succeeds in launching some of the missiles and in the production of a good number.

—Reuters, 10 June 1996 in "More U.N. Arms Inspectors Arrive in Iraq," *Executive News Service*, 10 June 1996; Leon Barkho, Reuters, 14 June 1996; in "U.N. Destroys Iraqi Germ Warfare Plant," *Executive News Service*, 17 June 1996; "U.N.'s Inspector Wary of Iraqis," *The Washington Times*, 25 June 1996, p. A 15.

August 1995

Iraq reveals that it produced missile engines under its Project 1728 and carried out some 20 static and flight tests with these engines.

—UNSCOM Chronology of Main Events, www.un.org; United Nations, "Note by the Secretary-General," S/1997/774, 6 October 1997.

August 1995

Uday Saddam Hussein takes over the air-defense system development program, called the "Mother of Battles System" after Iraqi General Hussein Kamel Hassan defects to Jordan. Iraq freezes its air-defense system due to the lack of some high precision equipment and spare parts and to other problems.

—"Iraqi Regime Acquires Russian-Made Air Defense System," *Iraqi National Congress* (Internet) in Arabic, 22 March 1999.

13 August 1995

Rolf Ekeus receives a letter from the Iraqi General Amer Rashid Al-Ubeidi, Minister of Oil and former Director of the Military Industrial Commission. This letter states that the Iraqi government ascertained that the defector General Hussein Kamel Hassan was responsible for hiding important information on Iraq's prohibited programs from UNSCOM and the IAEA. Hassan had ordered Iraqi technical personnel not to disclose such information and

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also not to inform Tariq Aziz or General Amer about his instructions.

—United Nations, "Note by the Secretary-General," S/1995/864, 11 October 1995.

14 August 1995

Tariq Aziz withdraws the deadline that Iraq set up previously with regard to its cessation of cooperation with the Security Council and UNSCOM.

—United Nations, "Note by the Secretary-General," S/1995/864, 11 October 1995.

August 1995

Iraq admits that it destroyed only 83 missiles instead of 89 in 1991.

—United Nations, "Note by the Secretary-General," S/1995/864, 11 October 1995.

15 August 1995

Director of the Ibn Al-Haytham Missile Center Modher Al-Sadiq orders his crew to dump some of the Russian guidance systems in the Tigris River.

—Vladimir Orlov and William C. Potter, "The Mystery of the Sunken Gyros," *Bulletin of the Atomic Scientists*, Vol. 54 (November/December 1998), www.bullatomsci.org; United Nations, "Final Compendium," S/1999/94, 25 January 1999.

17 August 1995

Rolf Ekeus visits Baghdad in response to an Iraqi invitation. During his visit, Iraq admits that it inserted biological warfare agents into 166 bombs and 25 Al-Hussein missile warheads immediately prior to the outbreak of the 1991 Gulf War.

—United Nations, "Note by the Secretary-General," S/1995/864, 11 October 1995.

17-20 August 1995

Iraq admits for the first time its work on advanced rocket engines, including those with increased thrust or using unsymmetrical dimethyl hydrazine (UDMH) fuel. Iraq also acknowledges "the production of proscribed rocket engines made of indigenously produced or imported parts and without cannibalization of the imported Soviet-made Scud engines." Furthermore, Iraq admits that it previously misrepresented "the number and the purpose of static and flight tests of proscribed missiles."

—United Nations, "Note by the Secretary-General," S/1995/864, 11 October 1995.

18 August 1995

A leader of the Iraqi opposition claims in an interview on Israeli Television Channel 1 that Iraq possesses 37 operational Scud missiles, and Saddam Hussein will launch them against Israel in a "farewell barrage" if his regime collapses. The unnamed opposition leader, exiled in London, says Saddam Hussein is capable of arming his Scud missiles with chemical or biological warheads. Other unnamed security sources claim that Iraq is not capable of firing dozens of missiles or of fitting them with nuclear, chemical, or biological warheads.

—*Ma'ariv* (Tel Aviv), 20 August 1995, pp.1, 2, in "Security Sources: 'No Chance' Saddam will Fire Scuds," FBIS Document FBIS-NES-95-162, 20 August 1995.

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20 August 1995

Iraqi General Amer Rashid Al-Ubeidi asks Rolf Ekeus to visit a "chicken farm" that he claims belonged to General Hussein Kamel. At the farm, Ekeus finds a number of shipping containers with miscellaneous equipment in them. The wooden boxes are packed with documentation, together with microfiches, computer diskettes, videotapes, photographs, and prohibited hardware components. The documentation includes detailed plans, procedure manuals, and drawings for the production of proscribed missiles and their components.

—United Nations, "Note by the Secretary-General," S/1995/864, 11 October 1995; United Nations, "Final Compendium," S/1999/94, 25 January 1999.

20 August 1995

The Israeli newspaper *Ma'ariv* quotes Israeli security sources as saying that there is no chance that Saddam Hussein will launch Scud missiles against Israel. According to other unnamed security sources, it is difficult to believe that Iraq possesses the capability to fire dozens of missiles or to fit them with nuclear, chemical, or biological warheads.

—*Ma'ariv* (Tel Aviv), 20 August 1995, pp.1, 2 in "Security Sources: 'No Chance' Saddam will Fire Scuds," FBIS-NES-95-162, 20 August 1995.

August 1995

An unnamed source close to Iraqi defector General Hussein Kamel says that Kamel told Rolf Ekeus that Iraq had hidden a quantity of long-range SSMs. The source says that Iraq had concealed information regarding these missiles and the Supergun, the manufacture of which was entrusted to General Kamel in the Al-Fathah area near Kirkuk Governorate in northern Iraq. Unnamed sources estimate work on the Supergun project cost Iraq more than \$3 billion. UNSCOM "dismantled the Supergun before it could be assembled."

—*Al-Sharq Al-Awsat* (London), 24 August 1995, p.2, "Hasan Said to Take Arms Program Documents to Jordan," FBIS-NES-95-164, 24 August 1995.

Until the last quarter of 1995

Iraq seeks contracts for the foreign procurement of gyroscopes.

—"Ambassador Richard Butler's Presentation to the UN Security Council, JUN 3, 1998," www.fas.org.

September 1995

Three sample pieces, such as a regulator valve pin and body arrive in Iraq from Romania. Modern Technology and Aerofina implement this transaction based on the 7 January 1995 contract. Iraq intends to use these parts for a "regulator," which maintains a missile engine's thrust at the required level. [See January 1995.]

—UN reports and interviews with UN personnel; Charles Recknagel, "Iraq: U.S. Researchers Detail Iraqi-East European Arms Smuggling Efforts," Radio Free Europe Radio Liberty, www.rferl.org; Wisconsin Project on Nuclear Arms Control, "Supplier: Aerofina," June 2001, www.Iraqwatch.org.

September 1995

Iraq tells Rolf Ekeus that it has indigenously produced its own Scud missile engines through reverse engineering.

[NOTE: Before this Iraqi revelation, it was widely believed that the only Scud missile engines available to Iraq had

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been Soviet-supplied.]

—Allan George, "Iraq Reveals Capability to Manufacture Scud Engine," *Flight International*, 20 September 1995-9/26/95, p.19.

September 1995

Wi'am Gharbiyah guides an Iraqi delegation through Moscow on a successful hunt for a powerful missile, the Soviet SS-N-18.

—Gary Milhollin and Kelly Motz, "Shopping with Saddam," *The Review* (August 2001), www.ajiac.org.

October 1995

UNSCOM cannot verify Iraq's records regarding its production of guidance and control systems, liquid propellant fuels, and ground support equipment due to inconsistencies in Iraqi declarations.

—"UNSCOM Report, December 1995," *Disarmament Diplomacy* (January 1996), pp. 22-29.

October 1995

Iraq turns over to UNSCOM 18 "gyro-instruments" for Scud-B/Al-Hussein missiles and related technical drawings. Iraq acknowledges that it has used one of them at a missile facility.

— United Nations, "10th Report under UNSCR 687," S/1995/1038, 17 December 1995; "UNSCOM Report, December 1995," *Disarmament Diplomacy* (January 1996), pp. 22-29; United Nations, "Final Compendium," S/1999/94, 25 January 1999.

October 1995

UNSCOM reports that Iraq renewed its efforts to acquire technology from abroad for its missile development program. The Commission currently investigates a shipment of "high-grade missile components," possibly for long-range missiles that Jordanian authorities seized en route to Iraq. UNSCOM hopes to identify the precise type of missile components transferred, the origin of this shipment, the path it followed, and its final destination. Iraq acknowledges that it has secretly continued to develop and manufacture UN-prohibited SSMs since the adoption of SCR 687.

—"UNSCOM Report, December 1995," *Disarmament Diplomacy* (January 1996), pp. 22-29.

11 October 1995

Rolf Ekeus reports that Iraq deceived UN inspectors by failing to disclose that Iraq had previously possessed an indigenous Scud missile engine production capability and had flight-tested a chemical missile warhead.

—Evelyn Leopold, "U.N. Official Accuses Iraq Of Hiding Powerful Arms," *The Washington Times*, 12 October 1995, p. A.17.

13 October 1995

UN and US officials accuse Iraq of covertly purchasing missile components from companies in Russia and Europe via a sophisticated network of "purchasing agents and dummy companies." Those components include accelerometers and gyroscopes, special metals and machine tools, and a French-supplied furnace worth more than \$1 million which is capable of manufacturing missile engine parts. According to Rolf Ekeus, Iraq has also lied about indigenously manufacturing certain missile-associated materials that it had imported. Ekeus asserts that Baghdad

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has placed orders for other missile-related "technologies, supplies, and material." UN officials assert that Iraq does not appear to have assembled any new Scud ballistic missiles, but has stockpiled and concealed materials, possibly to manufacture them in the future. According to UN officials, these materials could be utilized in the production of both short- and medium-range missiles. Iraq has disclosed to UNSCOM that it had attempted to broaden its Ababil-100 missile development program to include the manufacture of surface-to-surface missiles with ranges of between 100 and 150 km.

—Jeffrey Smith, "Iraq Buying Missile Parts Covertly," *The Washington Post*, 14 October 1995, pp. A1, A20.

Late 1995

Iraq admits that it attempted to conceal the "covert" undeclared J-1 project from inspectors with "open" work being done at declared missile facilities.

—"Al Fahd 300/J-1," in Federation of American Scientists, www.fas.org.

November 1995

Iraq provides a second full, final, and complete disclosure of its prohibited missile program, which includes an inventory of the components for proscribed missile guidance instruments that Iraq destroyed unilaterally from July to November 1991. The document refers to seven indigenously produced missiles in addition to 85 imported missiles. Regarding the seven missiles, Iraq explains that the army's Surface-to-Surface Missile Forces received them for training purposes and later the Iraqis destroyed them together with the 85 imported missiles. However, Iraq provides no documentation to confirm this. [NOTE: UNSCOM cannot recover remnants of the indigenous missiles or their engines from the declared destruction site.]

—UNSCOM Chronology of Main Events, www.un.org; United Nations, "Note by the Secretary-General," S/1997/774, 6 October 1997; United Nations, "Final Compendium," S/1999/94, 25 January 1999.

November 1995

Iraq provides inventory lists as supporting documentation for the destruction of components of missile engines and the means for their production. According to Iraq, the items on the lists were loaded on 11 vehicles (some 35-ton capacity each) for concealment but were eventually destroyed at Al-Alam, near Tikrit.

—United Nations, "Note by the Secretary-General," S/1997/774, 6 October 1997.

November 1995

Iraq acknowledges in its "full, final, complete disclosures" that the main purpose for Project 1728 was the reverse-engineering and production of proscribed missile engines. Iraq also admits that it used or acquired the equipment UNSCOM identified for use in proscribed activities.

—United Nations, "Report on Status of Disarmament and Monitoring," S/1999/94, 29 January 1999, www.un.org.

November 1995

Iraq turns over an SS-21 short-range ballistic missile launcher that it had not declared to UNSCOM. Iraq acquired this launcher from Yemen before the Gulf War.

—Anthony H. Cordesman and Arleigh A. Burke, "Iraqi Military Forces Ten Years after the Gulf War," Center for

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Strategic Studies, August 2000, p.81; "Iraq Weapons of Mass Destruction Program," U.S. Government White Paper, 13 February 1998 in Wisconsin Project on Nuclear Arms Control, www.iraqwatch.org.

November 1995

The Iraqis send a letter, through Modern Technology, to Aerofina to temporarily halt shipment on the 7 January 1995 valve contract. [NOTE: There is no response from Aerofina so Iraq sends the second letter directly to them but Aerofina still does not respond.]

—UN reports and interviews with UN personnel.

10 November 1995

The Jordanian government intercepts a shipment of 240 Russian missile-guidance gyroscopes and accelerometers bound for Iraq. UNSCOM conducts an investigation, which confirms the involvement of Iraqi authorities and missile facilities in acquiring sophisticated guidance and control components for proscribed missiles.

—Vladimir Orlov and William C. Potter, "The Mystery of the Sunken Gyros," *Bulletin of the Atomic Scientists*, Vol. 54 (November/December 1998), www.bullatomsci.org; UNSCOM Chronology of Main Events, www.un.org.

November 1995

Iraq acknowledges that it procured and used in proscribed activities the missile equipment UNSCOM destroyed or rendered harmless.

—United Nations, "Note by the Secretary-General," S/1996/848, 11 October 1996.

16 November 1995

Iraq submits a 2,500-page report to UNSCOM including supporting documentation such as offers, contracts, orders, and minutes of meetings related to Iraq's dealings with its main foreign suppliers in the missile area. Iraq confirms in the report that it had used a large radar that UNSCOM destroyed in 1995 for prohibited purposes. [Iraq had previously claimed it used the radar for only legitimate purposes and that UNSCOM's actions were unjustified.] UNSCOM claims the report alone will not be enough for the Commission to confirm the Iraqi claim because Iraq did not include "original documents to account for the expenditure of all imported proscribed missile systems." The report also fails to document the production and disposal of missile systems that were reportedly produced in Iraq, although it does supply more information regarding rocket engines whose major components were reportedly produced in Iraq. Iraq acknowledges the production of approximately 80 Scud-type engine subsystems, 53 of which had been judged unsuitable for use, and 17 of which had been destroyed during testing. According to Baghdad, the remaining 10 engines have been destroyed, although no evidence exists to back up this claim. Iraq also claims to have produced 120 warheads, but again gives no evidence to prove this. In the report, Iraq fails to include information regarding tests involving specially adapted SAMs that could potentially have a range beyond the UN-set limits.

—"UNSCOM Report, December 1995," *Disarmament Diplomacy*, January 1996, pp.22-29.

November 1995

Iraq declares that it indigenously produced some 80 combustion chamber and nozzle (CC/N) assemblies for

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proscribed missile engines.

—United Nations, "Report on Status of Disarmament and Monitoring," S/1999/94, 29 January 1999, www.un.org.

Late 1995

Iraq admits that it conducted a covert program to develop and produce SAMs and carried out a number of tests with modified SSMs for this project. According to UNSCOM, this missile would have prohibited ranges. According to *Flight International*, Western officials assume that the "surface-to air missiles" in question are Soviet-made SA-2s.

—United Nations, "10th Report under UNSCR 687," S/1995/1038, 17 December 1995; Alan George, "UN Uncovers secret Iraqi Ballistic Missile Project," *Flight International*, 3 January 1996, in Lexis-Nexis, <http://web.lexis-nexis.com>.

5 December 1995

Rolf Ekeus announces that after examining Iraqi documents he has come to the conclusion that Iraq had produced 80 Scud-type missiles and 10 missile engines remained unaccounted for. He adds that 53 of the 80 Scud-type SSMs Iraq manufactured were inoperable.

—Jack Redden, Reuters, 8 December 1995, in "Iraqi Missile Parts Worth \$25 Mln-Jordan Official," *Executive News Service*, 12 December 1995; Evelyn Leopold, Reuters, 5 December 1995, in "UN Official Unsatisfied with Iraqi Missile Data," *Executive News Services*, 5 December 1995.

9 December 1995

The Russian Foreign Ministry denies the reports that the shipment of guidance components intercepted in Jordan originated in Russia and emphasizes Moscow's compliance with UN sanctions on Iraq.

—Jack Redden, Reuters, 8 December 1995 in "Iraqi Missile Parts Worth \$25 Mln-Jordan Official," *Executive News Service*, 12 December 1995.

Early December 1995

Jordan finds that Iraq smuggled missile components through Jordan. Components include 115 Russian-made gyroscopes in 10 crates, and material for making chemical weapons. The shipment is worth an estimated \$25 million. Iraq claims that the gyroscopes are for oil exploration but they are similar to those used in the Soviet SS-N-18 submarine-launched ballistic missile (SLBM). A senior Jordanian official says that a Palestinian imported the missile components. According to documents obtained by the United Nations, the Karama research center ordered the missile parts.

—Anthony H. Cordesman and Arleigh A. Burke, "Iraqi Military Forces Ten Years after the Gulf War," Center for Strategic Studies, August 2000, p.81; Jack Redden, Reuters, 8 December 1995, in "Iraqi Missile Parts Worth \$25 Mln-Jordan Official," *Executive News Service*, 12 December 1995; James Bruce, "Jordan Confirms Missile Parts Were Iraq-Bound," *Jane's Defence Weekly*, 3 January 1996, p.3; R. Jeffrey Smith, "U.N. Is Said To Find Russian Markings on Iraq-Bound Military Equipment," *The Washington Post*, 15 December 1995, p. A30.

December 1995

According to Jordan's Foreign Minister Abdul-Karim Kabariti, Jordan intercepts a computerized milling machine

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used to produce spare missile parts that is bound for Iraq. An Amman-based Iraqi front company imported the machine into Jordan.

—"Jordan Grabs Chemicals, Machine Headed for Iraq," *The Washington Times*, 28 December 1995, p.A13; *Al-Dustur* (Amman), 28 December 1995, pp.1, 16, in "Jordan Seizes 'large Amount of Chemical Material,'" FBIS-TAC-96-001, 28 December 1995; Reuters in "Chemicals for Iraq Intercepted," *Financial Times*, 28 December 1995, p. 3 in Lexis-Nexis, <http://web.lexis-nexis.com>.

December 1995

A source from the National Supervision Department (NSD) of Iraq's Military Industrialization Organization (MIO) denies allegations it has attempted to import missile components through Jordan.

—Iraq Television Network (Baghdad), 8 December 1995 in "Source Denies Report on Smuggling Operation," FBIS-NES-95-237, 8 December 1995.

9 December 1995

UNSCOM finds six missile instruments from the bottom of the Tigris River, near Baghdad. Yuli Vorontsov, Russia's Ambassador to the United States immediately denies that they were from Russia, despite the revealing serial numbers. It is then assumed that the gyroscopes had been stolen from the manufacturer in Ukraine.

—Anna Otkina, "Lessons of 'The Gyroscope Deal,'" *Yaderny Kontrol Digest*, No. 7 (Spring 1998), pp. 3-18.

Late 1995

Iraq provides UNSCOM with an inventory of proscribed missiles that it destroyed unilaterally. The inventory contains a reference to seven indigenously produced missiles. Iraq explains that there were missiles or missile engines that have been given to the army's surface-to-surface missile forces as "training" missiles. [NOTE: Iraq has not provided any document to confirm that these indigenous missiles were destroyed together with 85 imported combat missiles.]

—United Nations, "Report on Status of Disarmament and Monitoring," S/1999/94, 29 January 1999, www.un.org.

9 December 1995

UN weapons inspectors pull out gyroscopes allegedly transferred from Russia in a Tigris River canal near Baghdad.

—David Hoffman, "Russian Missile Gyroscopes Were Sold to Iraq; Smuggling Spotlights Holes in Moscow's Defense-Industrial Complex," *The Washington Post*, 12 September 1997.

14-17 December 1995

UNSCOM/MG6A conducts its mission. The Group conducts the third check for the year of 1995 of tagged operational missiles. UNSCOM detects no modifications on missiles inspected during 1995.

—United Nations, "First Report under Resolution 1051," S/1996/258, 11 April 1996.

16-30 December 1995

A team of Iraqi scuba divers directed by UNSCOM pulls out 210 missile instruments and components in the Tigris River near Baghdad. Many of these parts bear clearly identifiable serial numbers in Cyrillic script, included gas pressure regulators, 26 accelerometers, GIMBAL position indicators, and 33 gyroscopes. According to Vladimir Orlov and William Potter, these items originated from dismantled Russian submarine-launched ballistic missiles

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(SS-N-18s) designed to deliver nuclear warheads. UNSCOM assesses that such components are used in missiles with ranges over thousands of kilometers.

—Vladimir Orlov and William C. Potter, "The Mystery of the Sunken Gyros," *Bulletin of the Atomic Scientists*, Vol. 54 (November/December 1998), www.bullatomsci.org; United Nations, "First Report under Resolution 1051," S/1996/258, 11 April 1996.

December 1995

Iraq publicly denies that it acquired missile-related items pulled from the Tigris River.

—United Nations, "First Report under Resolution 1051," S/1996/258, 11 April 1996.

17 December 1995

The Iraqi law enforcement arrests Wi'am Gharbiyah in Iraq "on suspicion of involvement in the illegal supply of missile components."

—Vladimir Orlov and William C. Potter, "The Mystery of the Sunken Gyros," *Bulletin of the Atomic Scientists*, Vol. 54 (November/December 1998), www.bullatomsci.org.

21 December 1995

Rolf Ekeus presents to the UN Security Council a missile gyroscope retrieved from the Tigris Canal in Baghdad. It appears that Iraq hid the gyroscopes in the river. According to Ekeus, the recovered missile gyroscopes are similar to those in a consignment destined for Iraq but intercepted in Jordan in November 1995.

—Barbara Crossette, "Iraq May Be Trying to Make Missiles, A U.N. Report Says," *The New York Times*, 22 December 1995, p. A6.

December 1995

Jordan seizes a large consignment bound for Iraq of toxic chemicals and equipment for producing missile parts.

—Reuters in "Chemicals for Iraq Intercepted," *Financial Times*, 28 December 1995, p. 3 in Lexis-Nexis, <http://web.lexis-nexis.com>; "Jordan Seizes Chemical Shipment Going to Iraq," *Deutsche Presse-Agentur*, 26 December 1995, in Lexis-Nexis, <http://web.lexis-nexis.com>.

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1994

1994

Approximately 30 gyroscopes are stolen from the Scientific Research Institute of the Chemical Machine-Building in Russia and sent to Iraq through Western Europe and Jordan. [The gyroscopes are removed from SS-N-18 strategic missiles with a maximum range of 4,968 miles and a payload of up to seven nuclear warheads.]

—Masha Katsva, "Russian Gyroscopes for Iraq," *Yaderny Kontrol Digest*, 20 September 1997, www.nti.org; "Guidance System from Dismantled Russian ICBMs Went to Iraq," *Russian Reform Monitor*, American Foreign Policy Council, No. 319, 13 September 1997.

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1994

Russia, Iraq, and Techmashimport sign an agreement to construct petrochemical and biotechnological plants in Iraq. [Techmashimport is a Russian trading company.]

—Jamie Dettmer, "Russia Becomes Saddam's Military Superstore," *Insight on the News*, 15 March 1999, p. 6.

1994

Iraq succeeds in testing the first prototype of an integrated air and missile defense system. The Iraqi leadership orders 50 units. Twelve of the units go to Baghdad Air Defense Command, eight are stationed in Baghdad, and four are placed in Habaniyya.

—"Strategic Projects of the Iraqi Military Industrialisation Organisation," Iraqi National Congress, 9 September 1997, www.inc.org.uk.

1994

The leaders of three Romanian military companies--Aerofina, Romtehnica, and GIA-RA--begin negotiations with the Iraqi Military Industry Ministry regarding the sale of weapons parts to Iraq, including missile components and raw materials.

—"Romania Admits to Arms Negotiations with Iraq in 1994," CNN, 3 December 1998; in Lexis-Nexis, <http://web.lexis-nexis.com>.

1994

The Tel Aviv daily newspaper *Yedioth Aharonoth* reports that Baghdad receives surface-to-air anti-tank missiles from Bulgaria.

—Konstantin Kapitonov, "How Iraq Is Circumventing UN Sanctions," *Moscow News*, 10 June 1994; in Lexis-Nexis, <http://web.lexis-nexis.com>.

1994

Saddam Hussein appeals to West European companies in an attempt to procure the latest electronic equipment for the Iraqi Air Force. Hussein also instructs his experts to speed up their research on ballistic missiles.

—Konstantin Kapitonov, "How Iraq Is Circumventing UN Sanctions," *Moscow News*, 10 June 1994, in Lexis-Nexis, <http://web.lexis-nexis.com>.

January 1994

Iraq imports a large vacuum furnace, which it claims was ordered prior to the adoption of United Nations Security Council Resolution (SCR) 687. [NOTE: Iraq later states the vacuum furnace was procured for use in the production of engines for Al-Hussein missiles.]

—United Nations, "Report on Status of Disarmament and Monitoring," S/1999/94, 29 January 1999, www.un.org.

15 January 1994

Iraq submits a 1,000-page document regarding its industrial establishments to the United Nations Special Commission (UNSCOM). This document intends to provide "baseline information" to UNSCOM for its monitoring activities. However, UNSCOM charges that the declaration remains incomplete and that Iraq continues to obtain information, including in regard to the expenditure of Scud-derivative missiles and suppliers of components for

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missile production.

—United Nations, "UNSCOM Report to the Secretary-General," S/1994/750, 24 June 1994; "Leading U.N. Weapons Inspector Ends Visit to Iraq," Xinhua News Agency, 26 January 1994, in Lexis-Nexis, <http://web.lexis-nexis.com>.

19 January 1994

According to US officials, Iraq still possesses up to 20 Al-Hussein missiles that are allegedly hidden in bunkers. Iraqi officials claim that Iraq destroyed all remaining missiles or turned them over to UN officials for destruction. However, UNSCOM inspectors say that they are unable to substantiate the Iraqi claim.

—Jim Anderson, "Iraq Makes Amazing Military Comeback," *The Washington Times*, 19 January 1994, p. A19.

21-29 January 1994

UNSCOM-66/BM20 (Ballistic Missile Group 20) visits a number of research, development, and industrial facilities as mandated by the UN's Plan for Monitoring and Verification. The team updates data collected by previous inspection teams regarding Iraq's missile research and development programs, and examines issues related to Iraq's reporting about facilities that UNSCOM will monitor according to the plan. The team also conducts a preliminary survey for possible application of appropriate monitoring sensors and technologies. Iraq provides the team with a detailed update of its current missile programs pertaining to surface-to-surface missiles (SSMs) with a range greater than 50km.

—United Nations, "Report of the Secretary-General on the Status of the Implementation of the Plan for the Ongoing Monitoring and Verification of Iraq's Compliance with Relevant Parts of Section of Security Council Resolution 687 (1991)," S/1994/489, 22 April 1994.

February 1994

Iraq agrees to hand over documentation to UNSCOM regarding the use and of prohibited missiles prior to the adoption of UN SCR 687. This documentation covers the period of time from 1977 through December 1990, and it accounts for approximately three-quarters of all Iraqi missiles that SCR 687 prohibits and Iraq declared.

—United Nations, "Report of the Secretary General on the Status of the Implementation of the Plan for the ongoing monitoring and Verification of Iraq's Compliance with Relevant Parts of Section C of Security Council Resolution 687 (1991)," S/1994/489, 22 April 1994.

17-25 February 1994

UNSCOM-69/BM21 assesses Iraq's dual-purpose industrial capabilities for missile production.

—United Nations, "Report of the Secretary-General on the Status of the Implementation of the Plan for the Ongoing Monitoring and Verification of Iraq's Compliance with Relevant Parts of Section of Security Council Resolution 687 (1991)," S/1994/489, 22 April 1994.

21 February-2 March 1994

An Iraqi delegation visiting Romania meets with Deputy Prime Minister Dam Mirja Bobsco regarding Iraq's procurement of tractors and harvesters.

—UN reports and interviews with UN personnel.

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26 February 1994

The Iranian News Agency quotes the Supreme Assembly of the Islamic Revolution in Iraq (SAIRI) as claiming that Iraq provided the Iranian rebel group, Mujahedeen-e-Khalq in Iraq, with four ground-to-air missile launching pads, Katyusha rockets, tanks, and radar equipment.

—"Iraq Equips Iranian Rebels with Weapons: Iraqi Opposition," Agence France Presse, 26 February 1994, in Lexis-Nexis, <http://web.lexis-nexis.com>.

28 February 1994

Iraq signs a protocol with the Romanian company GIA-RA at the Aerofina plant. The protocol is for cooperation in aviation and space, as well as guidance systems technology for fuel and firing systems, actuating systems and aircraft engines, safe protection systems, tank and anti-aircraft techniques, military navigation systems, raw and other materials. In addition, an agreement is made to cooperate in the manufacturing and repair of anti-aircraft missiles with a range of less than 150km, tanks, military navigation systems, navigation and gyro systems, "in conformity with international regulations imposed for Iraq."

—UN reports and interviews with UN personnel.

14 March 1994

The Iraqi delegation led by General Amir Rashid, head of Military Industrialization Organization, begins talks with Rolf Ekeus, the UN envoy in charge of dismantling and monitoring weapons systems, concerning a monitoring plan and the lifting of sanctions. Ekeus says that it would take six months of ensuring Iraq's full compliance with resolutions before he could recommend the lifting of sanctions.

—"UN, Iraq Begin New Talks," Associated Press, 14 March 1994, in Lexis-Nexis, <http://web.lexis-nexis.com>.

17 March 1994

UNSCOM limits the diameter of the Ababil-100 to 500mm.

—UN reports and interviews with UN personnel.

17 April 1994

Anton Eyerle, head of the Rhein-Bayern Fahrzeugbau engineering company in Keufbeur, Germany, is on trial for illegally shipping Scud and Styx anti-ship missile fuses to Iraq before and after the 1990 invasion of Kuwait. Eyerle denies the allegations and claims the fuses were part of his company's development of an agricultural dehydration system.

—Fred Studemann, "German Arms Laws on Trial," *The Sunday Telegraph*, 17 April 1994.

22 April 1994

Al-Karama Center is split from the Ibn Al-Haytham Center. General Raad is appointed as the director general of Al-Karama Center.

—UN reports and interviews with UN personnel.

May 1994

According to Iraqi declarations, a number of components and samples of proscribed missile gyroscopes are

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removed from Iraq.

—United Nations, "Report on Status of Disarmament and Monitoring," S/1999/94, 29 January 1999, www.un.org.

May 1994

Iraq maintains several missile design teams and range facilities. It is possible that Iraq continues the Ababil program. [NOTE: The Ababil program is a 1988 cruise missile design apparently based on a target drone system.]

—Duncan Lennox, "Cruise: A Missile for The 90s," *Jane's Defence Weekly*, 7 May 1994, pp. 19-20.

5 May 1994

Wi'am Gharbiyah, a Palestinian from Gaza who operated a trade office in Baghdad and conducted business in Russia, concludes a \$650,000 contract with Salahadin State Establishment in Iraq for Igla missile systems.

—UN reports and interviews with UN personnel.

10-22 or 24 June 1994

UNSCOM-80/BM24 tags more than 1,300 operational missiles systems as directed by the UN's Plan for Ongoing Monitoring and Verification. The plan provides for monitoring of missiles with a range greater than 50km that are designed for use, or capable of being modified for use, in a surface-to-surface role.

—United Nations, "UNSCOM Report to the Secretary-General," S/1994/750, 24 June 1994.

July-August 1994

Iraq receives the first delivery of sub-assemblies and raw materials for missile production from Romania.

—"Romania Admits to Abortive Arms Deal with Iraq, Says Officials Sacked," Agence France Presse, 3 December 1998, in Lexis-Nexis, <http://web.lexis-nexis.com>.

19 July 1994

A German court finds businessman Anton Eyerle guilty of selling components to Iraq for use in building weapons including medium-range Scud-B missiles. [NOTE: Eyerle's company, Rhein-Bayern Fahrzeugbau, sold arms worth up to 30 million Deutsche marks between 1987 and 1990. Another Eyerle company, Avionic Dittel, supplied impact fuses to Iraq for 1,000 missiles.]

—"German Gets 5 Years for Selling Scud Missile Components to Iraq," Deutsche Presse-Agentur, 19 July 1994, in Lexis-Nexis, <http://web.lexis-nexis.com>.

August 1994

Iraq "openly" starts working on short-range missiles such as the Ababil-100, which has a range of approximately 150 kilometers.

—Thomas Ricks, "Iraq Tests Short-Range Missile; U.S. Monitors Flight and Says It Doesn't Violate U.N. Restrictions," *The Washington Post*, 1 July 2000, p. A10.

1 August 1994

UNSCOM establishes the Baghdad Monitoring and Verification Center in order to monitor Iraq's design, testing, and production of permitted missile systems and related dual-purpose items. Rolf Ekeus, chief executive of UNSCOM's dismantling and monitoring weapons systems, declares that the ongoing monitoring and verification

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system is "provisionally" operational.

—United Nations, "Eighth Report under Resolution 687," S/1994/1422/Add. 1, 15 December 1994.

14 August 1994

Romanian company GIA-RA signs a contract to provide Iraq with liquid propellant engine valves. The contract is valued at \$48,750. Production is to take place at the Romanian state-run Aerofina plant. The items to be produced include a seat I, a needle, a seat II, two types of sealing ring, four types of o-rings, two types of bodies, and three types of plungers and plunger seats. The Romanians are to produce 250 pieces per item except for the needle and one type of sealing ring. Items such as the pin and body of the regulator valve, and the plunger and body of reducer valve, are intended for use with the Ababil-100 missile.

—UN reports and interviews with UN personnel.

25 August 1994

Palestinian-Jordanian businessman Wi'am Gharbiyah signs a contract with Modher al-Sadiq, director of the Ibn Al-Haytham Missile Center, to provide raw materials and standard electronic parts. These transfers are worth more than \$12.7 million and \$1.6 million respectively. Also, Modher agrees to pay Gharbiyah \$3.9 million if he is able to supply certain specific missile technology items, such as precision guidance instruments. [NOTE: This purchase order appears to be linked to Modher's efforts to produce a new, more accurate and possibly longer range version of the Ababil-100 missile.]

—UN reports and interviews with UN personnel; Vladimir Orlov and William C. Potter, "The Mystery of the Sunken Gyros," *Bulletin of the Atomic Scientists*, Vol. 54 (November/December 1998), www.bullatomsci.org; David Hoffman, "Iraq Sought Russian Arms Technology; Probe Details Moscow Deal For Missile Equipment in '94," *The Washington Post*, 18 October, 1998, p. A4.

September 1994

High-level talks occur between Iraq and UNSCOM. Iraq continues to insist that all documents related to its past prohibited activities were destroyed. The issues related to past proscribed missile programs include the need for an accounting of certain missile components; identification of all equipment and items procured for, or used in, proscribed activities; and full disclosure of the foreign assistance that Iraq received from a number of countries.

—United Nations, "Eighth Report under Resolution 687," S/1994/1422/Add. 1, 15 December 1994.

September 1994

Forty-one monitoring cameras, installed by UNSCOM at 15 sites related to missiles or associated dual-use technology, become operational.

—United Nations, "Note by the Secretary-General," S/1995/284, 10 April 1995.

1 September 1994

Palestinian-Jordanian businessman Wi'am Gharbiyah signs a contract worth \$2.21 million to provide raw materials to the Al-Karama Center.

—UN reports and interviews with UN personnel.

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17 September 1994

Al M. Harb, a Jordanian-born naturalized US citizen, is found guilty of circumventing a US trade embargo with Iraq. Harb illegally procured and exported technology, machinery, spare parts, and other goods, which experts say were probably intended for use in Iraq's efforts to rebuild advanced weapons systems.

—Daniel Southerland, "Va. Man Convicted of Iraq Shipments," *The Washington Post*, 17 September 1994, p. C5.

24 September 1994

Reports indicate that Iraq works on proscribed missile programs despite UN restrictions.

—"German Firms Allegedly Involved in Shady Mideast Arms Deal," Deutsche Press-Agentur, 24 September 1994, in Lexis-Nexis, <http://web.lexis-nexis.com>.

26 September 1994

US officials say that Iraq continues to rebuild its weapons arsenal and hides stockpiles of intermediate-range Scud missiles from UNSCOM inspectors.

—Sid Balman, Jr., "CIA: Saddam Building and Hiding Weapons," United Press International, 26 September 1994, in Lexis-Nexis, <http://web.lexis-nexis.com>.

2 October 1994

Romanian companies Modern Technology and Aerofina prepare a contract to provide liquid propellant engine valves. [NOTE: Aerofina signs the contract on 7 January 1995.]

—UN reports and interviews with UN personnel.

Late 1994

Romanian aerospace company Aerofina signs a contract with Iraq for the "possible" delivery of equipment for missiles to Iraq.

—"Romania Admits to Abortive Arms Deal with Iraq, Says Officials Sacked," Agence France Presse, 3 December 1998; in Lexis-Nexis, <http://web.lexis-nexis.com>.

11 October 1994

Iraq moves ground-to-ground missiles, tanks, troops, and heavy artillery into a number of frontline positions, including in Kirkuk and Chamchamal. The deployments are supervised by the Minister of Military Industrialization Hussein Kamel and Interior Minister Watban al-Tikriti.

—Ian Black, "Iraq Sets Its Sights on Kurd North," *The Guardian* (London), 11 October 1994, in Lexis-Nexis, <http://web.lexis-nexis.com>.

12 October 1994

According to the 1994-95 annual report from the Institute for International Strategic Studies, Iraq is estimated to possess 250 multiple rocket launchers.

—"IISS Estimate of Iraq's Military Strength," Agence France Presse, 12 October 1994; in Lexis-Nexis, <http://web.lexis-nexis.com>.

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17 October 1994

Iraq agrees to allow UNSCOM to implement a provisional system for the long-term monitoring of its non-proscribed weapons program.

—Randa Habib, "Iraqis Struggle to Survive. Fear the Worst," Agence France Presse, 12 October, in Lexis-Nexis, <http://web.lexis-nexis.com>.

19-22 October 1994

UN Special Monitoring Group (MG2A) assists Monitoring Group-2 with their monitoring and verification activities. Iraq complies with UNSCOM requests to bring forward various missiles.

—United Nations, "Eighth Report under Resolution 687," S/1994/1422/Add. 1, 15 December 1994.

26 October 1994

Ekeus says that UNSCOM is able to account for each of the 819 Scuds that Iraq acquired from the former Soviet Union, including those used during the war with Iran and the 1991 Persian Gulf War. However, the US Central Intelligence Agency (CIA) believes that Iraq started out with nearly 900 Scuds, not 819. Ekeus also says that UNSCOM eliminated all of Iraq's long-range missiles.

—Robert Burns, "U.N. Says All Iraqi Scuds Gone; CIA Says Some Remain," Associated Press, 27 October 1994, in Lexis-Nexis, <http://web.lexis-nexis.com>.

Late 1994

UNSCOM obtains information that Iraq resumed acquisition efforts related to its missile facilities. The Iraqi regime "placed a number of orders, both directly and indirectly (through middlemen and front companies), for the purchase of equipment, technologies, supplies and material for both missile- and non-missile-related activities at these facilities. Iraq explains that many of these efforts are in direct support of its Ababil-100 program for indigenous development and production of surface-to-surface missiles with ranges between 100 and 150 kilometers."

—United Nations, "Note by the Secretary-General," S/1995/864, 17 December 1995.

Late 1994

AT&T transfers advanced telecommunications technology, with a variety of both battlefield and civilian applications, to Galaxy New Technology in China by way of the SC&M Brooks firm in St. Louis. This transfer is known as the Hua Mei project. In turn, the Chinese may repackage the same system for sale to Iraq for use with Iraq's air-defense system. [NOTE: This fiber-optic technology sold to Galaxy New Technology is not a weapon itself, but it greatly enhances the command and control system linking the Chinese army, navy, and air force.]

—Charles Smith, "A Sale to Red China We Will One Day Regret," *Insight on the News*, 31 May 1999.

November 1994

German intelligence agency Bundesnachrichtendienst (BND) finds that Iraq attempted to procure components for indigenous production of Scud-B and Scud-C type missiles. [NOTE: Iraq's first indigenously produced Scud-Bs are expected to become operational in early 1995.]

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—*Berliner Zeitung* (Berlin), 15 December 1994, p.2; in "Iraq, Iran Seeking Arms Technology," FBIS-WEU-94-243, 19 December 1994, pp. 17-18.

November 1994

The Mars Rotor Plant, a Russian company, agrees to provide manufacturing equipment for Iraq's missile guidance system. The company also agrees to send Russian experts to Baghdad in order to certify the equipment and provide training. Russian firm NPO Energomash agrees to provide Iraq with a complete rocket engine with a four-ton thrust, as well as design calculations, final design, and five complete samples of a propulsion system for a "communication satellite" in which the size matches the payload specifications for an intermediate-range Scud derived missile. NPO Energomash also agrees to train the Iraqis in the design, production, and testing of modern rocket engines, and to enter into a project for the joint design a rocket engine.

—Vladimir Orlov and William C. Potter, "The Mystery of the Sunken Gyros," *Bulletin of the Atomic Scientists*, Vol. 54 (November/December 1998), www.bullatomsci.org.

December 1994

Iraq admits that it received proscribed Scud missile gyroscope components until the fall of 1991.

—United Nations, "Second Report under Resolution 1051," S/1996/848, 11 October 1996.

End of 1994 or Early 1995

Iraqi General Hussein Kamel orders production of a small satellite launcher based on the Volga engine with a 50-km payload. It is to be a multi-stage space launch vehicle capable of placing a small satellite into an extremely low orbit.

—UN reports and interviews with UN personnel; United Nations, "Final Compendium," S/1999/94, 25 January 1999.

2-6 December 1994

Special Monitoring Group 2B assists Monitoring Group 2 with verifying that Iraq does not modify operational missiles. The team ascertains that Iraq performed no modifications to increase the range of those missiles.

—United Nations, "Eighth Report under Resolution 687," S/1994/1422/Add. 1, 15 December 1994.

14 December 1994

UNSCOM-102/BM30 finds the radar system for ballistic missiles. The team also discovers evidence that Iraq withheld documents related to the equipment and components used in weapons production.

—United Nations, "First Report under Resolution 1051," S/1996/258, 11 April 1996; United Nations, "Sixth Report under Resolution 715," S/1994/1138, 7 October 1994; "U.N. Inspectors Find Evidence Iraq Hid Radar System Equipment," Associated Press, 16 December 1994, in Lexis-Nexis, <http://web.lexis-nexis.com>.

14 December 1994

US authorities arrest the US-based import and export agent Storm Kheem for allegedly organizing an illicit shipment of ammonium perchlorate, a missile fuel component, in 1993. Kheem allegedly sent the shipment from the Chinese Chemical Import-Export Corporation of Guangdong to Zeid Khorma, an Iraqi government purchasing agent in Jordan.

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—"Feds Arrest Man for Smuggling Fuel Component to Iraq," Associated Press Worldstream, 14 December 1994, in Lexis-Nexis, <http://web.lexis-nexis.com>; "New Yorker Arrested for Export to Iraq," United Press International, 14 December 1994, in Lexis-Nexis, <http://web.lexis-nexis.com>; "New York Trader Nabbed for Iraq Shipment," *Export Control News*, 30 December 1994, p. 14.

Late 1994

Iraq begins the design of the four-chamber pump.
—UN reports and interviews with UN personnel.

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1993

Early 1993

Wi'am Gharbiyah, Palestinian-Jordanian businessman begins to make deals for the Salahadin State Establishment, an Iraqi defense electronics organization. [NOTE: Gharbiyah has been doing business with Iraqi security services since 1990. He established connections with Hussein Kamel, director of Iraq's Amn Al-Khas (special security organization) and the Military Industrial Commission.]

—Vladimir Orlov and William C. Potter, "The Mystery of the Sunken Gyros," *Bulletin of the Atomic Scientists* Vol. 54 (November-December 1998), www.bullatomsci.org.

1993

Iraq attempts to procure critical items for gyroscope instruments.

—United Nations, "Report on Status of Disarmament and Monitoring," S/1999/94, 29 January 1999, www.un.org.

1993

A facility which was involved in the production of missile gyroscope instruments receives orders to resume its work and to produce proscribed missile gyroscope instruments. [NOTE: Iraq later states that this effort was very short lived but it provides no evidence to support this.]

—United Nations, "Report on Status of Disarmament and Monitoring," S/1999/94, 29 January 1999, www.un.org.

1993

An Iraqi delegation led by Amad Hasam Amin visits Moscow. Amin is the director of Iraq's surface-to-surface missile (SSM) Project 144. [NOTE: Project 144 focuses on the modification and production of Scud missile systems along with the supplementary Project 1728 for indigenous Scud engine development and production. Project 144 is assigned to the Iraqi defense organization, Al Qa-Qa State Establishment in Baghdad.]

—Jamie Dettmer, "Russia Becomes Saddam's Military Superstore," *Insight on the News*, 15 March 1999, p.6.

3 January 1993

Iraq conducts the first Ababil-100/J-1 flight test. [NOTE: J-1 is a secret SSM production project based on the Volga/SA-2 surface-to-air missile (SAM). The project focuses on modifying its engine and guidance and control

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system.]

—UN reports and interviews with UN personnel.

4-5 January 1993

Iraq moves Soviet-made anti-aircraft missiles (SA-2 and SA-3) into areas bordering a southern "no-fly" zone.

—"U.S. Concerned about Iraq's Movement of Missile near 'No-Fly' Zone," Xinhua News Agency, 5 January 1993, in Lexis-Nexis Academic Universe, <http://web.lexis-nexis.com>; Stephen Robinson and Anton La Guardia, "Washington Warns Iraq over Ban on UN flights," *Daily Telegraph*, 11 January, 1993, p.8, in Lexis-Nexis Academic Universe, <http://web.lexis-nexis.com>; United States Information Agency: US Policy on Iraq, <http://usinfo.state.gov>.

6 January 1993

The United States, Britain, France, and Russia give Iraq a 48-hour ultimatum to remove its anti-aircraft batteries positioned inside the "no-fly" zone in southern Iraq. The United States also makes clear that it will not issue any further warning if Iraq continues to violate the demarche.

—"Iraq Warned to Remove Missiles Immediately," Agence France Presse, 6 January 1993, in Lexis-Nexis, <http://web.lexis-nexis.com>; George Bush, "Letter to Congressional Leaders Reporting on Iraq's Compliance With United Nations Security Council Resolutions," 19 January 1993, <http://bushlibrary.tamu.edu>.

7 January 1993

In response to the Coalition ultimatum, the Iraqi ambassador to the United Nations asserts the sovereignty of Iraq and declares the right to deploy defenses on any part of its soil. Ambassador Hamdun gives no definitive response regarding compliance with the ultimatum. Iraq also notifies UNSCOM that UN aircraft are no longer allowed to use Habaniyah airport.

--George Bush, "Letter to Congressional Leaders Reporting on Iraq's Compliance With United Nations Security Council Resolutions," 19 January 1993, <http://bushlibrary.tamu.edu>; William J. Clinton, "Status report on Iraq's non-compliance with U.N. resolutions," *U.S. Department of State Dispatch*, 5 April 1993, <http://proquest.umi.com>.

8 January 1993

Bad weather prevents Coalition forces from obtaining conclusive verification of Iraqi compliance with the 48-hour ultimatum to remove anti-aircraft missiles from the "no-fly" zone. However it appears that some missile batteries have been dismantled. Iraq announces that it will not allow UN inspectors to use their aircrafts to conduct inspections of Iraqi military installations. UN inspectors must use Iraqi aircraft.

—"Chronology: Iraq," *The Middle East Journal*, Vol. 47 (Spring 1993), pp. 322-327; UNSCOM Chronology of Main Events, www.un.org.

9 January 1993

The Iraqi leadership urges its people to prepare for a war against the United States and allied forces, which have demanded the removal of missiles from southern Iraq. However, US officials state that Iraq has complied with the January 6th ultimatum to remove anti-aircraft missiles from the "no-fly" zone in the south. An Iraqi spokesman, in a statement carried by the Iraqi News Agency denies that Iraq agreed to comply.

—Eileen Alt Powell, "Iraq Watched after Reportedly Moving Missiles," Associated Press, 9 January 1993, in Lexis-

Related content is available on the website for the Nuclear Threat Initiative, www.nti.org.



Nexis Academic Universe, <http://web.lexis-nexis.com>; "Iraq Denies It Backed down, Says Bush Seeking Easy Way out," Associated Press, 10 January 1993, in Lexis-Nexis, <http://web.lexis-nexis.com>.

10 January 1993

Iraq conducts a static test on a modified SA-2/Volga engine at the Rafah test facility. The test is reported to be a failure.

—UN reports and interviews with UN personnel.

10 January 1993

Iraq conducts the second Ababil-100/J-1 flight test.

—UN reports and interviews with UN personnel.

10 January 1993

Approximately 200 Iraqi soldiers cross the border between Iraq and Kuwait and seize weapons, including four Chinese-made Silkworm missiles from six ammunition bunkers located on the Kuwaiti side of the border. Those weapons are left over from the Persian Gulf War.

—"Iraqis Cross into Kuwait, Retrieve Weapons," United Press International, 10 January 1993, in Lexis-Nexis, <http://web.lexis-nexis.com>.

10-17 January 1993

A stand-off takes place between the Iraqi government and UN inspectors over Iraq's refusal to allow inspectors to monitor two missile test sites south of Baghdad.

—United States Information Agency: U.S. Policy on Iraq, <http://usinfo.state.gov>.

11 January 1993

Iraq deploys an SA-2 missile battery near the Saddam hydroelectric dam, approximately 40 km north of the city of Mosul and well within the northern "no-fly" zone. Iraq also deploys additional SA-3 batteries closer to Mosul and in the southern "no-fly" zone near Talil air base.

—"Chronology: Iraq," *The Middle East Journal*, Vol. 47 (Spring 1993), pp. 322-327.

13 January 1993

More than 100 British, French, and US planes strike missile battery and radar stations near Al-Amara, Basra, Najaf, Samawa, and the Talil air base. US warplanes destroy only one of the four Iraqi SAM batteries targeted. During the Coalition attack, Iraqi forces fire at least four SAMs.

—Michael R. Gordon, "Some Iraqi Missile Sites Damaged, U.S. Says, Calling Raid a Success," *New York Times*, 15 January 1993, in Lexis-Nexis, <http://web.lexis-nexis.com>; "Chronology: Iraq," *Middle East Journal*, Vol. 47 (Spring 1993), pp. 322-327.

14 January 1993

In assessing the damage caused by the previous day's attack, the Pentagon reports allied warplanes destroyed only one of four Iraqi SAM batteries targeted.

—Michael R. Gordon, "Some Iraqi Missile Sites Damaged, U.S. Says, Calling Raid a Success," *New York Times*, 15

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January 1993, in Lexis-Nexis, <http://web.lexis-nexis.com>; "Chronology: Iraq," *Middle East Journal*, Vol. 47 (Spring 1993), pp. 322-327.

17 January 1993

An Iraqi SA-6 anti-aircraft missile radar near the city of Mosul in the northern "no-fly" zone locks on a US Air Force F-4G. The F-4G hits Iraqi anti-aircraft missile sites.

—"Chronology of Latest UN-Iraq Confrontation," Associated Press, 17 January 1993, in Lexis-Nexis, <http://web.lexis-nexis.com>.

18 January 1993

US Air Force planes bomb an Iraqi anti-aircraft artillery site and fire missiles at an air defense radar in northern Iraq. US and UK warplanes strike air defense control sites in the southern "no-fly" zone below the 32nd parallel. These sites contain early warning radars, communication systems, and other parts of an air defense network.

—Robert Burns, "Air Force Planes Restrike Iraqi Air Defenses," Associated Press, 18 January 1993, in Lexis-Nexis, <http://web.lexis-nexis.com>.

23 January 1993

UNSCOM-48 Interim Monitoring Team 1a (IMT-1a) arrives in Baghdad. Its monitoring activities aim at deterring Iraq from launching covert programs in prohibited missile system.

—UN reports and interviews with UN personnel; United Nations, "UNSCOM Report to the Secretary-General," S/1994/750, 24 June 1994.

23 January 1993

UNSCOM-48/IMT-1a observes a missile research base approximately 20 km north of Baghdad until Iraq agrees to a long-term monitoring agreement.

—"Iraq Resists Demand for Extended Oversight," *Washington Times*, 30 January 1993, p. A8.

January 1993

CIA Director Robert Gates informs Congress that Iraq possesses approximately 150 ballistic missiles that can reach targets in Saudi Arabia, Israel, and Turkey.

—"Does Iraq Have The Bomb?" *Mednews*, 25 January 1993, pp. 1-3.

25 January 1993

Iraq rebuilds its conventional weapons plants and dual-use facilities including the Badr complex at Al Yusufiah, which continues to manufacture CNC tools under a West German license. At the Al-Amil plant, Iraq continues to manufacture liquid nitrogen under a German license. [NOTE: Liquid nitrogen is used for "cryogenic rocket fuels" and as the electromagnetic isotope separation process (EMIS) diffusion pump coolant.]

—"Does Iraq Have The Bomb?" *Mednews*, 25 January 1993, pp. 1-3.

25 January 1993

UNSCOM-48/IMT-1a visits the Ibn Al-Haytham Research and Design Center and the Rafah site.

—Nizar Hamdoon, "Information Bulletin on the Measures Taken by Iraq In Implementation Of Security Council

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Resolution 687 (1991) During the Month Of March 1993," UN Security Council Document, 6 April 1993; Jeffrey Smith, "U.N. Team Sets Daily Inspections at Iraqi Missile Research Center," *Washington Post*, 27 January 1993, p. A.16; United Nations, "Status of the Implementation of the Plan for the ongoing Monitoring and Verification of Iraq's Compliance with Relevant Parts of Section C of Security Council Resolution 687 (1991); Report of the Secretary-General," S/25260, 19 April 1993.

Late January 1993

UNSCOM determines that Iraq develops approximately a half-dozen new types of short-range ballistic missiles and experiments with the Silkworm cruise missile.

—Jeffrey Smith, "U.N. Team Sets Daily Inspections at Iraqi Missile Research Center," *The Washington Post*, 27 January 1993, p. A.16.

Late January 1993

Iraqi scientists at the Ibn Al-Haytham facility work on propellants, guidance system, and other missile components.

—Jeffrey Smith, "U.N. Team Sets Daily Inspections at Iraqi Missile Research Center," *The Washington Post*, 27 January 1993, p. A.16.

25 January 1993

UN officials inform the Iraqi government that daily inspections would immediately begin at the Ibn Al-Haytham research center and will continue indefinitely because of concerns regarding missile-related activities at the facility.

—Jeffrey Smith, "U.N. Team Sets Daily Inspections at Iraqi Missile Research Center," *The Washington Post*, 27 January 1993, p. A.16.

26 January-23 March 1993

UNSCOM-48/IMT-1a inspects the significant amount of ongoing activities in Iraq on solid propellant missile systems and related technologies at the Ibn Al-Haytham missile research center. The center employs a significant number of scientists previously employed in Iraq's now proscribed ballistic missile programs. Iraq declares this center to be its principal facility for research and development of missiles with a range of less than 150 km.

—United Nations, "Status of the Implementation of the Plan for the ongoing Monitoring and Verification of Iraq's Compliance with Relevant Parts of Section C of Security Council Resolution 687 (1991)," S/25620, 19 April 1993; United Nations, "First Report under Resolution 1051," S/1996/258, 11 April 1996; United Nations, "Sixth Report under Resolution 715," S/1994/1138, 7 October 1994; "Al Haytham/Al Hatim," Federation of American Scientists, www.fas.org.

29 January 1993

UNSCOM-48/IMT-1a stays in Baghdad to observe a missile research base 20 km north of Baghdad.

—Nabila Megalli, "Iraq Still Refuses Key Weapons Monitoring," Associated Press, 29 January 1993.

February 1993

Ibn Al-Haytham Center employs 350 people. It is anticipated that the number will increase to 1,000. There are

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currently 60 engineers with the total projected staff of engineers to be 300.

—UN reports and interviews with UN personnel.

February 1993

Iraq provides a detailed list of Hawk launchers, missiles, and radars. [NOTE: Previously, Iraq included only the Hawk missiles on the list of items to be returned, although Kuwait possessed 12 to 24 improved Hawk launchers prior to the Iraqi invasion. Western intelligence agencies indicate that Iraq was "examining setting up" the improved Hawks, and the Iraqi military has been periodically detected turning on the Hawk radar in an attempt to understand how it works.]

—"Iraq Vows to Return Weapons," *Defense News*, 15 February 1993, pp.3-4.

February 1993

Ibn Al-Haytham Center has six "preliminary concept designs" for the Ababil-100. The designs include four solid rocket motors (SRM) and two liquid propellant engines (LPE). Iraq places emphasis on an LPE version, but it may take SRM and LPE engines through the prototype phase.

—UN reports and interviews with UN personnel.

February 1993

Iraq reportedly works on extending the performance of HY-2 (Silkworm anti-ship missiles). Reverse-engineering of HY-2 JATO to retro-fit onto a C-601 airframe is also in progress. [NOTE: The reverse-engineering would allow Iraq to use modified SAMs as Surface to Surface Missiles.]

—UN reports and interviews with UN personnel.

February 1993

Iraq tells UNSCOM-48/IMT-1a that it attempted to produce Volga/SA-2 oxygen tanks, but to date have been unsuccessful.

—UN reports and interviews with UN personnel.

February 1993

Balat Al-Shuhada (Rashid), Nasser, and Al Qa-Qa operate independently from the Ibn Al-Haytham Center. The Nasser State Establishment will likely be a missile airframe and major components manufacturer.

—UN reports and interviews with UN personnel.

12 February 1993

A UN ballistic missile search team designated UNSCOM-50/BM15 arrives in Iraq.

—United Nations, "Note by the Secretary-General," S/25977, 21 June 1993.

13 February 1993

UNSCOM-50/BM15 visits the Taji military camp where Iraq previously constructed Scud missiles to check whether Iraq secretly stores or produces proscribed missiles. Iraq reportedly still has 100 to 200 missiles.

—Reuters, 13 February 1993 in Leon Barkho, "U.N. Team in Iraq Visits Former Scud Missile Site," Executive News

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Service, 15 February 1993; "U.N. Missile Team Is Greeted Frostily on Mission to Iraq," *The New York Times*, 13 February 1993, p. 4.

13-21 February 1993

UNSCOM-50/BM15 visits 10 Iraqi missile sites. Iraq did not previously declare two of them. The team records serial numbers of specific machinery and details of raw materials to assist in the determination of the Iraqi supplier network. In addition, the team assesses the capabilities of certain establishments and facilities in Iraq, including the Nasser State Establishment, the Yawm Al-Azim Facility, and the Technical Corps for Special Projects (TECO) test stand at Za'afaraniyah. The team supervises the destruction of the dies and molds at Taji used or intended for proscribed missile activities.

—United Nations, "Note by the Secretary-General," S/25977, 21 June 1993.

14 February 1993

Iraq provides a second set of declarations entitled "Updated Monitoring Information: Report No. 2." However, the report adds little to the first declarations it submitted on 27 June 1992. Iraq refuses to hand over the missile firing records which are essential for UNSCOM to verify the Iraqi declaration on Soviet-provided Scud missiles.

—United Nations, "Status of the Implementation of the Plan for the ongoing Monitoring and Verification of Iraq's Compliance with Relevant Parts of Section C of Security Council Resolution 687 (1991)," S/25620, 19 April 1993.

17 February 1993

UNSCOM-50/BM15 visits an undeclared military factory south of Baghdad. The team finds a new missile production site and obtains a great deal of information. It learns that Iraq is still has an active ballistic missile program.

—"U.N. Finds New Information on Iraqi Missiles," Press Association, 17 February 1993, in Lexis-Nexis, <http://web.lexis-nexis.com>; "U.N. Inspectors Discover Information on Iraq's Missile Program," Xinhua General Overseas News Service, 17 February 1993 in Lexis-Nexis, <http://web.lexis-nexis.com>; "Missile Evidence Found at Iraqi Site," *The Washington Times*, 18 February 1993, p. A9.

21 February 1993

UNSCOM-50/BM15 ends its mission.

—United Nations, "Note by the Secretary-General," S/25977, 21 June 1993.

22 February 1993

UNSCOM-51/BM16 conducts a short-notice inspection. During its aerial surveillance of one of three sites, Iraq warns that unless the UNSCOM helicopter turns away from the site, it will attack the helicopter. Another helicopter surveying at a different site receives the same warning. After leaving the site, Iraq gives UNSCOM permission to go back to its surveillance. The team inspects three sites suspected of housing intermediate-range ballistic missiles. [NOTE: Since the team has information that Iraq hides proscribed missiles and missile launchers, the team attempts to ensure that nothing is removed from the sites during the course of its inspection. The team also thoroughly inspects three undeclared sites, suspected of concealing proscribed items, but finds no proscribed items or activities.]

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—United Nations, "Note by the Secretary-General," S/25977, 21 June 1993; Michael R. Gordon, "Iraqi Artillery Is Said To Threaten U.N. Copters Looking for Missiles," *The New York Times*, 24 February 1993, pp. A1, A4.

23 February 1993

UNSCOM-51/BM16 ends its mission. The team estimates that 330 Iraqi Scud missiles remain unaccounted for.

—United Nations, "First Report under Resolution 1051," S/1996/258, 11 April 1996; United Nations, "Sixth Report under Resolution 715," S/1994/1138, 7 October 1994; Nabila Megalli, "U.N. Inspector Get Important Data in Surprise Visits," Associated Press, 23 February 1993.

24 February 1993

The US Central Intelligence Agency (CIA) believes that Iraq has hidden up to 200 Scuds.

—Michael R. Gordon, "Iraqi Artillery Is Said To Threaten U.N. Copters Looking for Missiles," *The New York Times*, 24 February 1993, pp. A1, A4.

June 1993

Zivota Panic, Yugoslavia's General Chief of Staff, secretly visits Iraq to acquire information on missile modification.

—Vladimir Jovanovic, *Monitor* (Podgorica), 15 March 1996, pp.15-16, in "FRY: Military Ties to Russia, Arms Import Viewed," FBIS-EEU-96-061, 15 March 1996.

March 1993

UNSCOM destroys 30 chemical missile warheads that Iraq had declared having in its possession.

—United Nations, "Second Report under Resolution 1051," S/1996/848, 11 October 1996.

March 1993

A German public prosecutor indicts two German companies, Rhein-Bayern and its subsidiary Avionic Dittel, for delivering detonators of Scud missiles to Iraq, based on evidence from the UN's inspection of Iraq's military machinery.

—*Bild Am Sonntag* (Hamburg), 21 March 1993, pp. 4-5, in "Two Firms Indicated for Illegal Sales to Iraq," FBI-WEU-93-054, 23 March 1993, p. 50.

11 March 1993

UN joint inspection team UNSCOM-53 arrives in Iraq with its members comprised of biological, chemical, missile, and computer specialists. The team, which gives only short-notice before investigating a site, inspects the Muthanna Establishment, the Division of Agriculture and Biology of the Iraqi Atomic Energy Commission, the Salah Al-Din Establishment, the Salam factory at Salman Pak, the Al-Kindi Company, and the Hakam factory.

—Nizar Hamdoon, "Information Bulletin on The Measures Taken By Iraq In Implementation of Security Council Resolution 687 (1991) During the Month of March 1993," UN Security Council Document, 6 April 1993.

24 March 1993

Rolf Ekeus says that including the weapons used or destroyed during the Gulf War and those the UN dismantled, inspectors cannot account for approximately 200 of 890 of Iraq's known Scud missile arsenal. Ekeus adds that Iraq retains its engineering and scientific capabilities, blueprints, and foreign supplier network.

Related content is available on the website for the Nuclear Threat Initiative, www.nti.org.



—Reuters (Washington), 24 March 1993 in Alan Elsner, "UN Official Warns of Iraqi Nuclear Revival," Executive News Service, 25 March 1993.

27 March 1993

UNSCOM-54/IMT-1b goes to Iraq to continue to monitor activities at the Ibn Al-Haytham missile research center. The team is responsible for investigating and assessing Iraq's capabilities to produce solid propellant missile systems at the Al-Rasheed Factory and the Al Qa-Qa State Establishment. The team visits the Taj Al-Ma'arik factory of the Balat Al-Shuhada' Works, the Al Qa-Qa State Establishment, the Al-Yawm Al-Azim factory, the Rafah site, the Al-Mu'tasim Center at Iskandariyah, the Dhu Al-Fiqar factory, the Ibn Al-Haytham Research and Design Center, and Project 144. The team discusses with the Iraqi counterparts details of Iraq's missile designs, knowledge of solid propellant technology, general capabilities of both complete and component systems in missile production, ability to increase the range of existing systems, the current status of production facilities, and plans for missile research, development, testing, and production.

—United Nations, "Note by the Secretary-General," S/25977, 21 June 1993; Nizar Hamdoon, "Information Bulletin on the Measures Taken By Iraq In Implementation Of Security Council Resolution 687 (1991) During the Month Of March 1993," UN Security Council Document, 6 April 1993; Leon Barkho, "UN Says Iraq Has Potential To Produce Missiles," Executive News Service, 2 April 1993.

4 April 1993

Iraq conducts the third Ababil-100/J-1 flight test.

—UN reports and interviews with UN personnel.

9 April 1993

Iraq conducts the fourth Ababil-100/J-1 flight test.

—UN reports and interviews with UN personnel.

14 April 1993

Iraq conducts the fifth Ababil-100/J-1 flight test.

—UN reports and interviews with UN personnel.

Mid-April 1993

Iraq is possibly researching anti-ballistic missile (ABM) systems. One such program may be designated FAW-1.

—Duncan Lennox, "The Rise and Rise of the ATBM," *Jane's Defence Weekly*, 24 April 1993, pp. 20-21.

27 April 1993

Iraq conducts the sixth Ababil-100/J-1 flight test. It completes all tests on Ababil-100/J-1.

—UN reports and interviews with UN personnel.

May 1993

Iraq declares that it abandons its J-1 project.

—United Nations, "Report on Status of Disarmament and Monitoring," S/1999/94, 29 January 1999, www.un.org.

Related content is available on the website for the Nuclear Threat Initiative, www.nti.org.



May 1993

Iraq unilaterally destroys some of the hardware associated with the J-1 missile project.

—"Al Fahd 300/J-1," Federation of American Scientists, www.fas.org.

5 or 6 May 1993

Hussein Kamel holds a meeting on missiles with Modher Al-Sadiq, Major Raad from Al-Karama State Establishment, Brigadier General Naim Bakr Ali, Hamid, Mowaffak, and Safaa from Ibn Al-Haytham Center. They assess missile activities underway in Iraq. Kamel wants an accurate system, "design of larger missile" and "Volga engine 3 or 4 with one pump." The issues under discussion include a turbo-pump to feed four Volga/SA-2 missile engine combustion chambers and the design of an engine for a "larger missile." Kamel is upset with the progress on the Ababil-100 program. He demands 30 meter CEP accuracy for Ababil-100 and a study on a 7-ton thrust engine and a turbo-pump to feed four Ababil-100 engines. [NOTE: See Early 1995.]

—UN reports and interviews with UN personnel; United Nations, "Final Compendium," S/1999/94, 25 January 1999.

8 May 1993

Modher Al-Sadiq becomes Director General of Ibn Al-Haytham Center.

—UN reports and interviews with UN personnel.

28 May 1993

UNSCOM informs Iraq of its plan to install remote-controlled monitoring cameras at two rocket-test sites, Yawm Al-Azim and Al-Rafah, in order to verify that no prohibited activities take place. Iraq responds that it will not accept any monitoring activities and that UNSCOM should limit itself to inspection activities under SCR 687.

—United Nations, "Note by the Secretary-General," S/26684, 5 November 1993.

Early Summer 1993

Wi'am Gharbiyah signs a contract with Al-Karama Center. [NOTE: Al-Karama Center is a key Iraqi aerospace and defense establishment that is in need of a supply of Scud gyroscopes and potentiometers (devices that indicate the gyroscope's position by sensing its electrical signals).]

—Vladimir Orlov and William C. Potter, "The Mystery of the Sunken Gyros," *Bulletin of the Atomic Scientists*, Vol. 54 (November/December 1998), www.bullatomsci.org.

June 1993

Qassem Musleh, Director General of Al-Karama Center, orders Scud potentiometers and titanium, which cost \$102,000 and \$45,000 respectively, from Wi'am Gharbiyah.

—UN reports and interviews with UN personnel.

4 June 1993

UNSCOM-57/IMT-1c attempts to install remote-controlled monitoring cameras at two rocket-test sites, the Yawm Al-Azim and Al-Rafah sites. However, Iraq rejects the activation of cameras.

—United Nations, "Note by the Secretary-General," S/25977, 21 June 1993.

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5-28 June 1993

UNSCOM-57/IMT-1c conducts its monitoring activities at 18 sites (16 industrial facilities and two military sites) on Iraq's critical industrial manufacturing capabilities. In particular, the team monitors precision machine tools, which Iraq could use in the production of components for proscribed missiles, especially gyroscope devices and components for liquid fuel rockets engines. The team also continues to monitor Ibn Al-Haytham Missile Research Center and Al-Rasheed Factory.

—United Nations, "First Report under Resolution 1051," S/1996/258, 11 April 1996; United Nations, "Sixth Report under Resolution 715," S/1994/1138, 7 October 1994; United Nations, "UNSCOM Report to the Secretary-General," S/26684, 5 November 1993.

10 June-17 July 1993

A lengthy stand-off takes place between the Iraqi government and UN inspectors over Iraq's refusal to allow inspectors to monitor two missile test sites south of Baghdad. UN monitors withdraw.

—United States Information Agency: U.S. Policy on Iraq, <http://usinfo.state.gov>.

18 June 1993

UN Security Council President demands that Iraq allow UNSCOM to install monitoring devices at two test stands, Al-Yawm Al-Azim and Al-Rafah.

—United Nations, "UNSCOM report to the Secretary-General," S/26910, 21 December 1994.

29 June 1993

According to a US Congressional report, Iraq has recovered 80 percent of the military manufacturing capacity that it had before the Gulf War. Some 40 factories in Iraq produce tanks, artillery shells, short-range ballistic missiles, and other weapons.

—"Iraq Has Rebuilt 80 Percent of Arms Manufacturing: Report," Agence France Presse, 30 June 1992, in Lexis-Nexis, <http://web.lexis-nexis.com>.

July 1993

Al-Karama Center subordinates to Ibn Al-Haytham Center.

—UN reports and interviews with UN personnel.

10-11 July 1993

UNSCOM-60/BM17 conducts its mission. It attempts to seal the relevant equipment and facilities at Al-Yawm Al-Azim and Al-Rafah test stands. However, the Iraqi authorities block this team from carrying out its mission.

—United Nations, "UNSCOM Report to the Secretary-General," S/26910, 21 December 1994; United Nations, "First report under resolution 1051," S/1996/258, 11 April 1996; United Nations, "Sixth Report under Resolution 715," S/1994/1138, 7 October 1994.

15-19 July 1993

Iraq agrees to install monitoring cameras at two missile stands, Al-Yawm Al-Azim and Al-Rafah. However, Iraq does not agree to activate those cameras. Iraqi Deputy Prime Minister Tariq Aziz promises Rolf Ekeus that Iraq will provide UNSCOM with sufficient notice of any test firings to permit it to observe missile firings. He also promises

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that Iraq will facilitate UNSCOM's inspections of the two test sites at such times and as frequently as the Commission should deem necessary.

—United Nations, "UNSCOM Report to the Secretary-General," S26910, 21 December 1994.

25 July 1993

A small technical team of UNSCOM staff visits Baghdad to install the camera systems at Al-Yawm Al-Azim and Al-Rafah.

—United Nations, "UNSCOM Report to the Secretary-General," S26910, 21 December 1994.

August 1993

UNSCOM inspectors report that Iraq's missile facilities are very similar to Argentina's Condor-II missile complex. According to UN officials, this has provided insight into how Iraq's missile program functioned. Iraq worked closely with Argentina and Egypt on developing missile technology during the 1980s.

—"Iraq Weapon," *Financial Times*, 31 August 1993.

18-31 August 1993

Iraq pays Wi'am Gharbiyah \$1.76 million through an account that Iraq established at the Ittihad Bank in Amman, Jordan.

—Vladimir Orlov and William C. Potter, "The Mystery of the Sunken Gyros," *Bulletin of the Atomic Scientists*, Vol. 54 (November/December 1998), www.bullatomsci.org.

19 August 1993

US warplanes on patrol over the "no-fly" zone in northern Iraq bomb an Iraqi SA-3 SAM battery near the northern Iraqi city of Mosul.

—"U.S. Aircraft Bomb Missile Site in Northern Iraq," Japan Economic Newswire, 19 August 1993, in Lexis-Nexis, <http://web.lexis-nexis.com>.

24 August-27 September 1993

UNSCOM-62/BM18 observes a missile test that Iraq had declared to UNSCOM. It also performs detailed engineering surveys of test facilities at Al-Yawm Al-Azim, Al-Rahah, and five other test stands capable of missile and rocket engine tests.

—United Nations, "UNSCOM report to the Secretary-General," S26910, 21 December 1994; United Nations, "First Report under Resolution 1051," S/1996/258, 11 April 1996; United Nations, "Sixth Report under Resolution 715, S/1994/1138, 7 October 1994.

30 August 1993

Iraq conducts a missile engine test. During the test, the Iraqi missile destroys one of the cameras that UNSCOM had installed. [NOTE: The UN official does not specify the location where the incident takes place.]

—"Missile Test Explosion Destroys U.N. Monitoring Camera," AFP (Paris), 31 August 1993, in Lexis-Nexis, <http://web.lexis-nexis.com>.

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30 August-10 September 1993

High-level disarmament talks take place between UNSCOM and an Iraqi delegation led by the Iraqi General Amer Rashid. During the talks, the officials develop detailed plans for ongoing monitoring, evaluating the destruction of Iraqi WMD, and discussing the provision of an arms suppliers' list. However, according to the envoy, "there were no dramatic disclosures of weapons procurement or a list of foreign suppliers."

—United Nations, "UNSCOM Report to the Secretary-General," S26910, 21 December 1994.

31 August 1993

Former Argentinean Defense Minister Horacio Jaunarena denies any involvement of former President Raul Alfonsin's administration with Iraq in the Condor-II missile project. [NOTE: UN officials allegedly discovered that Iraq had two missile engines with the same serial numbers as those manufactured at the Falda del Carmen plant in Argentine. Jaunarena says that Iraq had at least one missile plant that was identical to the one in Falda del Carmen.]

—"Iraqi Missiles: Former Defence Minister and German Military Deny Involvement," BBC (London), 2 September 1993, in Lexis-Nexis Academic Universe, <http://web.lexis-nexis.com>.

September 1993

A Ukrainian trader Yuriy Orshansky and Dr. Yakov Ayzenberg from a Ukrainian firm, Khartron arrive in Baghdad for the first time. They explore opportunities in oil production. They meet with Dr. Saadi Abbas, head of Missile Research and Design Center's Military Precision Development Department. Hussein Kamel is aware of Ayzenberg's expertise. Kamel shifts the Ukrainian contract focus from oil to the missile program. Kamel orders Naim and Saadi to go to Ukraine to explore cooperation on missiles. [NOTE: Naim does not meet with Orshansky during this trip.]

—UN Reports and Interviews with UN personnel.

1 September 1993

Wi'am Gharbiyah, arrives in Moscow in search of guidance components for Iraq's Scud missiles.

—Vladimir Orlov and William C. Potter, "The Mystery of the Sunken Gyros," *Bulletin of the Atomic Scientists*, Vol. 54 (November/December 1998), www.bullatomsci.org.

September 1993

Some Arab and Kurdish opposition sources in London state that Iraq has sold large amounts of arms and ammunition to Iran, including missiles and chemical weapons, in exchange for foreign currency. The Iraqi sources believe that nearly a quarter of Iraq's stored weapons are hidden near the Iranian border out of sight from UN weapons inspectors before being moved to Iran. Iraq also sent some of the weapons through Iran to Sudan.

—(Clandestine) Voice of Iraqi People, 9 September 1993, in "Chemical Weapons, Missiles Allegedly Sold to Iran," JPRS-TND-93-030, 27 September 1993.

10-24 September 1993

An Iraqi delegation joins Wi'am Gharbiyah seeking potential Russian contractors who may provide assistance to the missile system. He assists the delegation with setting up a number of meetings with Russians. The topics of the meetings include acquisition and production of Scud potentationmeters, Igla, and Volga spares. Gharbiyah acquires

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MM-40 (SS-N-8) gyros, accelerometers, other components, along with Scud gyro motors and potentiometers.

[NOTE: The result of these encounters remains unclear.]

—UN reports and interviews with UN personnel; "Bombs over Baghdad; Keeping Tabs on Iraq's Arsenal Will Be Even Harder Now in the Persian Gulf, Aboard the USS Enterprise," *U.S. News & World Report*, Vol. 125, No.25, 28 December 1998, p.32.

Late September 1993

Wi'am Gharbiyah visits the Sergeyev Posad missile dismantlement facility, the Research and Testing Institute of Chemical and Construction Equipment, or NIIKhSM where he obtains offers for high-precision gyroscopes and accelerometers. He purchases 10-12 sample inertial-guidance instruments. In addition, through a Russian defense industry contact, he acquires samples of Scud gyroscope motors and 30 potentiometers and tachometers. He ships the samples to Jordan. [NOTE: See 1995.]

—Vladimir Orlov and William C. Potter, "The Mystery of the Sunken Gyros," *Bulletin of the Atomic Scientists* Vol. 54 (November/December 1998), www.bullatomsci.org.

23 September 1993

Iraq agrees to activate remote monitoring cameras at the Yawm Al-Azim and Al-Rafah missile test sites.

—"Largest U.N. Inspection in Iraq Could Lead to End of Trade Embargo," *The Los Angeles Times*, 28 September 1993, p.4, in ProQuest, www.proquest.umi.com.

25 September 1993

An UNSCOM team activates monitoring cameras at Al-Yawm Al-Azim and Al-Rahah.

—United Nations, "UNSCOM Report to the Secretary-General," S26910, 21 December 1994.

28 September 1993

UNSCOM-63/BM19 initiates its inspection activities including ground inspections of a host of sites in and around Baghdad. The team's mission is to get answers to questions related to Iraq's suppliers' network and weapons programs that were posed at arms talks in New York in early September 1993.

—United Nations, "First Report under Resolution 1051," S/1996/258, 11 April 1996; United Nations, "Sixth report under resolution 715," S/1994/1138, 7 October 1994; Leon Barkho, Reuters, 27 September 1993; in "UN Experts Gear Up For Major Iraq Inspection," Executive News Service, 27 September 1993.

Late September 1993

Rolf Ekeus says that Iraq must reveal the suppliers to its missile and chemical weapons programs, but Iraq has not yet done so. Ekeus states, "The weapons themselves came largely from the Eastern bloc, such as the Soviet Union. But the production equipment is of a higher quality, and it seems likely some of it comes from Western suppliers."

—Annika Savill, "UN to Keep Eye on Saddam," *Independent*, 29 September 1993.

30 September-30 October 1993

UNSCOM-63/BM19 uses advanced technology, such as helicopters equipped with ground-penetrating radar. The team inspects 30 sites in central, northern, and western Iraq for signs of any prohibited weapons systems. The

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team also verifies Iraqi declarations concerning its previous weapons programs.

—"Most Complex' Weapons Inspection Uncovers No Violations," *UN Chronicle*, March 1994, p.70.

October 1993

Hamid Al-Azzawi goes to Ibn Al-Haytham Center from Darwah Industrial Engine Factory.

—UN reports and interviews with UN personnel.

8 October 1993

Iraq gives UN officials information revealing arms suppliers who contributed to Iraqi weapons programs.

—Leon Barkho, Reuters, 8 October 1993 in Executive News Service, "Iraq Divulges Arms Suppliers, UN Seeks More," 8 October 1993; Reuters in Leon Barkho, "UN Choppers, Sensors, Scour Iraq for Arms," Executive News Service, 25 October 1993.

9 October 1993

UNSCOM-63/BM19 is relocated to western Iraq to test the veracity of some critical information on the operational use of Al-Hussein missiles during the Gulf War.

—United Nations, "UNSCOM Report to the Secretary-General," S26910, 21 December 1994.

19 October 1993

The German authorities accuse three German businessmen, Dietrich Hinze and Peter Huetten, the owners of H+H Metalform (a machine parts manufacturer), along with a former employee, of illegally delivering Scud missile parts to Iraq from 1988 to 1990. The company allegedly received 46 million Deutsche marks (28 million dollars) in the alleged sales. [NOTE: The last delivery was in January 1991, but H+H Metalform allegedly attempted to illegally export 2,300 Scud parts to Baghdad while the Gulf War was in progress. The company is based in Drensteinfurt, near Muenster, and "half" Iraqi-owned.]

—"Three Businessmen Accused of Delivering Scud Parts to Iraq," AFP (Paris), 19 October 1993, in Lexis-Nexis, <http://web.lexis-nexis.com>.

28 October 1993

UNSCOM-63/BM19 completes inspections in northwest Iraq. This team finds no undeclared prohibited items or activities.

—United Nations, "UNSCOM Report to the Secretary-General," S26910, 21 December 1994.

November 1993

Ibn Al-Haytham personnel meet Wi'am Gharbiyah at Karama.

—UN reports and interviews with UN personnel.

November 1993

Hamid Al-Azzawi moves from Darwah Industrial Engine Factory (Sadiq liquid propellant engine Factory) to Ibn Al-Haytham.

—UN reports and interviews with UN personnel.

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9 November 1993

According to an official Iraqi news media report, Iraqi troops fire ground-to-ground missiles from near Karbala. The report quotes the Iraqi military as saying that the missiles "hit their targets with high precision." Iraqi Defense Minister Ali Hasan Al-Majid attends the maneuvers and provides briefs on "the special equipment" used in the exercise, dubbed "The Deadly Blow." Iraqi television shows 14 seven-meter-long missiles aboard mobile launchers. The range of the missiles is unknown.

—"Iraq Fires Ground-to-Ground Missiles in Military Exercises," Agence France Presse, 9 November 1993, in Lexis-Nexis, <http://web.lexis-nexis.com>.

13-22 November 1993

An Iraqi delegation led by Brigadier General Naim Bakr Ali visits Ukraine for the first time to make a deal with a Ukrainian trader Yuriy Orshansky and Dr. Yakov Ayzenberg from a Ukrainian firm, Khartron. Naim is the head of the Iraqi Scud missile-guidance program. The Iraqi delegation consists of Saadi Abbas and Saad Shakir from Iraq's Missile Research and Development Center, Brigadier General Safaa from Ibn Al-Haytham Center, and Major Raad from Al-Karama State Establishment. They visit Khartron electronics plant and Physical Institute. Naim "privately" visits a tool cutting factory. Saadi is interested in Volga spare parts and Ukrainian SAMs. Regarding guidance and control (G&C), Iraqis say that the cooperation is to be implemented only after the UN embargo is lifted. Orshansky, Ayzenberg, Naim, and Saadi sign a protocol, which includes: an SSM G&C system, a joint venture project for S-300 or S-300 type, remotely piloted vehicle (RPV) control system, modernizing existing SAMs (S-75, S-125), a study on 100km AGM, a study on the identification of radio frequency signals and identification of continuous and discreet radio signals along with the creation of a joint venture company, technology transfer regarding radio frequency and super high radio frequency, and an "experimental determination of aero characteristics of missiles, warheads, and airplanes." Khartron guarantees the consultation on G&C systems, missile R&D infrastructure, cooperation in G&C for final trajectory, cruise missiles, liquid propellant engines (LPE), carbon fiber, welding equipment, and alloys; S-75/S-125 ZIPs, and a college for training missile specialists. Iraq makes requests for: LPE test stand (<4t thrust), free gyro and accelerometer, honing machine, multipurpose MT, boring-grinding, boring-drilling, universal thread-grinding, super high precision lathe, three axis universal calibrating tool, clean room, rotary table and gyro test stand, shock/vibration test bench, collimator, and ball bearing tester.

—UN reports and interviews with UN personnel.

21 November 1993

Iraq and the UN hold high-level arms talks. Tariq Aziz, Security Council President Jose Luis Jesus of Cape Verde, UN Secretary General Kofi Annan, and Rolf Ekeus attend the talks. A possible point of contention between the UN and Iraq is talks with the director of Baghdad's military-industrial authority General Amir Mohammed Rashid concerning missing information about Iraq's ballistic missiles, chemical, biological and nuclear weapons programs.

—Reuters in Evelyn Leopold, "Iraq's Aziz Joins Crucial Phase of UN Arms Talks," Executive News Service, 21 November 1993.

25 November 1993

Iraqi Lieutenant General Hussein Kamel issues an administrative order directing Qaysem Musleh to establish "working groups" on a Scud gyroscope at Karama. [NOTE: Iraqi officials tell UNSCOM that an Iraqi engineer kept

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one set of three gyroscopic instruments in his home and decided to turn these instruments over to the new working groups. Meanwhile, a "technician" allegedly has turned in microfilmed drawings of proscribed gyroscopic instruments that a foreign supplier made prior to the Gulf War. Iraqi authorities reportedly confiscated drawings the working groups produced along with the gyroscopes in 1993, but they decided not to hand them over to UNSCOM.]

—UN reports and interviews with UN personnel; United Nations, "Final Compendium," S/1999/94, 25 January 1999.

26 November 1993

Iraq accepts SCR 715 and the plans for ongoing monitoring and verification. UNSCOM informs Iraq that it should submit to UNSCOM "full initial declarations." UNSCOM claims that declarations Iraq submitted in the past regarding its dual-use capability were inadequate in light of the requirements of SCR 715.

—UNSCOM Chronology of Main Events, www.un.org.

December 1993

Iraq places Al-Karama Center under Ibn Al-Haytham Center.

—UN reports and interviews with UN personnel.

December 1993

The shipment of missile item samples including MM-40 and Scud that Wi'am Gharbiyah sent from Russia arrives in Baghdad.

—Vladimir Orlov and William C. Potter, "The Mystery of the Sunken Gyros," *Bulletin of the Atomic Scientists*, Vol. 54 (November/December 1998), www.bullatomsci.org; UN reports and interviews with UN personnel.

2 December 1993

Qaysem Musleh quits Al-Karama Center for the Military Industrial Commission headquarters. Modher Al-Sadiq appoints Razooki Mowaffak as new the new director general of Al-Karama Center.

—UN reports and interviews with UN personnel.

3 December 1993

Subramaniam Venkataramanan, an Indian-origin businessman in Germany is sentenced to three-and-a-half years in jail for exporting illegal arms to Iraq. Venkataramanan admits that his firm, Rhein-Bayaern-Fahrzeugbau hid Scud missile components in a Bavarian warehouse and that it delivered detonators for missiles to Iraq.

—"Director of German Arms Exports to Iraq Jailed," AFP (Paris), 3 December 1993, in Lexis-Nexis, <http://web.lexis-nexis.com>.

Mid-December 1993

Wi'am Gharbiyah visits Moscow to develop contacts in the Russian electronics industry and the military-industrial complex.

—Vladimir Orlov and William C. Potter, "The Mystery of the Sunken Gyros," *Bulletin of the Atomic Scientists*, Vol. 54 (November/December 1998), www.bullatomsci.org.

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28 December 1993

Saudi Arabian and German experts intercept over 100 barrels of ammonium perchlorate, which is used in solid missile fuels from a German-registered ship docked in Jeddah, Saudi Arabia. Material is thought to be bound for Iraq from the Chinese port of Huang Fu. The Chinese government denies any knowledge of the shipment.

—Herbert Fromme, "Weapons Fuel Find Confirmed," *Lloyd's List*, 27 January 1994, p.1, in Lexis-Nexis, <http://web.lexis-nexis.com>; Reuters, 24 January 1994 in "German Ship Caught with Rocket Fuel Ingredient for Iraq," Executive News Service, 24 January 1994.

Late 1993

Iraq signs a protocol with a representative of the Ukrainian firm Khartron that outlines future cooperation for sales of components for SSMs, equipment for missile research, and the establishment of a college to train missile experts.

—Charles Recknagel, "Iraq: U.S. Researchers Detail Iraqi-East European Arms Smuggling Efforts," Radio Free Europe Radio Liberty, www.rferl.org.

Late 1993

The Iraqi Military Industrialization Organization and the Air Defense Command complete the first prototype of an integrated air and missile defense system, called the "Mother of Battles Anti-Aircraft Missile Project." They test the system at Habaniyya air base west of Baghdad.

—"Strategic Projects of the Iraqi Military Industrialisation Organisation," Iraqi National Congress, 9 September 1997, www.inc.org.uk.

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1992

Early 1992

Mutawakel becomes a factory supporting missile reconstruction programs.

— UN reports and interviews with UN personnel.

Early 1992

Iraq admits that it imported some guidance and control instruments for proscribed missiles until November 1991.

— United Nations, "Report on Status of Disarmament and Monitoring," S/1999/94, 29 January 1999, www.un.org.

Early 1992

Iraq attempts to modify the Volga/SA-2 surface-to-air missile (SAM) for use as a surface-to-surface missile (SSM). At the Sadiq factory, work begins on liquid propulsion missile engines, including the reverse-engineering and production of the Volga/SA-2 missile engine. In addition, work focuses on manufacturing certain components such as missile engine shut-off valves. These are not part of the original Volga/SA-2 engine, but they are required for an SSM.

— United Nations, "Report on Status of Disarmament and Monitoring," S/1999/94, 29 January 1999, www.un.org.

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1992

Iraq spreads remnants of conventional warheads at the sites where it claims unilateral destruction of 45 declared "special warheads" for chemical and biological payload occurred.

— "Iraq Special Collection, Missile-Related Issues, Examples of Problems," Center for Nonproliferation Studies, cns.miis.edu.

1992

Iraq begins construction of a large air-defense system, called the "Mother of Battles System," which is under the direct supervision of Hussein Kamel. Engineers and technicians complete construction of two branch systems. [NOTE: According to the Iraqi Broadcasting Corporation which quotes informed Iraqi military sources, the air defense system consists mainly of French radar systems and short-range Roland-type missiles, in addition to Russian-made long-range SA-6 missiles. The system is called the three-dimensional radar.]

— "Iraqi Regime Acquires Russian-Made Air Defense System," Iraqi National Congress (Internet) in Arabic, 22 March 1999, www.inc.org.uk.

1992

The Iraqi anti-missile unit begins operations. This is one of the Iraqi Military Industrialization Organization's various strategic projects. Iraq also develops surveillance radar using high-speed computers. This radar is able to track more than one missile at a time.

— "Strategic Projects of the Iraqi Military Industrialisation Organisation," Iraqi National Congress, 9 September 1997, www.inc.org.uk; Iraqi National Congress WWW [Online], 10 September 1997, in "Iraq: IBC Cited On Strategic Projects, Military Capability," FBIS-TAC-97-253, 10 September 1997.

1992-1993

Iraq conducts a series of static missile tests as part of Project 1728, which is the Iraqi effort to develop and produce indigenous Scud engines. [NOTE: Iraq does not declare the first five tests to UNSCOM. The project required production of "five sets of engine hardware." Iraq declares that it produced a small number of engine parts and components, but claims no engines were ever assembled. Iraq shows some of these parts and components to an UNSCOM inspection team later, while it declares that Iraq unilaterally melted down others. Iraqi officials maintained little documentary evidence to support their declarations regarding the nature of missile engine production activities at the Sadiq Factory.]

— United Nations, "Report on Status of Disarmament and Monitoring," S/1999/94, 29 January 1999, www.un.org.

1992-1993

The Iraqis fit a variety of air-to-ground and air-to-air missiles to Russian-built MiG and Sukhoi jets.

— "Iraqi Army at 40 Percent of Pre-Gulf War Strength: Jane's," Agence France Presse, 27 December 1992, in Lexis-Nexis, web.lexis-nexis.com.

1 January 1992

A South Korean defense report says that North Korea now produces indigenous SSMs and an improved version of

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the Scud-B for export to states in the Middle East, including Iraq, Iran, and Syria.

— The Ministry of National Defense, Republic of Korea, "Defense White Paper 1991-1992," 1 January 1992.

January 1992

The United Nation's Special Commission (UNSCOM) discloses that German companies knowingly assisted in efforts to extend the range of Iraqi Scud missiles. The inspectors release a report which ties German firms to the Iraqi program using both photographic evidence and actual nameplates removed from Scuds. [NOTE: Three missiles in particular included German-made pressure gauges and electrical plugs manufactured by Hirschmann of Germany. Also, findings reveal that the Goldhofer firm supplied load-bearing chassis to Iraq. Siemens' electrical distributors were present as well, as was an electrical switch control board manufactured by Polyma. In addition, launchers were located containing parts manufactured by Mercedes Benz and the Swedish firm Saab. Further, portions of launch vehicles were of German origin.]

— "'Gotcha': U.N. Team Finds Germans Engaged in Missile Proliferation," Decision Brief, No. 92-D1, 2 January 1992.

14 January 1992

US President George Bush says that Iraq possesses a large number of undeclared ballistic missiles and may attempt to produce more based on the design of Scud missiles that were obtained prior to the Gulf War. He also says uncertainty lingers regarding whether UNSCOM discovered every aspect of Iraq's efforts both to produce Scud missiles indigenously and to develop a more capable solid-propellant missile.

— Terence Hunt, "Saddam Still Has Many Secret Missiles, Warns Bush," *The Herald* (Glasgow), 15 January 1992, p. 6, in Lexis-Nexis, web.lexis-nexis.com; Terence Hunt, "Bush Says Iraq Still Has Many Ballistic Missiles," Associated Press, 14 January 1992, in Lexis-Nexis, web.lexis-nexis.com.

15 January 1992

Flight International reports that the German intelligence service Bundesnachrichtendienst (BND) confirmed in a confidential report that German companies were involved in the manufacture of Iraqi Scud missiles. The report identifies such firms as including C Plath, which supplied three million Deutsche marks worth of gyroscope components; Pressluft Franz, which delivered a test bench for turbo pumps through Saudi Arabia; Anlagenbau Contor, which provided quality control equipment; Heinrich Muller, which sold missile propulsion injectors; and Marrell, which sold 26 Mercedes-Benz tractor units that were allegedly used to haul Scud launchers. H&H Metalform, Havert Handels-Gesellschaft, and Leifeld companies allegedly provided other tooling and test equipment. The report also states that Thyssen Maschinenbau firm was contracted to provide 305 turbo-pumps valued at 13 million Deutsche marks, but the company reportedly delivered only 35.

— "German Role in Iraqi Scud Project Proven," *Flight International*, 15 January 1992, p. 14, in Lexis-Nexis, web.lexis-nexis.com.

15 January 1992

US Central Intelligence Agency (CIA) Director Robert Gates testifies before a Senate subcommittee that Saddam Hussein could rebuild Iraq's nuclear, chemical, and biological weapon programs, as well as its ballistic missile program, within a few years. Gates estimates that Iraq may still possess several hundred Scud missiles and a

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substantial quantity of missile production equipment. According to *The Washington Times*, Pentagon officials believe that Iraq may still hide up to 800 ballistic missiles.

— "Iraq Could Rebuild Weapons in A Few Years, Gates Says," *San Jose Mercury News*, 16 January 1992, p. 6A; "Arms-Happy Gulf Resists New Curbs," *The Washington Times*, 17 January 1992, pp. A1, A10.

16 January 1992

German authorities bring criminal charges against three managers of Thyssen Maschinenbau GmbH who allegedly exported key components for Scud-B missile production to Iraq. The illegal exports allegedly occurred in 1990, and included 35 turbo pumps and other components which were used to manufacture the missiles in Iraq.

— "Thyssen Executives Charged with Supplying Scud-B Parts to Iraq," United Press Information, 16 January 1992; in Lexis-Nexis, web.lexis-nexis.com.

24 January 1992

Moneyclips quotes the Kuwait daily newspaper *Al Watan* regarding a report that Jordan stores Scud missile launchers and 50 missiles for Iraq.

— "Kuwait Paper Claims Jordan Storing Iraqi Scuds," *Moneyclips*, 24 January 1992; in Lexis-Nexis, web.lexis-nexis.com.

25 January 1992

UNSCOM submits a report to the United Nations (UN) Security Council, which says the group is satisfied that all declared ballistic missiles are destroyed. The report does note, however, that there are still some uncertainties regarding whether Iraq declared all missiles as per Security Council Resolution (SCR) 687.

— United Nations Security Council, U.N. Security Council Document S/23514, 25 January 1992.

31 January 1992

The German government believes that German companies provided approximately 25% of Iraq's Scud missile technology.

— *Sueddeutsche Zeitung* (Munich), 18 January 1992, p. 1; in "German Firms Implicated in Iraqi Nuclear Program," *Proliferation Issues*, 31 January 1992, pp. 59-60.

January-February 1992

US House Banking, Finance and Urban Affairs Committee investigators identify 13 US firms that supplied equipment for the Iraqi missile program, which is code-named Project 395. In a letter to President Bush, Committee Chairman Henry B. Gonzalez writes, "Numerous US companies provided critical support to Iraqi weapons programs, including missiles." [NOTE: A German intelligence report identifies Project 395 as Iraq's effort to develop the Condor II, a missile with a range of more than 960km that is capable of delivering a nuclear warhead.]

— "Iraq Arms Aid Traced to US Firms," *Los Angeles Times*, 4 February 1992, p. A4.

February 1992

US intelligence officials estimate that Iraq's arsenal includes an accumulation of more than 800 Scud missiles. Informed sources admit that they "severely" underestimated the number of Iraqi missiles and launchers at the

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beginning of the Gulf War. In addition, they say production continues on an "around-the-clock basis" in an as-yet unknown underground factory that escaped detection during the war.

— Charles Fenyvesi, "Cache on Hand," *US News & World Report*, 10 February 1992, p. 22.

February 1992

Bavarian police seize containers bound for Iraq that contain fuses for Scud missile warheads. The police arrest the managing directors of the firm involved.

— *Munchner Merkur*, 20 February 1992; in "More on the German Scud Scandal," *Peace News Bulletin*, p. 4.

February 1992

UNSCOM inspectors identify at least 17 facilities as sites where the Iraqis conducted research, production, testing, and repair of ballistic missiles, launchers, and rocket fuel. Iraq procured much of the equipment for these programs from Soviet or West European sources, although the Iraqis modified the equipment to suit their objectives.

— "U.S. Pledges to Support Effort to Destroy Iraq Missile Plants," *The Washington Post*, 14 February 1992, p. A33.

February 1992

UN officials suspect that Iraq has hidden up to 50 Scud-B, Al-Hussein, and/or Al-Abbas missiles.

— "How Saddam is Picking up the Pieces a Year after 'Storm,'" *Jane's Defence Weekly*, 22 February 1992, p. 284.

February 1992

Iraq promises to return Kuwait's Hawk SAMs and launchers, which were acquired during the Iraqi incursion into Kuwait. Iraq also provides a detailed list of the Hawk launchers, missiles, and radars in its possession. [NOTE: The return of the Hawks is important as these missiles are currently the most advanced component of an Iraqi air-defense arsenal that is heavily reliant on aging Soviet SA-2, SA-6, and SA-7.]

— "Iraq Vows to Return Weapons," *Defense News*, 15 February 1993, pp. 3-4.

7 February 1992

In his letter to the UN Security Council, UNSCOM Executive Chairman Rolf Ekeus states that "substantial uncertainty" remains about whether Iraq has declared all missiles subject to SCR 687, primarily Scud or Scud variants, as required.

— "U.N. Says Iraq May Still Have Scuds," *Associated Press*, 8 February 1992; in Lexis-Nexis, web.lexis-nexis.com.

11 February 1992

Clinton administration sources say, "Iraq still possesses some components to produce nuclear weapons and retains an arsenal of ground-to-ground missiles."

— Steven Heilbroner, "U.S. Continues Pressure against Iraq," United Press Information, 11 February 1992; in Lexis-Nexis, web.lexis-nexis.com.

February 1992

US administration officials say that the United States has observed several highly provocative Iraqi military movements, including the sighting to the north of Baghdad of approximately 20 special tank trucks used to fuel Scud missiles. The number of these trucks constitutes a greater quantity than US intelligence previously estimated

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had been built or had survived allied bombing. Additionally, Iraq has added a battalion of up to 16 Frog-7 missiles, with a range of approximately 80km, to internal security forces deployed around Baghdad. According to a defense official, intelligence reports also indicate that the Iraqis frequently move covertly deployed Scuds in a manner resembling a "shell game." Further, the officials claim that Iraq conceals ballistic missiles that are supposed to be slated for destruction.

— "Saddam's Moves Force Bush to React," *The Washington Times*, 11 February 1992, pp. A3, A9.

14 February 1992

Rolf Ekeus sends a letter to the Iraqi Advisor to Foreign Affairs Minister Wissam Al-Zahawi. Ekeus writes that the UN Security Council could consider allowing Iraq to reuse some equipment, materials, and facilities related to ballistic missile production as Iraq requested, provided that appropriate monitoring arrangements are made to verify compliance with SCRs 687 and 715. The letter specifies the Al Qa-Qa State Establishment, the Dhu Al Fiqar factory, the Taj Al Marik factory, and the Al-Yawm Al-Azim factory as "integral important parts of these missile capabilities."

— United Nations Security Council, U.N. Security Council Document S/23673, 4 March 1992.

21 February 1992

UNSCOM-28/BM8 (Ballistic Missile Team 8) arrives in Baghdad. The team is instructed to verify the destruction of items used for missile repair, in production facilities, and other such related equipment, all of which was identified to Iraq in a letter dated 14 February. The items to be verified at the Dhu Al-Fiqar Factory include a DEA computer, an INSTRON cooling chamber and measurement equipment, motor case transport dollies, and a cooler. At the Taj Al Marik Factory, two 1,135-liter mixers and three 1,135-liter mixer bowls are listed. The items for verification at the Al-Yawn Al-Azim Factory include a cradle for Badr-2000 as well as electronic test equipment.

— United Nations, "First Report under Resolution 1051," S/1996/258, 11 April 1996; United Nations, "Sixth Report under Resolution 715," S/1994/1138, 7 October 1994; United Nations Security Council, U.N. Security Council Document S/23673, 4 March 1992.

21 February to 24 March 1992

UNSCOM-29 chemical munitions team destroys 463 chemically-tipped rockets at Iraq's Al-Khamisiyah site.

— Agence France Presse (Paris), 24 March 1992, in "UN Official on Chemical Missiles," *Proliferation Issues*, 3 April 1992, p. 5; United Nations, "Third Report of the Executive Chairman of UNSCOM," S/24108, 16 June 1992, in Iraq Watch, www.iraqwatch.org.

22 February 1992

UNSCOM-28/BM8 inspects Al-Karama Center. This facility was undeclared by the Iraqis and therefore not inspected previously by UNSCOM. [NOTE: The team inspects Al-Karama Center using what is known as a "Notice of Inspection." This involves the UNSCOM chairman providing his signature on a "Notice of Inspection," which in turn provides license for inspectors to enter undeclared sites.] The team also inspects the Al-Karama Gyroscope and Stabilizer Establishment, a neighboring factory and a Mercedes service area.

— UN reports and interviews with UN personnel.

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22 February 1992

UNSCOM-28/BM8 views a site where Iraq claims to have destroyed substantial quantities of missiles and other weapons in May 1991.

— "U.N. Team Sees Where Iraq Says It Destroyed Missiles," *The Washington Times*, 23 February 1992, p. A9.

23 February 1992

UNSCOM-28/BM8 inspects the declared Al Taji facility, particularly the sections related to Project 144/1, 2, and 4. The team seals some items which are marked for destruction. [NOTE: Project 144/1 and Project 144/2 are related to Iraqi efforts to modify Al-Hussein missiles. Project 144/4 is an effort to manufacture gyros.]

— UN reports and interviews with UN personnel.

24 February 1992

UNSCOM-28/BM8 inspects the Taj Al Marik Factory and Al Qa-Qa State Establishment. The team also inspects a facility which supports production, or intended production, of the Ababil-100 and Sakr-200 rockets, with maximum ranges of 100km and 120km, respectively. Iraq informs the team of several proposals for conversion of equipment to either civilian uses or for military rocket programs with a maximum range of less than 150km. Iraq proposes to use the rest of the production line to produce Ababil-100 and Sakr-200 rocket motors.

— UN reports and interviews with UN personnel.

24 February 1992

The German authorities arrest two managers of the German firm Neue Magdeburger Werkzeugmaschinenfabrik GmbH on the suspicion that they illegally exported machine tools for the manufacture of missile parts to Iraq.

— *DPA* (Hamburg), 25 February 1992; in "Businessmen Arrested for Arms Exports to Iraq," *Proliferation Issues*, 13 March 1992, p. 39.

25 February 1992

UNSCOM-28/BM8 inspects the Dhu Al-Fiqar and Al-Yawm Al-Azim Factories. The team inspects Building 8 at Dhu Al-Fiqar, which specializes in the production of motor cases and flexible nozzles. The director of the factory says this building was intended not only for uses relevant to the Badr-2000 program, but also for production related to the Ababil-100 and Sakr-200 rockets. The team asks to see fixtures at the facility relevant to the Ababil and Sakr programs as the Iraqis had not previously mentioned either of these systems in connection with Dhu Al-Fiqar. In response, Iraq claims that the Ababil-100 and Sakr-200 are part of their future proposals for the factory. They explain their plan is to convert the site into a low pressure gas vessel and chlorine gas tank production plant. Also at Dhu Al-Fiqar, construction of a large horizontal test stand at Building 54 is underway. Iraq says the test-stand would be re-designed to accommodate rocket motors with up to 30-ton thrust.

— UN reports and interviews with UN personnel.

26 February 1992

UNSCOM-28/BM8 inspects bunkers at the Taji ammunition depot and verifies the destruction of items sealed on 23 February.

— UN reports and interviews with UN personnel.

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26-28 February 1992

Iraq rejects UN plans for the destruction of Iraqi ballistic missile production facilities. Instead, the Iraqis say the UN should allow them to convert their Scud missile program to civilian-oriented programs.

— Victoria Graham, "Iraq Rejects U.N. Plan for Weapons Destruction," Associated Press, 28 February 1992, in Lexis-Nexis, web.lexis-nexis.com; "Main Events in Iraqi Weapons Program Inspections," Associated Press, 29 February 1992, in Lexis-Nexis, web.lexis-nexis.com.

28 February 1992

The UN Security Council condemns Iraq for refusing to allow UN inspectors to destroy missile production and repair equipment. Rolf Ekeus orders UNSCOM-28/BM8 to withdraw from Iraq as a result of Iraq's non-cooperation.

— United Nations, "UNSCOM Chronology of Main Events," www.un.org; Nabila Megalli, "U.N. Team Confident Pressure Will Force Iraq to Comply," Associated Press, 29 February 1992, in Lexis-Nexis, web.lexis-nexis.com; Victoria Graham, "Iraq Rejects U.N. Plan for Weapons Destruction," *Associated Press*, 28 February 1992, in Lexis-Nexis, web.lexis-nexis.com; United States Information Agency: U.S. Policy on Iraq; United Nations, "3rd Report under UNSCR 687," S/24108, 16 June 1992.

28 February 1992

In a letter to UNSCOM, Iraqi Minister of State for Foreign Affairs Muhammad Said al-Sahhaf requests that UNSCOM wait to destroy the equipment used in the Badr-2000 program to allow the UN Security Council to consider permitting Iraq to keep this equipment for use in non-military programs. [NOTE: See 14 February 1992.]

— United Nations Security Council, "U.N. Security Council Document S/23673," 4 March 1992.

29 February 1992

UNSCOM-28/BM8 departs Baghdad due to the absence of a breakthrough with the Iraqis regarding the destruction of the Badr-2000 equipment.

— UN reports and interviews with UN personnel; United Nations, "First Report under Resolution 1051," S/1996/258, 11 April 1996; "U.S. Warship Ready for Action on Iraq," Xinhua General Overseas News Service, 1 March 1992, in Lexis-Nexis, web.lexis-nexis.com.

End of February-March 1992

US administration sources say that the United States is searching for more than 100 Iraqi Scud missiles that Iraq may be hiding underground near Baghdad. According to intelligence reports, Iraq has constructed underground storage sites, possibly for the purpose of sheltering missiles from UNSCOM. Also, US intelligence sources claim the exact number of Scuds remaining in Iraq may be as many as 800.

— "Hidden Iraqi Missiles Sought," *The Washington Times*, 5 March 1992, pp. A1, A8.

March 1992

Iraq establishes the Ibn Al-Haytham Center and delivers SA-2 SAMs there.

— UN reports and interviews with UN personnel.

March 1992

Iraq declares to UNSCOM the unilateral destruction of undamaged semi-trailer components for its indigenous

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missile engine production. [NOTE: 1991- March 1992.]

— "Iraq Special Collection, Missile-Related Issues, Examples of Problems, Special Warheads," Center for Nonproliferation Studies, cns.miis.edu.

March 1992

Iraq discloses that it has concealed from UNSCOM the greater part of its operational missile force. The missile force includes 85 operational missiles, over 130 warheads (both conventional and chemical,) 8 operational mobile launchers, and missile force support equipment, as well as a "significant" amount of other proscribed items and materials.

— United Nations, "Second Report under Resolution 1051," S/1996/848, 11 October 1996.

March 1992

Brazilian Brigadier General Hugo de Oliveira Piva says that Brazil participated in the design of an Iraqi air-to-air missile. He denies, however, that Brazil transferred technology which can be used in long-range missile production.

— *Istor Senhor* (Sao Paulo), 18 March 1992, pp. 5-7; in "Piva Discusses Past Cooperation with Iraq," *Proliferation Issues*, 29 April 1992, pp. 9-11.

March-April 1992

According to Iraq's 1997 UNSCOM declaration, Iraq covertly removes remnants of complete, indigenously produced engines from a site where allegedly they had been destroyed unilaterally by the Iraqis.

— United Nations, "Fourth Report under Resolution 1051," S/1997/774, 6 October 1997.

2 March 1992

Saddam Hussein reportedly reinstates his son-in-law, General Hussein Kamel, as chief of Iraq's arms and oil industries. Hussein Kamel is the main architect of Iraq's clandestine nuclear, chemical warfare, and long-range missile programs.

— "Hussein Said to Rehire Son-in-Law to Battle U.N.," *Los Angeles Times*, 3 March 1992, p. A8.

6 March 1992

Former UNSCOM inspector David Kay claims: "The productive capacity in the chemical, biological, Scud missile production and in the nuclear areas still exists to a considerable extent."

— "Hurd: Britain Would Consider Military Strike at Iraq," *The Washington Post*, 6 March 1992, p. A18.

9 March 1992

The United States seeks detailed information regarding the solid fuel motors and guidance technology for the Argentine Condor II missile, which was developed at a plant in Falda del Carmen, Argentina, then shipped to Iraq. The plant had a parabolic antenna that the United States believes was used to send microwave data transmissions to Iraqi procurement agents working at front companies in Austria and Switzerland. [NOTE: The Condor II is a short-range ballistic missile (SRBM) developed in Argentina, and financed in part by the Iraqis.]

— "US Concern over Argentine Missile Links to Baghdad," *Financial Times*, 9 March 1992, p. 3.

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10 March 1992

German authorities arrest six former high-ranking Polish government officials in Germany at a Frankfurt hotel, including a former third-ranked general in the Polish army and two former deputy Cabinet ministers. These officials allegedly signed a \$96-million deal with Iraq to provide 4,000 grenade launchers, 1,000 portable anti-aircraft missiles, and 73,000 Kalashnikov assault rifles. Two Americans, Ronald James Hendron and alleged financier Jehmin Lah, were also involved in the deal. [NOTE: Arrested in Germany are Jerzy Napiorkowski, deputy minister of finance in the last Polish Communist government; Wojciech Baranski, former deputy chief of staff in the Polish army; Jan Gorecki, a former Polish diplomat in Washington; Zbigniew Grabowski, former director of the Polish technology office; Jerzy Brzostek, former deputy minister of the Polish Housing Ministry; and Rajmund Szwonder, general manager of the Lucznik armament factory in Radom, Poland.]

— Paul Richter, "8 Arrested in Scheme to Sell Arms to Iraq," *Los Angeles Times*, 28 March 1992, p. 1, in ProQuest, proquest.umi.com.

12 March 1992

Iraqi Deputy Prime Minister Tariq Aziz asks the UN to allow Iraq to keep its weapons factories and convert them to civilian uses. Rolf Ekeus, however, states that UNSCOM will continue to insist not only on the destruction of long-range missiles, but also launchers, production and repair facilities, and cruise-type non-ballistic missiles.

— "Security Council Warns Iraqis to Halt Cease-Fire Violations," *The Washington Post*, 13 March 1992, pp. A16-A19; Steve Doughty, "We Want to Make Peace at Our Arms Plants, Says Iraq," *The Daily Mail* (London), 13 March 1992, p. 9, in Lexis-Nexis, web.lexis-nexis.com.

16 March 1992

US President George Bush says that the US maintains its belief that Iraq still possesses large numbers of undeclared ballistic missiles.

— Reuters, 16 March 1992; in "Bush Says Iraq Still Has Many Ballistic Missiles," Executive New Service, 17 March 1992.

18 March 1992

Rolf Ekeus receives a letter from the Iraqi government in which Iraq reveals a "concrete" number of ballistic missiles that it claims to have destroyed unilaterally in the summer of 1991. UN officials refuse to disclose the number of missiles allegedly destroyed because UNSCOM must first work to verify the Iraqi declaration.

— J.T. Nguyen, "Iraq Discloses More Ballistic Missiles Destroyed," United Press International, 20 March 1992; in Lexis-Nexis, web.lexis-nexis.com.

19 March 1992

US military officials plan a series of potential air and missile attacks against Iraqi weapons sites that may be undertaken if Iraq continues to disregard UN resolutions. According to a Pentagon official, military officials plan air strikes against Al-Atheer nuclear weapons establishment and approximately 14 other sites where Iraq allegedly manufactures or stores Scud missiles.

— John M. Broder and Douglas Jehl, "U.S. Prepares for Strikes on Iraqi targets in Persian Gulf: Air, Missile Attacks

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Could Be Ordered If Baghdad Fails to Meet U.N. Deadline on Arms Destruction," *Los Angeles Times*, 19 March 1992, p. 1.

19 March 1992

Rolf Ekeus meets the Iraqi Ambassador to the United Nations, Abdul Amir al-Anbari. Al-Anbari hands over new information concerning Iraq's ballistic missile and chemical weapon programs. He states that Iraq is willing to make a full, final, and complete disclosure of its proscribed weapons programs. Iraq also agrees to the destruction of missile production facilities and associated equipment as was demanded by UNSCOM in the letter of 14 February 1992. In addition, Iraq reveals that it unilaterally destroyed 89 Al-Hussein missiles, three training missiles, 135 warheads, and associated equipment and vehicles, including mobile missile launchers. Iraq claims these items were destroyed at the Al-Alam site in the summer of 1991. [NOTE: UNSCOM team leader Derek Boothby says Iraqi officials claim that these items were destroyed in June 1991.]

— "Statement by Ambassador Rolf Ekeus of the UN Special Commission on the Disposal of Iraq's Weapons of Mass Destruction," Federal News Service, 20 March 1992, in Lexis-Nexis, web.lexis-nexis.com; United Nations, "Third Report of the Executive Chairman of UNSCOM," S/24108, 16 June 1992; "UNSCOM Chronology of Main Events; United Nations, "Report to Secretary-General," 22 May 1992; UN reports and interviews with UN personnel; Charles Laurence, "Iraqis Say They will Destroy Missiles," *The Daily Telegraph*, 21 March 1992, p.10, in Lexis-Nexis, web.lexis-nexis.com; Paul Lewis, "Iraq Agrees to Destroy Missiles to Meet U.N. Cease-Fire Terms," *The New York Times*, 21 March 1992, p. 1, in Lexis-Nexis, web.lexis-nexis.com; "U.N. Inspectors Find No Scuds Hidden in Iraq," *Associated Press*, 30 March 1992, p. A9, in Lexis-Nexis, web.lexis-nexis.com; United Nations, "Eighth Report under Resolution 715," S/1995/864, 11 October 1995; "U.N. Still 'Concerned' About Iraq," *The Washington Post*, 4 April 1992, p. A19; "Iraq Agrees to Destroy Missile, Nuclear Equipment," *Arms Control Today* (April 1992), p. 18; Nabila Megalli, "U.N. Ballistic Team Arrives In Iraq to Confirm Baghdad's Disclosures," *Associated Press*, 21 March 1992, in Lexis-Nexis, web.lexis-nexis.com.

19 March 1992

UNSCOM holds talks lasting four hours with Iraqi officials regarding the location at which Iraq unilaterally destroyed substantial quantities of missiles and chemical weapons in June 1991. Iraq revealed this unilateral destruction on 18 March 1992 but did not disclose the exact site of these activities at that time.

— "U.N. Weapons Inspection Team Begins Onsite Verification," Xinhua News Agency, 22 March 1992, in Lexis-Nexis, web.lexis-nexis.com.

20 March 1992

Iraq tells the United Nations that it destroyed "long-range Scud missiles and their modified Al-Hussein versions, missile launchers, chemical bombs including nerve gas warheads, and ammunition and spare parts."

— Nabila Megalli, "U.N. Ballistic Team Arrives in Iraq to Confirm Baghdad's Disclosures," *Associated Press*, 21 March 1992; in Lexis-Nexis, web.lexis-nexis.com.

20 March 1992

The post-war Rafidain project begins. The Rafidain project is the Iraqi effort to reverse-engineer the SA-2 air-

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defense missile for conversion to a SAM. [NOTE: Iraq had a similar program before the Gulf War.]

— UN reports and interviews with UN personnel.

20 March 1992

UNSCOM-31/BM9 announces that it destroyed 500 warheads, rockets, and "partial missiles" that contained sarin in Nasiriya.

— Paul Lewis, "Iraq Agrees to Destroy Missiles to Meet U.N. Cease-Fire Terms," *The New York Times*, 21 March 1992; in Lexis-Nexis, web.lexis-nexis.com.

21 March 1992

UNSCOM-31/BM9 arrives in Baghdad. The group's original objective was to carry out inspections at undeclared sites. However, the group's objectives are changed as a result of Iraq's provision of new information concerning its declared unilateral destruction of Al-Hussein missiles.

— UN reports and interviews with UN personnel.

22 March 1992

UNSCOM-31/BM9 conducts interviews with Iraqis at Dawrah. The team also inspects a missile destruction site at Niba'i.

— UN reports and interviews with UN personnel.

23 March 1992

UNSCOM-31/BM9 inspects designated Taji sites. At the Project 144/4 site, the Iraqis indicate indigenous research and development have occurred in an effort to convert and/or reverse-engineer the gyro element of the SA-2 for use in SSMs such as the Al-Hussein. [NOTE: The head of the Iraqi National Monitoring Directorate, General Hossam Amin, later forcefully denies this.]

— UN reports and interviews with UN personnel.

23 March 1992

UNSCOM-31/BM9 confirms that Iraq destroyed and buried a number of Scud missiles and other weapons, as related in the Iraqi declaration to the United Nations on 21 March. The team views pieces of missiles and guidance components at each of three sites visited, although most of the missile parts are buried and therefore will require further excavation for a complete verification. UNSCOM spokesman Tim Trevan says that Iraq also submitted plans for the destruction of the equipment used for missile production.

— "Iraq Scrapped Scuds, U.N. Probers Confirm," *The Washington Times*, 24 March 1992, p. A1; "U.N. Inspectors Confirm Iraq Has Destroyed Terror Weapons," Associated Press, 23 March 1992, in Lexis-Nexis, web.lexis-nexis.com.

24 March 1992

UN officials study plans submitted by the Iraqis for the destruction of manufacturing equipment related to its Scud missile program. [NOTE: Iraq refused to destroy the equipment during a previous UN inspection.]

— Mark Nicholson, "UN Says Iraq Has Destroyed Scud Missiles," *Financial Times*, 24 March 1992, p. 4; in Lexis-Nexis, web.lexis-nexis.com.

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25 March 1992

UNSCOM-31/BM9 implements operations for the destruction of equipment at Taj Al Marik. The group also supervises the destruction of missile production facilities and repair equipment, which includes three technical facilities at Al-Yawm Al-Azim and Dhu Al-Fiqar . Equipment destroyed includes missile fuel and precursors, missile machinery, missile body production, transport equipment, precision lathes and electronic testing items. The team also conducts an inspection of inhibited red fuming nitric acid (IRFNA) containers at Latifiyah.

— UN reports and interviews with UN personnel; Nabila Megalli, "Missile Inspectors Examine Scud Remains," *Associated Press*, 26 March 1992, in Lexis-Nexis, web.lexis-nexis.com; Nabila Megalli, "U.N. Starts Destroying Missile Production Equipment," *Associated Press* , 25 March 1992; Nabila Megalli, "Missile Inspectors Examine Scud Remains," *Associated Press*, 26 March 1992, in Lexis-Nexis, web.lexis-nexis.com; "U.N. Iraqis Destroy Scud Goods," *The Washington Times*, 26 March 1992, p. A7; "Iraq Agrees to Destroy Missile, Nuclear Equipment," *Arms Control Today*, April 1992, p.18.

27 March 1992

UNSCOM-31/BM9 confirms destruction at Taj Al Marik and Dhu Al-Fiqar. The team also inspects an Iraqi missile destruction site at Bismayah. In addition, the group conducts follow-on inspections at the Dawrah and Niba'i sites.

— UN reports and interviews with UN personnel.

27 March 1992

UNSCOM-31/BM9 team leader Derek Boothby confirms that "the nine equipment facilities used in producing and maintaining ballistic missiles in Iraq are totally destroyed." He adds, "there is sufficient evidence to believe that Iraq has destroyed missiles and related equipment as Iraq had promised it would last July."

— "Iraq's Missile Production Equipment Destroyed," Xinhua General Overseas News Service, 27 March 1992, in Lexis-Nexis, web.lexis-nexis.com.

27 March 1992

CIA Director Robert Gates asserts that Iraq still hides several hundred Scuds and other weapons. He adds that Iraq has maintained "significant elements of each of its special weapons programs."

— "Arab Accuses Jordan of Hiding Iraqi Scuds," *The Washington Times*, 2 April 1992, pp. A1, A9; "U.N. Inspectors Find No Scuds Hidden in Iraq," *Associated Press*, 30 March 1992, p. A9, in Lexis-Nexis, web.lexis-nexis.com; "Iraq Has Scuds, Nuke Equipment, CIA's Gates Says," *The Washington Times*, 28 March 1992, p. A7.

28 March 1992

UNSCOM-31/BM9 inspects the Al-Fao Establishment offices. [NOTE: The Technical Corps (TECO) for Special Project Headquarters was formerly located at this site. The Iraqis apparently vacated this site in July 1991.]

— UN reports and interviews with UN personnel.

29-30 March 1992

UNSCOM-31/BM9 inspects designated Taji sites and the Abu-Gharib destruction site.

— UN reports and interviews with UN personnel.

Related content is available on the website for the Nuclear Threat Initiative, www.nti.org.



30 March 1992

Derek Boothby confirms that Iraq apparently destroyed between 80-100 Scud missiles in June 1991 as Iraqi officials had earlier claimed. However, he also states that Iraq may possess other Scuds that remain intact.

— "U.N. Confirms Iraq Destroyed Scuds," *The Washington Post*, 31 March 1992, p. A13.

Late March 1992

The Yugoslavian Federal Army deploys a new multiple rocket launcher, the M-87 Orkan, which was reportedly developed with financial and technical assistance from Iraq. The missiles are able to carry three types of cluster munitions, disperse up to 30 antitank mines, and scatter up to 300 antipersonnel bomblets or 288 antipersonnel mines.

— "Yugoslavs Field New Rocket," *Defense News*, 30 March 1992, p.2.

Late March-April 1992

Iraq conducts a covert operation to remove remnants of complete, indigenously produced missile engines from the site of their destruction by the Iraqis. [NOTE: The name of this site is missing from Iraqi declarations. Iraq later reveals the site name in a 1997 declaration.]

— United Nations, "The Fourth Report under Resolution 1051," S/1997/774, 6 October 1997.

April-May 1992

Iraq excavates the Al-Alam site, where Iraq claims proscribed items were destroyed without UNSCOM's supervision. Iraq also removes the majority of missile components from Al-Alam and melts them at foundries. Iraq aims to conceal the extent of its missile engine production achievements from UNSCOM.

— United Nations, "The Fourth Report under Resolution 1051," S/1997/774, 6 October 1997.

2 April 1992

Arab diplomats stationed in Amman claim that Iraq secretly moved Scud missiles to Jordan to escape destruction by UNSCOM. Sources claim Iraqi soldiers hide and maintain the Scud missiles near two air bases, known as H-4 and H-5, in an area called Al-Ruweished. They also state that Iraq has moved the disassembled missiles in trucks disguised as refrigerated tractor-trailers. In addition, they claim that Iraqi Scud technicians have recently been spotted in Amman. US intelligence agencies are following up on the claims, but they have not found further evidence yet.

— "Arab Accuses Jordan of Hiding Iraqi Scuds," *The Washington Times*, 2 April 1992, pp. A1, A9.

3 April 1992

Rolf Ekeus states that Iraq has yet to indicate acceptance of long-term monitoring of its chemical, biological, nuclear, and ballistic weapons capabilities. He also notes that Iraq has failed to offer a complete disclosure of its activities, and continues to avert complete destruction of weapons and associated equipment. Ekeus tells reporters: "We're still concerned that there are missiles out there, the information on chemical weapons is inconsistent, and we're concerned that with biological weapons we don't have enough information."

— "U.N. Still 'Concerned' About Iraq," *The Washington Post*, 4 April 1992, p. A19.

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4 April 1992

Iraq establishes a "dedicated" missile facility, known as the Ibn Al-Haytham Missile Research and Design Center. This is intended to serve as the main center for research and design activity involving ballistic missiles not prohibited by SCR 687. The Center is involved not only in the maintenance of permitted missile systems, but also in the design of new missile systems, including the Ababil-100, which has a range of approximately 150km. The Center employs many of the scientists and technicians who were involved in the proscribed ballistic missile programs prior to the Gulf War.

— United Nations, "Note by the Secretary-General," S/25977, 21 June 1993.

9 April 1992

Iraq requests a cessation of UNSCOM's aerial surveillance flights, and hints that the aircraft and their pilots could be in danger.

— UNSCOM Chronology of Main Events, www.un.org.

10 April 1992

The UN Secretary-General submits a report to the Security Council regarding the status of the implementation of UNSCOM's plan for the ongoing monitoring and verification of Iraq's compliance with SCR 687. In his report, the Secretary-General concludes that Iraq has not been in compliance with Security Council resolutions or the plans to enforce these resolutions.

— United Nations, "Report to Secretary-General," 22 May 1992.

April 1992

An official from the Brazilian firm Avibras says that Iraq owes more than \$40 million for the Astros-2 multiple rocket launchers.

— "Avibras Escapes Bankruptcy," *Jane's Defence Weekly*, 11 April 1992, p. 609.

12 April 1992

According to US President Bush's national security adviser Brent Scowcroft, Iraq has installed some SAMs in a prohibited zone.

— Harry F. Rosenthal, "Scowcroft Says Iraq Making 'Ominous Preparations,'" *Associated Press*, 12 April 1992, in Lexis-Nexis, web.lexis-nexis.com.

13 April 1992

UNSCOM-34/BM10 arrives in Baghdad. The primary mission of the team is to resume the activities previously undertaken by UNSCOM-28/BM8. The team is also tasked to examine the Iraqi claim that Building 168 at Taji Al-Marik, which was cited as Building 165 in previous reports, was built for Sakr-200 production and not for production related to the Badr-2000's second stage capabilities. [NOTE: UNSCOM28/BM8 was unable to complete this mission due to Iraq's refusal to carry out destruction orders.]

— UN reports and interviews with UN personnel.

14 April 1992

UNSCOM-34/BM10 inspects Al Qa-Qa and destroys Al-Husseini warhead filling equipment there. The team also

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visits Taj Al-Marik and Al-Yawm Al-Azim, where they view destruction activities in progress.

— UN reports and interviews with UN personnel.

15 April 1992

UNSCOM-34/BM10 visits Dhu Al-Fiqar and views the destruction process there.

— UN reports and interviews with UN personnel.

16 April 1992

UNSCOM-34/BM10 supports UNSCOM-35 during its "Notice of Inspection" activities within Baghdad. The team visits the Taji site to inspect and verify Iraqi declarations that missile-related materials from Dawrah, Bismaya, Nabai, and Abu Gharib were destroyed. The team visits the Project 144/1/2/4 Facility at the Taji site to inspect components indicated in Iraq's 19 March unilateral destruction notification. The team "confirms with confidence" that the Iraqis destroyed 85 declared operational missiles and three training Scud/Al-Hussein missiles. Other remnants at the site likely represent the full complement of 89 operational missiles declared unilaterally destroyed by Iraq. Iraq presents a letter, signed by General Hossam Amin, which affirms that "there are no more missiles or missile-related items, either active or destroyed, in Iraq's possession."

— UN reports and interviews with UN personnel.

16 April 1992

A Pentagon spokesman says that Iraqi missile crews in northern Iraq track allied aircraft by radar. He claims that these actions are "provocative and should cease."

— Susanne M. Schafer, "Pentagon Says Iraqi Movement of Missiles 'Provocative,'" *Associated Press*, 16 April 1992, in Lexis-Nexis, web.lexis-nexis.com.

16 April 1992

Iraq says that it moved ground-to-air missiles into Kurdish areas only for purposes of self-defense. In an official statement, Iraq hints that it would not move the anti-aircraft missiles.

— "Iraqi Official Says Missiles for Self-Defense," *Associated Press*, 16 April 1992, in Lexis-Nexis, web.lexis-nexis.com.

17 April 1992

UNSCOM-34/BM10 visits Taj Al-Marik and Al-Yawm Al-Azim to confirm that the majority of items listed in the 14 February letter were in fact destroyed. The team requests further details about the Sakr-200 program at Taj Al-Marik.

— UN reports and interviews with UN personnel.

18 April 1992

UNSCOM-34/BM10 visits Dhu Al-Fiqar to confirm that the majority of items listed in the 14 February letter were destroyed. The team visits Bismaya to inspect and verify that two vehicles are MAZ-543 launchers. The team also notes that the Iraqis plan to install equipment at Dhu Al-Fiqar to manufacture motor cases and nozzles for the Sakr-200, as well as for the Ababil-100 at a later date.

— UN reports and interviews with UN personnel.

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19 April 1992

UNSCOM-34/BM10 inspects the Mansouriah site and verifies two vehicles there are MAZ-543 launchers.

— UN reports and interviews with UN personnel.

19 April 1992

Iraq establishes Ibn Al-Haytham as a missile research facility. [NOTE: The production of missiles has not yet begun.]

— UN reports and interviews with UN personnel.

20 April 1992

UNSCOM-34/BM10 confirms the destruction of four Al-Nida trailers. The team also visits Taj Al-Marik to verify that prohibited missile-related items are destroyed.

— UN reports and interviews with UN personnel.

21 April 1992

UNSCOM-34/BM10 observes a large quantity of chemicals used in the production of solid rocket propellant being moved to Muthanna for destruction. Also, the team is able to verify Iraqi claims of its unilateral destruction of missile-related equipment in the summer of 1991. Further, the team confirms the destruction of four MAZ-543 mobile missile launchers and four Iraqi-made Al-Nida mobile launchers, bringing the total confirmed number of destroyed units to 10 MAZ-543 and six Al-Nida launchers. Additionally, an UNSCOM-34/BM10 sub-team visits Taj Al-Marik and Dhu Al-Fiqar to verify completed destruction. The sub-team also visits Taji to complete an inspection of Scud components. UNSCOM-34/BM10 departs Baghdad.

— "Update on Inspections of weapons in Iraq," *Disarmament Newsletter*, June 1992, p. 14; United Nations, "First Report under Resolution 1051," S/1996/258, 11 April 1996; United Nations, "Sixth Report under Resolution 715," S/1994/1138, 7 October 1994; UN reports and interviews with UN personnel.

21 April 1992

US intelligence believes that the main delivery system for Iraqi biological agents would be Iraq's arsenal of ballistic missiles, several hundred of which apparently have not yet been found or destroyed.

— "Biological Arms Elude Inspectors," *The Washington Times*, 21 April 1992, pp. A1, A5.

24 April 1992

Ibn Al-Haytham Center is inaugurated under the Military Industrial Commission. Experienced personnel, including main engineers, are transferred from other canceled projects, which leads to the re-activation of the Ababil-100 project at this Center.

— UN reports and interviews with UN personnel.

24 April 1992-February 1993

Ibn Al-Haytham Center workers develop two additional concept designs, for a total of four, for the Ababil-100 short-range missile.

— UN reports and interviews with UN personnel.

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25 April 1992

Rolf Ekeus says that UNSCOM's efforts to locate and destroy Iraq's weapons of mass destruction have been highly successful. He states that while coalition bombing during the Gulf War destroyed only 10 Scud missiles, "UN inspectors since have found and destroyed 62."

— Reuters in "U.N. Official Praises Iraqi Weapons Destruction," Executive News Service, 25 April 1992.

27 April 1992

A UN inspector states that Iraq is no longer able to produce ballistic missiles with a range greater than 150km at three of its major production sites.

— "Update on Inspections of weapons in Iraq," *Disarmament Newsletter*, June 1992, p. 14.

May 1992

Iraq begins a survey of available liquid propellant engines, including the units from HY-2, KH-28, and Volga, for potential use in the Ababil-100 project.

— UN reports and interviews with UN personnel.

3 May 1992

Hussein Kamel, Saddam Hussein's son-in-law, is appointed the presidential advisor to oversee the Military Industrialization Commission. The Commission is now responsible for supplying the Iraqi market with new civilian products.

— Reuters in "Iraq to Convert Arms Industry to Civilian Use," Executive News Service, 3 May 1992.

7 May 1992

Britain, France, and the United States issue a new warning to Iraq to prevent the deployment of missiles or aircraft travel north of the 36th parallel.

— "New Missile Warning for Iraq," Agence France Presse, 7 March 1992; in Lexis-Nexis, web.lexis-nexis.com.

May 1992

UN inspectors visit the large-scale missile fuel production site near Baghdad. They accept Iraq's claim that the fuel is for Soviet-made SA-2 missiles. The fuel, an oxidizing agent, is identical to that which is used in Scud-type missiles.

— "Iraq Still Defying U.N. on Truce," *The Washington Times*, 8 June 1992, p. A3.

14-22 May 1992

UNSCOM-36/BM11 searches for undeclared ballistic missile-related equipment. The group's tasks include the verification of Iraqi claims that scores of Scud missiles were secretly destroyed following the Gulf War, along with the supervision of destruction of buildings and equipment related to Iraq's missile program. The team also inventories equipment designed for the production of nozzles for the Badr-2000.

— Reuters, 14 May 1992 in "U.N. Missile Inspectors Head for Iraq," Executive News Service, 14 May 1992; United Nations, "First Report under Resolution 1051," S/1996/258, 11 April 1996; United Nations, "Sixth Report under Resolution 715," S/1994/1138, 7 October 1994.

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15 May 1992

UNSCOM-36/BM11 inspects the plants at Dhu Al-Fiqar and Taj Al-Marik, as well as in the Mahawil area. The team destroys items related to the Badr-2000 project at Dhu Al-Fiqar.

— UN reports and interviews with UN personnel.

16 May 1992

UNSCOM-36/BM11 conducts inspections at the Taji facility in an effort to verify elements of the 19 March declarations. The team verifies destruction of two pieces of production equipment, as mandated by UNSCOM.

— UN reports and interviews with UN personnel.

17 May 1992

UNSCOM-36/BM11 conducts inspections at the Al-Tarmiya, Al-Nabai, Al-Haswa, and Al-Saklawiah facilities in an effort to verify elements of the 19 March declarations.

— UN reports and interviews with UN personnel.

18 May 1992

UNSCOM-36/BM11 inspects sites at Al-Alam and Dawrah in an effort to verify elements of the 19 March declarations.

— UN reports and interviews with UN personnel.

20 May 1992

UNSCOM-36/BM11 collects guidance systems at the Taji facility. The team inspects three undeclared sites, which are the Taji Building Production Plant, the Baghdad Barracks and Depot, and Batra Grain Storage.

— UN reports and interviews with UN personnel.

21 May 1992

UNSCOM-36/BM11 inspects two undeclared sites, which are the Baghdad Military Electronics Facility and the Baghdad Railway Station.

— UN reports and interviews with UN personnel.

22 May 1992

UNSCOM-36/BM11 returns to Taji to exchange guidance components. The team completes its verification that all items declared were destroyed, including a second mock-up of the Badr-2000 ballistic missile, miscellaneous components, and missile transport dollies. The team also verifies the destruction of two horizontal test vehicles, two independent test vehicles, two independent training test vehicles, one missile maintenance vehicle, the erector arm of the training launcher, nine oxidizer and four propellant vehicles, a spot welder, and a rolling machine. The group also completes the identification of five sets of Iraqi manufactured missile guidance components, which will be removed from Iraq for technical analysis. In addition, the team finds other guidance component pieces in and around a 10km stretch of canal where the Iraqis scattered them after unilateral destruction. Further, the team inspects remains of previously destroyed "TONKA" fuel starter systems. The group also finds a number of documents relating to the construction of facilities associated with, or suspected of association with, missile systems. The team departs Baghdad convinced that Iraq's March 1992 claim of its

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unilateral destruction of Scud missiles and related equipment following the Gulf War was truthful.

— Reuters, in "U.N. Team Says Iraq Appears to Have Destroyed Scuds," Executive News Service, 22 May 1992; United Nations, "Third Report of the Executive Chairman of UNSCOM," S/24108, 16 June 1992, in Iraq Watch, www.iraqwatch.org; UN reports and interviews with UN personnel.

June 1992

The Ibn Al-Haytham Center begins research on "converting C-601 to a ship-to-ship missile." [NOTE: C-601 is China's first generation air-to-ship missile. The YJ-6 is the original Chinese name for this missile, although C-601 is its designated name when exported.]

— UN reports and interviews with UN personnel.

June 1992

Iraqi officials go to Beijing to purchase anti-ship missiles.

— "Sneaking in the Scuds," *Newsweek*, 22 June 1992, pp. 42-46.

June 1992

US intelligence analysts believe Iraq may still possess 200-300 hidden Scud missiles and maintain the capacity to produce more.

— Gerald Seib, "Missile Race in Middle East Countries Despite U.S. Efforts to Stall Buildup," *Wall Street Journal*, 8 June 1992, p. A6.

5 June 1992

Iraq transmits documents to UNSCOM that contain what the Iraqis characterize as a "comprehensive and complete version of its nuclear, chemical, biological, and ballistic missiles activities."

— United Nations, "Note by the Secretary-General; Corrigendum," S/24108/Corr.1, 25 June 1992.

8 June 1992

The Washington Times cites a recent US intelligence report in stating that Iraq continues to undertake large-scale production of missile fuel at a plant near Baghdad. The newspaper reports that Iraq is believed to possess several hundred hidden Scud missiles. Though not covered by UN resolutions, US intelligence also reports new deployments of Frog-7 missiles near Baghdad. The missiles are being protected by SA-6 air-defense missiles. A senior US official notes that Iraq's continued resistance to the dismantlement of its weapons programs is part of a strategy to test the limits of allied resolve.

— "Iraq Still Defying U.N. on Truce," *The Washington Times*, 8 June 1992, p. A3.

15 June 1992

US authorities announce that the new Supplement 6 list to the Export Administration Regulations (EAR), Part 778, places tighter export controls on items related to missile production for several countries along with "the Middle East."

— "BXA Publishes Long Awaited Missile List," *Export Control News*, 30 June 1992, pp. 15-17.

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16 June 1992

UNSCOM Deputy Director Derek Boothby says that Iraq is "not in compliance" with UN resolutions and may be harboring up to 200 Scud missiles.

— "Iraq Ignoring Sanctions on Nukes, Inspector Says," *The Washington Times*, 17 June 1992, p. A8.

20 June 1992

UNSCOM chemical weapons expert Garth Whitty says that large quantities of warheads and chemical agents remain at various locations in Iraq.

— "Large Quantities of Warheads, Chemical Agents Left in Iraq," Agence France Presse, 20 June 1992, in Lexis-Nexis, web.lexis-nexis.com.

24 June 1992

UN officials note that Iraq has yet to fully comply with UN demands to supply a "full, final and complete disclosure" of its chemical, biological, nuclear, and ballistic weapons programs.

— "Iraq Lags on Renewal of U.N. Accord," *The Washington Post*, 25 June 1992, p. A35.

26 June 1992

The US Department of Defense (DOD) reduces its previous estimate of damage to Iraqi mobile Scud launchers during the Gulf War. According to a Pentagon spokesman, the revised assessment, which DOD forwarded to Congress, states that intelligence estimates confirm the "actual damage to Scud production and storage facilities... is less than previously thought."

— "Pentagon Says It Overestimated Destruction of Scuds during Gulf War," Agence France Presse, 26 June 1992; in Lexis-Nexis, web.lexis-nexis.com.

27 June 1992

Iraq formally submits to the UN Security Council what it terms a "report on future compliance verification."

— "The Status of the Implementation of the Plan for the Ongoing Monitoring and Verification of Iraq's Compliance with Relevant Parts of Section C of Security Council Resolution 687 (1991)," S/24661, 19 October 1992.

30 June 1992

Mohammed Bakir Hakim, the leader of the Tehran-based Supreme Council for the Islamic Revolution in Iraq (SCIRI), says there are still Scud missiles in Iraq. He claims to know the location of some hidden missiles as well as chemical weapons.

— "Opposition Leader Says Iraq Still Has Scuds," Executive News Service, 1 July 1992.

July 1992

Iraq begins new concept studies for the Ababil-100 liquid propellant engine. The studies include 10 concepts: jet cane, vertical and aero-fin, rail control, launch modes and others.

— UN reports and interviews with UN personnel.

5 July 1992

Iraq refuses to allow UNSCOM inspectors to search its Ministry of Agriculture and Irrigation for documents related

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to its weapons program. According to UNSCOM spokesman Tim Trevan, the team is looking mostly for information on missiles.

— "Iraqis Continue to Stymie U.N. Team," *The Washington Times*, 7 July 1992, p. A8; Jose Katigbak, Reuters, 14 July 1992, in "Arms Inspector Knew Iraq Wouldn't Allow Ministry Search," Compuserve-Executive News Service, 15 July 1992.

5-26 July 1992

Iraq refuses UNSCOM-36/BM11's attempts to gain access to the Iraqi Ministry of Agriculture in an effort to prevent any removals of documents or other materials.

— United Nations, "UNSCOM Chronology of Main Events," December 1999, www.un.org.

6 July 1992

The UN Security Council officially demands that Iraq grant UNSCOM-36/BM11 immediate access to the Iraqi Ministry of Agriculture and Irrigation.

— "Iraqis Continue to Stymie U.N. Team," *The Washington Times*, 7 July 1992, p. A8.

7 July 1992

Iraq rejects the UN Security Council's demand that UNSCOM-36/BM11 be permitted to enter the Agriculture and Irrigation Ministry to search for ballistic missile documentation. The UN Security Council labels the rejection a breach of SCR 687.

— "Iraq Rebuffs U.N. Inspection Order," *The Washington Times*, 8 July 1992, p. A9.

July 1992

UN sources say that Iraq has shredded documents related to its nuclear weapons program, which allegedly were kept in the Agriculture and Irrigation Ministry. These documents purportedly reveal incriminating information regarding Iraq's ballistic missiles and nuclear weapon programs, as well as the names of foreign suppliers, and technological and interim development information.

— United Press International, 8 July 1992; in J.T. Nguyen, "U.N. Says Iraq Shredding Nuclear Weapons Documents," Compuserve-Executive News Service, 9 July 1992.

11 July 1992

UNSCOM-40A&B/BM12 initiates its mission. The inspectors maintain surveillance outside the Ministry of Agriculture and Irrigation building to ensure the Iraqis do not remove any items.

— United Nations, "First Report under Resolution 1051," S/1996/258, 11 April 1996; United Nations, "Sixth Report under Resolution 715," S/1994/1138, 7 October 1994.

20 July 1992

Iraq secretly conducts a flight simulation of a three-stage space launch vehicle (SLV) with a 50-kg payload at an unknown site. The simulated SLV is based on Scud missile designs.

— United Nations, "Final Compendium," S/1999/94, 25 January 1999; UN reports and interviews with UN personnel.

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21 July 1992

US Representative Henry B. Gonzalez criticizes the Bush administration for allowing sales of dual-use goods and technology from US-based firms to Iraqi entities involved in the production of weapons of mass destruction (WMD). Gonzalez lists the Nasser State Establishment for Mechanical Industries, the Badr General Establishment, the Saddam State Establishment, the Al-Kindi Research Complex, the Salah Al-Din State Establishment, the Al Qa-Qa State Establishment, and the Hattin State Establishment as installations whose engagement in nuclear and missile weapons research and development was well-known by the United States, but to which the US government still allowed shipments of controlled dual-use items to be exported.

— "Gonzalez Escalates Scrutiny of Licensed Exports to Iraq," *Export Control News*, 30 July 1992, pp. 3, 4.

22 July 1992

UNSCOM inspectors withdraw from the vicinity around the Iraqi Ministry of Agriculture and Irrigation due to mounting tension in Iraq. UNSCOM Executive Director Rolf Ekeus strongly criticizes the Iraqi government, stating that the Iraqi government's denial of access to the Ministry is a breach of the cease-fire agreement. He claims that Iraq hides materials related to its WMD, including ballistic missiles.

— "U.N. Inspectors Leave from Iraqi Ministry," Xinhua General News Service, 22 July 1992.

24 July 1992

The United States, the United Kingdom, and France set a deadline for Iraq to allow a UN inspection team into the Ministry of Agriculture and Irrigation. The Ministry allegedly houses documents related to ballistic missiles and other weapons.

— Jeffrey Smith and Ann Devroy, "US, Allies Plan Ultimatum to Iraq; Defiance Would Be Met with Force," *The Washington Post*, 24 July 1992, p. A1, A32.

26 July 1992

Iraq allows inspectors into the Ministry of Agricultural and Irrigation.

— "Iraq Allows Inspections, Claims Victory," *Associated Press*, 27 July 1992, in Lexis-Nexis, web.lexis-nexis.com; Scarborough and F. Murray, "Iraq Backs Down, Allows Inspections," *The Washington Times*, 27 July 1992, pp. A1, A8.

7 August 1992

UNSCOM-42/BM13 begins its mission to investigate Iraq's ability to acquire or to produce indigenously proscribed ballistic missile technology, especially missile guidance and control systems.

— United Nations, "Fourth Report under Resolution 687," S/24984, 17 December 1992; United Nations, "First Report under Resolution 1051," S/1996/258, 11 April 1996; United Nations, "Sixth report under resolution 715," S/1994/1138, 7 October 1994.

7-18 August 1992

UNSCOM-42/BM13 visits the newly established Iraqi research and development facility, where Iraq conducts all research and development related to non-prohibited ballistic missiles. The team conducts inspections at eight other sites in order to assess the scope of Iraq's ability to produce missile guidance and control systems

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indigenously. The group also focuses on Iraqi programs to acquire or produce prohibited ballistic missiles and components. Findings include information related to previously undisclosed projects for computer support and missile fuel production, the interrelationship between the various projects in the ballistic missiles program, the involvement of different Iraqi organizations in the programs, and foreign involvement in certain aspects of the programs.

— United Nations, "Note by the Secretary-General," S/24984, 17 December 1992; "U.N. Finds Further Information on Iraq's Missile Program," Xinhua General Overseas News Service, 25 August 1992, in Lexis-Nexis, web.lexis-nexis.com; United Nations, "Note by the Secretary-General," S/24984, 17 December 1992; "U.N. Inspectors Uncover Information on Iraq's Missiles," United Press International, 17 August 1992, in Lexis-Nexis, web.lexis-nexis.com.

15 August 1992

UNSCOM-42/BM13 conducts lengthy discussions with Iraqi officials regarding ballistic missile program information discovered by the inspectors.

— "U.N. Inspectors Uncover Information on Iraq's Missiles," United Press International, 17 August 1992, in Lexis-Nexis, web.lexis-nexis.com.

August 1992

Iraq declares the existence of Ibn Al-Haytham Center to UNSCOM.

— UN reports and interviews with UN personnel.

17 August 1992

Iraqi General Raad Ismail states that the repair of Volga and HY-2 Silkworm anti-ship missiles are the most important of Ibn Al-Haytham's current activities. Dr. Raad further states that the second priority at the facility is the Ababil-100 program. Three hundred employees and 50 engineers currently work at the facility, and these numbers are expected to increase to 1,100 and 300 respectively.

— UN reports and interviews with UN personnel.

August 1992

UNSCOM-42/BM13 recovers a document from the Space Research Corporation in Iraq entitled, "Preliminary Study Called Ababil-100 'Ballistic Missile.'" The document describes Ababil-100 as "a kind of SSM mid-range, non-directed missile." It also offers an aerodynamic coefficients study of five configurations of missiles with ranges up to more than 200km, including information related to their vertical launch, booster, and sustainer. [NOTE: In February 1993, Iraq states that this study is a preliminary study of five aerodynamic configurations to simply modify existing SA-2 boosters and sustainers to SSM mode. The SA-2 is reportedly only marginally stable, although this statement is untrue given that Iraq conducts J-1 tests in 1992-93. Iraqis say the document is inconsequential, because it only examines options.]

— UN reports and interviews with UN personnel.

August 1992

Iraq says that the Al-Karama Center belongs to the General Establishment for Electrical Industries. However, this

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statement contradicts other information obtained by UNSCOM, including that regarding Project 144/4. The Iraqis claim Project 144/4 is part of the Al-Karama Center, but UNSCOM has learned that reports about the project go directly to the Ministry of Industry and Military Industrialization. Project 144/4 was developed from the Taji workshop's research and development on Al-Hussein guidance and control components.

— UN reports and interviews with UN personnel.

August 1992-

Iraq studies guidance concepts for its missiles. Iraq has difficulty manufacturing components for control surfaces. The current Ababil-100 concept is unguided. The Iraqis do not plan to use a solid sustainer, but it remains an option under study.

— UN reports and interviews with UN personnel.

August 1992

Subjects of interest at the Ibn Al-Haytham Center include the modification of the C-601 missile to surface-to-surface mode. Technicians study a project to modify booster and guidance systems for this purpose. The Center also has "ambitions" to increase the 35km range P-15 cruise missile to a 50km range.

— UN reports and interviews with UN personnel.

18 August 1992

UNSCOM-42/BM13 ends its mission. The team discovers no weapons or components prohibited under SRC 687, nor is there evidence that Iraq is able to complete indigenous production of guidance and control systems for ballistic missiles, including gyroscopes.

— United Nations, "Note by the Secretary-General," S/24984, 17 December 1992; United Nations, "First Report under Resolution 1051," S/1996/258, 11 April 1996; United Nations, "Sixth report under resolution 715," S/1994/1138, 7 October 1994.

20 August 1992

The trial begins of three Thyssen Industrie AG managers charged with the violation of German export laws. They are accused of purposefully supplying Iraq in 1990 with 35 turbo-pumps used for manufacturing Scud missiles. [NOTE: A Thyssen spokesman says the firm stopped exporting the pumps to Iraq in June 1990 when German authorities told the company they suspected Iraq was using the pumps to build missiles. The spokesman says Iraq claimed it intended to use the pumps for their petrochemical industry. Thyssen board member Ulrich Bertzen confessed to having shipped 35 turbo-pumps from Germany to Iraq, which he knew would be used in Scud missiles. The shipment was part of a deal for 305 turbo-pumps worth 13.2 million Deutsch Marks.]

— "Thyssen Industrie Managers on Trial for Alleged Iraqi Sales," AFX News, 20 August 1992, in Lexis-Nexis, web.lexis-nexis.com; "Thyssen Executives Convicted," *Mednews*, 28 September 1992, pp. 2-3.

26 August 1992

US President Bush announces a ban on Iraqi military flights over southern Iraq in order to protect Shiite Muslims. He says that the coalition has established a "no-fly" zone for all Iraqi fixed and rotary aircraft, which will begin in 24 hours.

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— "Crucial Events in the Confrontation between Iraq, U.S.," *Associated Press*, 17 December 1998; Helen Thomas, "Bush Announces 'no-fly' zone in Southern Iraq," United Press International, 26 August 1992, in Lexis-Nexis, web.lexis-nexis.com.

August-September 1992

Rolf Ekeus says that allied bombing during the Gulf War likely only destroyed a few Scud missiles. He also believes that UNSCOM has found most of Iraq's dangerous weapons since then, particularly Iraq's ballistic missiles. He adds that Iraq has no "capability to exercise any long-range warfare; they have no missile capability and no launching capability."

— "Allied Bombings 'Failed To Destroy Deadly Iraq Arms,'" *Asian Defence Journal* (September 1992), p. 117.

September 1992

Iraq copies the input and output data, as well as the simulation program of the three-stage SLV, to floppy diskettes. [NOTE: See 20 July 1992.]

— United Nations, "Report on Status of Disarmament and Monitoring," S/1999/94, 29 January 1999, www.un.org.

September 1992

The German Federal Intelligence Service Bundesnachrichtendienst (BND) says that Iraq recruited 50 former Soviet nuclear experts, including a Russian laser expert from the Arzamas-16 nuclear arms development center and a multiple missile warheads expert from Ukraine.

— Heinz Vielain, *Welt Am Sonntag* (Hamburg), 27 September 1992, p. 7, in "Ex-USSR Nuclear Experts Said Working in Iraq," *Proliferation Issues*, 7 October 1992, p. 2.

18 September 1992

Rolf Ekeus reports data gaps regarding Iraq's missile programs, including Scud missiles and nuclear deliverable missile systems.

— "U.N. Official: Iraq Behaves Better on Weapons," Xinhua News Agency, 18 September 1992, in Lexis-Nexis, web.lexis-nexis.com.

October 1992

The Ibn Al-Haytham Center acquires the Al-Rafah test stand, which previously was a part of the "Rafah Project." Iraq establishes the Propulsion Directorate, as an independent unit from the Research and Development Directorate.

— UN reports and interviews with UN personnel.

October 1992

General Raad decides to completely cancel the Al-Khalil project. He transfers the best missile experts to Ibn Al-Haytham's Programming Directorate.

— UN reports and interviews with UN personnel.

12 October 1992

Three former executives of the Matrix Churchill group of companies are accused of violating export bans by

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supplying Iraq with machinery for weapons, including missile parts.

— Richard Norton-Taylor, "Officials 'Duped in Iraq Deals,'" *The Guardian* (London), 13 October 1992, p. 4, in Lexis-Nexis, web.lexis-nexis.com.

16 October 1992

UNSCOM-45/BM14 initiates its mission. The two main goals of the mission are to determine whether Iraq retains an inventory of or a capability to produce fuels for ballistic missiles, and to obtain information on the "operational use" of these missiles.

— United Nations, "Note by the Secretary-General," S/24984, 17 December 1992; United Nations, "First Report under Resolution 1051, S/1996/25811 April 1996; United Nations, "Sixth Report under Resolution 715," S/1994/1138, 7 October 1994.

16-30 October 1992

Iraq adopts a more open approach to providing data on the "operational use" of its ballistic missiles since 1980. UNSCOM-45/BM14 obtains information regarding Iraq's past plans to acquire fuel and oxidizers for prohibited missiles.

— United Nations, "Fourth Report under Resolution 687," S/24984, 17 December 1992.

17 October 1992

UNSCOM-45/BM14 inspects Iraq's missile fuel and guidance equipment production facilities to corroborate whether their production capacities are consistent with Iraq's declared missile arsenal.

— Jon Wolfsthal, "Security Council Extends Iraqi Sanctions; Inspections Continue," *Arms Control Today* (November 1992), p. 28.

18 October 1992

UNSCOM-45/BM14 searches areas around Baghdad for possible hidden Scud missiles.

— Dilip Ganguly, "Ballistic Missile Inspectors Scan Areas around Baghdad," *Associated Press*, 18 October 1992, in Lexis-Nexis, web.lexis-nexis.com.

26 October 1992

UN officials suspect that Iraq still hides "some 200 Scud-B surface-to-surface missiles, or Iraqi-made variants."

— Dilip Ganguly, "U.N. Asks Iraq to Reveal If It Has Hidden Arms Sites," *Associated Press*, 26 October 1992, in Lexis-Nexis, web.lexis-nexis.com; Dilip Ganguly, "U.N. Team Suspects Iraq May Still Have Missile Capability," *Associated Press*, 26 October 1992, in Lexis-Nexis, web.lexis-nexis.com.

30 October 1992

UNSCOM-45/BM14 ends its mission. The team finds no evidence that Iraq possesses the capability to produce fuels for ballistic missiles indigenously.

— United Nations, "First Report under Resolution 1051," S/1996/258, 11 April 1996; United Nations, "Sixth Report under Resolution 715," S/1994/1138 7 October 1994.

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November 1992

Former members of the Mujihadeen-e-Khalq say that their former Baghdad-based Iranian opposition movement aids Iraq in its attempt to hide its weapons of mass destruction. These Mujahideen-e-Khalq dissidents state that some arms are hidden "in very large pits" at the Al-Khalis military base, and at an agricultural center in Al-Kut, which is located near the border of Kuwait. Claims are also made that weapons are stockpiled in Jalawlah, a town northeast of Baghdad.

— Reuter, 15 November 1992, "Iran Opposition Said Helping Iraq Hide Arms," Compuserve-Executive News Service, 15 November 1992.

November 1992

An IAEA inspection team finds an Arburg jet molding machine, which was acquired for manufacturing centrifuge motor stators, at the Iraqi Ash Shakyli warehouse. Iraqi officials indicate that they do not know of a purported second Arburg machine in Iraq. UNSCOM asks the Iraqis to investigate the second missing Arburg machine. It is believed that Iraqis obtained the second Arburg machine for their missile program. IAEA inspectors also determine that Building 159 of the Taji-Nasser State Establishment houses crates containing flow forming pre-forms about 28cm in diameter composed of 25% chromium and 4% moly-steel for the construction of Ababil-100 rocket casings.

— Hans Blix, "Report on the Seventeenth IAEA On-Site Inspection in Iraq under Security Council Resolution 687 (1991)," U.N. Security Council Document S/25411, 13 March 1993.

8 November 1992

According to Western intelligence sources, Iraq works to modernize missiles with conventional warheads at one of the secret Iraqi military plants in Baghdad's northwestern suburbs.

— "Iraq Smuggles Arms Spares from China and Iran," ITAR-TAS, 8 November 1992, in Lexis-Nexis, web.lexis-nexis.com.

2 December 1992

Iraq conducts a Volga/SA-2 sustainer static test at Rafah. The test is reportedly successful without instrumentation.

— UN reports and interviews with UN personnel.

14 December 1992-14 June 1993

UNSCOM teams destroy 265 of Iraq's 122mm rockets, 6,152 Iraqi 122mm rocket warheads, 873 of Iraq's 122mm rocket motors, 16,855 Iraqi 122mm rocket propellant grains, 1,977 of Iraq's 12mm rocket motor tubes, 1,492 of Iraq's 155mm mustard projectiles, 21 empty 155 projectiles, and 29 Al-Hussein warheads capable of delivering sarin (GB) and/or cyclosarin (GF).

— United Nations, "Fifth Report under Resolution 687," S/25977, 21 June 1993.

15 December 1992

CIA Director Robert Gates states that Iraq still possesses "significant residual" missile, nuclear, chemical, and biological weapons programs. He also states that Saddam Hussein apparently intends to resume these programs after UN inspections cease. In addition, he says that Iraq still hides mobile Scud missiles.

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— George Lardner Jr. and Jeffrey Smith, "Gates Warns of Iraqi Nuclear Aspirations," *The Washington Post*, 16 December 1992, p. A6.

16 December 1992

Russian Space Agency chief Yuri Koptev tells US negotiators that Russia will sell its rocket technology to nations like Iraq if Russia is prevented from entering the commercial launch market.

— Jeffrey M. Lenorovitz, "Lockheed, Khrunichev to Market Proton Launcher," *Aviation Week & Space Technology*, 4 January 1993, pp. 24-25.

27 December 1992

Iraq reinforces its "air defense missile system." It claims that this is a defensive measure.

— "The Iraqi Missile Crisis; Tariq Aziz Says Iraq will Respond to Any Attack on Its Air Defence Systems," British Broadcasting Corporation (BBC), 11 January 1993, in Lexis-Nexis, web.lexis-nexis.com.

End of 1992-Early 1993

The Sadiq Factory, which is dedicated to the production of liquid propellant missile engines, moves to Darwah. Iraq changes the facility's name to the Darwah Industrial Engine Factory. [NOTE: See Early 1993.]

— UN reports and interviews with UN personnel.

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1991

At the inception of the Gulf War

It is believed that Iraq possesses Scud-Bs with a maximum range of 300 kilometers (km), Al-Husseins with a 600-650km range, Al-Hussein Shorts (a variant of the Al-Hussein) with a 600-650km range, and Al-Hijarahs with a 600-650km range. Iraq's missile development programs include the Al-Fahd, a conversion of the SA-2 with an "intended range" of 300km; the extended-range Al-Fahd, with a range of 500km; the Al-Abbas, a longer version of the Al-Hussein with a lighter warhead and an intended range of 900km; the Badr-2000, a solid-propellant two-stage missile with a range of 750-1,000km; the Tammuz 1, a missile based on the Scud with SA-2 sustainer for a second stage with an "intended range" of 2,000km; and the Al-Abid, a three-stage space vehicle with a first stage of five Al-Abbas airframes. Iraq is also engaging in an effort to develop a solid-fuel missile with a similar range to the Tammuz.

— Anthony H. Cordesman and Ahmed S. Hashim, *Iraq: Sanctions and Beyond* (Boulder, CO: Westview Press, 1997), pp. 295, 296.

1991

According to Richard Spertzel, United Nations Special Commission (UNSCOM) Biological Weapon inspector (1994-1998), Iraq succeeds "in deploying biological weapons in aerial bombs as well as in Al-Hussein missiles fired toward Israel." [NOTE: Delivered in testimony before the US House Governmental Affairs Subcommittee on International Security, Proliferation and Federal Services on 1 March 2002.]

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— "UN Inspection Won't Stop Iraqi Bioweapons," Middle East Newline, *Afternoon Report*, 7 March 2002, Vol. 4, No. 93.

1991

An Italian company, Fincantieri Shipyard Corrado Antonini, cancels a shipment of "two fast-missile corvettes" armed with surface-to-surface missiles for Iraq because of the UN arms embargo.

— United Press International, 26 October 1995, in "Malaysia Buys Two Italian Warships," Executive News Service, 26 October 1995.

1991

South Korea's Yonhap News Agency cites unnamed military sources saying that North Korea had transferred Scud-C missiles to Syria, Iraq, Iran, and Libya since 1991.

— Reuters, 19 August 1996 in "Syria Tests Long-Range Scud Missile--Israel Report," Executive News Service, 20 August 1996.

During the Gulf War

According to an Iraqi declaration, it possesses 14 operational mobile missile launchers (combat mobile launchers for Al-Hussein class missiles), including 10 imported prior to the 1991 Gulf War and four produced indigenously. [NOTE: Iraq also imported another launcher of this type for training purposes. The supplier confirmed the quantity of imported launchers. See Summer of 1991 and August-September 1997.]

— United Nations, "Note by the Secretary-General," S/1997/774, 6 October 1997; United Nations, "Final Compendium," S/1999/94, 25 January 1999.

During the Gulf War

Babil reports that Iraq fires 84 Al-Husseins, three Al-Hussein Shorts, and one Al-Hijarah (with a cement warhead) missiles. Thirty-nine Scud missiles hit Israel.

— "Iraqi Commander on Artillery Improvements, Readiness to Bomb Israel upon Orders," *Babil* (Baghdad) (Internet version) in Arabic, FBIS, 31 January 2001; Anthony H. Cordesman and Ahmed S. Hashim, *Iraq: Sanctions and Beyond* (Boulder, CO: Westview Press, 1997), p. 295.

During the Gulf War

According to the *Wall Street Journal*, Iraq's Deputy Foreign Minister Saadoun Hamadi attempts to expedite a deal made with North Korea in December 1990 for the delivery of Scud-Bs and Scud-Cs. North Korea refused delivery when Iraq could not offer cash or oil payments.

— "The Postwar Scud-Boom," *Wall Street Journal*, 10 July 1991.

During the Gulf War

Iraq fires 60 Al-Hussein missiles at Saudi Arabia and Israel.

— "Al-Hussein/Al-Hussein--Iraq Special Weapons," in Federation of American Scientists, www.fas.org.

During the Gulf War

Iraqi General Hazem Abdel Razzaq Shihab discloses that the Iraqi troops fire 93 Scud missiles at Israel and Saudi

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Arabia--43 at Israel and another 50 at Saudi Arabia.

— "Bomb Kills Baghdad Schoolboy, Wounds Three," AP Worldstream, 21 January 1999.

During the Gulf War

According to the *Sunday Times*, a 37-year-old Iraqi defector claims that Iraq is closer to launching a missile strike with chemical and biological weapons than had been thought.

— Marie Colvin and Uzi Mahnaimi, "Saddam's Elite Troops Prime Poison Missiles," *Sunday Times* (London) 20 February 2000.

During the Gulf War

Iraq uses inhibited red fuming nitric acid as the oxidizer in several weapon systems, including the Scud, Guideline, Silkworm/Seersucker, and Kyle missiles.

— "Scud Missile Attacks and Inhibited Red Fuming Nitric Acid," Gulf Link, www.gulflink.osd.mil.

During the Gulf War

The Coalition B-52 bombers "pound" the Iraqi Saad-16 missile research center, near Mosul, to rubble. The bombers also "heavily damage" Scud assembly factories near Baghdad along with the Al Rufah missile test range.

— "Counter-Force Operations in Desert Storm," Center for Defence and International Security Studies, www.cdiss.org.

During the Gulf War

The Executive Chairman of UNSCOM's First Report to the Secretary-General confirms that coalition bombings destroyed several Iraqi missile repair and production facilities.

— United Nations, "First Report of the Executive Chairman UNSCOM: Note by the Secretary-General," S/23165, 25 October 1991.

January 1991

The Iraqi program for the production of unsymmetrical dimethyl hydrazine (UDMH) is discontinued. [NOTE: A UN document says "In 1987, Iraq began inquiring about and procuring facilities, equipment, training and materials concerning every aspect of the use and production of UDMH and related systems in missiles. Iraq established a plan to construct a factory in Iraq for the eventual production of 500 tons per year. Iraq initially denied plans to design a missile engine using UDMH. However, in 1995, Iraq admits that it had imported 10 tons of UDMH and ordered but did not receive more. Except for fuel used in the static test, the remaining quantity of imported UDMH had been declared by Iraq as unilaterally destroyed in 1991. UDMH is a liquid fuel which can improve the performance of liquid-propellant rocket engines. See May 1991 and August 1995.]

— United Nations, "Note by the Secretary-General," S/1995/284, 10 April 1995.

January 1991

Fohla De Sao Paulo reports that French President François Mitterrand denies that Iraq purchased missile guidance equipment from the French firm Sagem. *L'Express*, a French magazine, reported that the Argentinean Intesa company passed Sagem components to Iraq.

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— *Fohla De Sao Paulo*, 6 February 1991, p. A12, in "Training on Missile Guidance Systems," *Nuclear Developments*, 25 February 1991, p. 17.

January 1991

The *Los Angeles Times* reports that Iraq is thought to have 108 Scud missile launchers--about two-thirds of them mobile.

— John Broder, "Allied Raids Achieve 2 Goals but Miss Scuds," *Los Angeles Times*, 18 January 1991, p. A1, in Lexis-Nexis Academic Universe, web.lexis-nexis.com.

Early January 1991

According to *Nezavisimaya Gazeta*, the Sudanese government accepts Iraqi missile systems and targets them at Egypt. One of the targets is the Aswan High Dam. Russia has decided to resume "military cooperation" with Sudan and will probably send military advisers and equipment.

— Aleksandr Ivano, *Nezavisimaya Gazeta* (Moscow), 18 April 1995, p. 2; "Resumption of Military Contacts with Sudan Criticized," in FBIS-SOV-95-079, 18 April 1995.

16 January 1991

US warplanes attack Iraqi facilities producing missile parts, nuclear weapons, and military electronics. US officials say that US planes destroy fixed missile launch sites known as H-2 and H-3 in western Iraq, bases for Scud missiles targeted at Israel. Some 22 F-15E Strike Eagles attack Iraq's fixed launch sites near Al Qaim; five other F-15Es bomb fixed sites around the H-2 airfield near the Iraqi-Jordanian border. Coalition warplanes also attack "all of the Iraqi fixed Scud launch pads."

— John Broder, "Allied Raids Achieve 2 Goals But Miss Scuds," *Los Angeles Times*, January 18, 1991, p. A1, in Lexis-Nexis Academic Universe, web.lexis-nexis.com; Thomas B. Hunter, "Needles in a Haystack: The Role of Special Operations Forces in Hunting Tactical Ballistic Missiles During Operation Desert Storm," *Journal of Counterterrorism & Security International*, 1 January 1999.

16-19 January 1991

According to *The Washington Post*, US military officials believe that coalition attacks destroyed some Iraqi Scud storage sites.

— Jeffrey R. Smith, "Compactness, Simplicity, Mobility of Scuds Complicate U.S. Search," *The Washington Post*, 20 January 1991, p. A31, in Proquest, www.proquest.umi.com.

17 January 1991

Seven Iraqi Scuds strike Tel Aviv and Haifa in Israel.

— Thomas B. Hunter, "Needles in a Haystack: The Role of Special Operations Forces in Hunting Tactical Ballistic Missiles During Operation Desert Storm," *Journal of Counterterrorism & Security International*, 1 January 1999.

17 January 1991

Iraq launches a ground-to-ground Scud missile, but an American Patriot missile intercepts it over the Saudi desert.[1] A barrage of six Scud missiles hit targets in Saudi Arabia. In response to these, US Air Force A-10A pilots destroy two Iraqi launchers and damage three more.[2]

Related content is available on the website for the Nuclear Threat Initiative, www.nti.org.



— [1] Molly Moore, "U.S. Missile Intercepts Iraqi Scud; Saudi Base Protected from Rocket Attack," *The Washington Post*, 18 January 1991, p. A25, in Proquest, www.proquest.umi.com. [2] Jack Nelson, "Iraqi Missiles Strike Israel; Others Reported Fired at Saudi Arabia Bases; Gulf War: Reports Say That Some of the Scuds Hitting Israel Carried Poison Gas But Citizens Were Told to Seal Their Rooms and Wear Masks," *Los Angeles Times* (Southland Edition), 18 January 1991, p. A1, in Lexis-Nexis Academic Universe, web.lexis-nexis.com.

18 January 1991

According to a spokesman at the Israeli Embassy in Washington, Iraq fires a total of eight missiles at Tel Aviv from mobile launchers in the western desert; two land in Haifa, three land in unpopulated areas, and one strikes an unknown target. In the debris of several Scuds, Israeli specialists discover pipe systems made by the German company, Inwako on the Rhine.[1] An Israeli army official says that Iraqi missiles that exploded in and around Israel appear to contain conventional warheads.[2] After the Iraqi missile assault on Tel Aviv, the *Los Angeles Times* reports that some mobile launchers in western Iraq survived the allied attacks.[3][NOTE: See January 16, 1991] — "Counter-Force Operations in Desert Storm," Center for Defence and International Security Studies, www.cdiss.org. [1] Josef Hufelschulte, "Embargo Violations Reportedly Insufficiently Prosecuted," *Munich Focus* in German, in FBIS, 28 February 2000, pp. 44-46. [2] Jackson Diehl and William Claiborne, "Missiles Used in Attacks on Israel Were Conventional, Official Says," *The Washington Post*, 18 January 1991, p. A1, in Proquest, www.proquest.umi.com; Jack Nelson, "Iraqi Missiles Strike Israel; Others Reported Fired at Saudi Arabia Bases; Gulf War: Reports Say That Some of the Scuds Hitting Israel Carried Poison Gas. But Citizens Were Told to Seal Their Rooms and Wear Masks," *Los Angeles Times* (Southland Edition), 18 January 1991, p. A1, in Lexis-Nexis Academic Universe, web.lexis-nexis.com; Thomas B. Hunter, "Needles in a Haystack: The Role of Special Operations Forces in Hunting Tactical Ballistic Missiles During Operation Desert Storm," *Journal of Counterterrorism & Security International*, 1 January 1999. [3] John Broder, "Allied Raids Achieve 2 Goals But Miss Scuds," *Los Angeles Times*, January 18, 1991, p. A1, in Lexis-Nexis Academic Universe, web.lexis-nexis.com.

18 January 1991

According to *The Washington Post*, US warplanes attack 11 previously undetected mobile missile launchers in Iraq, hitting at least six, including three loaded with missiles and pointed toward Saudi Arabia. A former US military officer says that US and allied forces destroyed several Iraqi Scud missiles. At least six Iraqi missile launchers were discovered near Basra.

— Jeffrey R. Smith, "Compactness, Simplicity, Mobility of Scuds Complicate U.S. Search," *The Washington Post*, 20 January 1991, p. A31, in Proquest, www.proquest.umi.com.

18 January 1991

The US F-15Es attack the fixed (missile) sites around Al Qaim and the H-2 airfield. [NOTE: See 16 January 1991] — Thomas B. Hunter, "Needles in a Haystack: The Role of Special Operations Forces in Hunting Tactical Ballistic Missiles during Operation Desert Storm," *Journal of Counterterrorism & Security International*, 1 January 1999.

18-19 January 1991

Three Iraqi missiles hit Israel.

Related content is available on the website for the Nuclear Threat Initiative, www.nti.org.



— "Counter-Force Operations in Desert Storm," Center for Defence and International Security Studies, www.cdiss.org.

18 January-25 February 1991

Iraq fire 39 Scuds at Israel in 18 separate attacks.

— Michael Sheridan, "Iraq May Still Have Scuds," *The Independent* (London), 11 July 1991, p. 13, in Lexis-Nexis Academic Universe, web.lexis-nexis.com.

19 January 1991

US Marine Major General Robert Johnston, chief of staff for the US Central Command, estimates that Iraq possesses roughly 30 fixed missile launchers and more than 20 truck-mounted launchers.

— Jeffrey R. Smith, "Compactness, Simplicity, Mobility of Scuds Complicate U.S. Search," *The Washington Post*, 20 January 1991, p. A31, in Proquest, www.proquest.umi.com.

19 January 1991

At least three Iraqi Scuds explode in Tel Aviv, Israel.

— "1991 Gulf War Chronology," *USA Today*, 3 September 1996, www.usatoday.com.

19-20 January 1991

US F-15Es attack the Iraqi Scud sites around Al Qaim and shoot down one of the Scuds.

— "Counter-Force Operations in Desert Storm," Center for Defence and International Security Studies, www.cdiss.org.

20 January 1991

Iraq fires 10 Scuds at Saudi Arabia. Nine are intercepted and one falls offshore.

— "1991 Gulf War Chronology," *USA Today*, 3 September 1996, www.usatoday.com.

21 January 1991

The Pentagon announces that US Patriot missiles down nine Iraqi Scud missiles, including five fired in the direction of the US base at Dhahran, Saudi Arabia, and four aimed at Riyadh, Saudi Arabia's capital.

— Michael Kennedy and David Lauter, "Iraq Shows Off Seven as POWs; 9 Scud Missiles Aimed at Saudi Arabia Shot Down; Gulf War: Three From U.S. Are Among Allied Flyers Reportedly Shown in Baghdad; Gen. Schwarzkopf Says Forces May Have Knocked out Iraqi Nuclear Capability," *Los Angeles Times*, January 21, 1991, p. A1, in Lexis-Nexis Academic Universe, web.lexis-nexis.com.

22 January 1991

An Iraqi Scud strikes the Tel Aviv suburb of Ramat Gan.

— Thomas B. Hunter, "Needles in a Haystack: The Role of Special Operations Forces in Hunting Tactical Ballistic Missiles during Operation Desert Storm," *Journal of Counterterrorism & Security International*, 1 January 1999.

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22 January 1991

Iraq fires six Scud missiles at Saudi Arabia. A US Patriot missile destroys one of them; others fall harmlessly.

— "1991 Gulf War Chronology," *USA Today*, 3 September 1996, www.usatoday.com.

23-26 January 1991

Iraq fires an unknown number of Scud missiles at Israel and Saudi Arabia.

— "1991 Gulf War Chronology," *USA Today*, 3 September 1996, www.usatoday.com.

Late January 1991

According to the *Financial Times*, three Iraqis: Adnan Al Amiri, Hana Jon, and one unnamed man are released; they are among the 88 Iraqis detained in the United Kingdom under the Immigration Act. The British Foreign Office believes that all are connected with Technology and Development Group in Northern Ireland, the Iraqi-owned company that attempted to obtain technology useful to Iraq's missile program.

— Richard Donkin, "The Gulf War; UK Frees Three Detainees," *Financial Times*, 29 January 1991, p. 4, in Lexis-Nexis Academic Universe, web.lexis-nexis.com.

Late January 1991

An Iraqi officer reports that the first priority of the Iraqi government is to determine the distance of the Scud missiles from their targets when they were destroyed by Patriot missiles. The purpose of gathering this information is to facilitate the employment of chemical warheads on the missiles.

— Thomas B. Hunter, "Needles in a Haystack: The Role of Special Operations Forces in Hunting Tactical Ballistic Missiles during Operation Desert Storm," *Journal of Counterterrorism & Security International*, 1 January 1999.

30 January 1991

Responding to a statement by Foreign Minister Cavallo on evidence of an Argentine weapon sale to Iraq, former Defense Minister Horacio Juanarena calls the accusation "a total lie," denying the existence of such a sale. Cavallo sent a letter to Juanarena and the press regarding the alleged sale of Condor II missiles to Iraq by the former radical administration. His letter pointed out the previous government's folly in selling technology to Iraq, and affirms that an even greater error was made in allowing "the national territory to be used for the proliferation, production and sale of missiles which are strictly forbidden according to international law." Juanarena comments also that Argentine efforts to develop its own technology have been greeted by "heavy pressure, especially from the United States." In his opinion, "Argentina should renounce building missiles only if other countries agreed to do so too," and suggested that Cavallo's accusations were a move to divert the public's attention away from the government's decision to send troops to the Persian Gulf. [NOTE: See 8 February 1991]

— *Buenos Aires Herald*, 30 January 1991, p. 11 in "Juanarena Denies Condor II Sales to Iraq," *Nuclear Developments*, 25 February 1991, pp. 15-16.

End January 1991

Allegedly, Iraq starts to rebuild its Al-Kindi missile research facility in Mosul. Rebuilding work is completed in February 1995. [NOTE: This facility was formerly known as Saad-16.]

Related content is available on the website for the Nuclear Threat Initiative, www.nti.org.



— Anthony H. Cordesman and Ahmed S. Hashim, *Iraq: Sanctions and Beyond* (Boulder, CO: Westview Press, 1997), p. 308.

2 February 1991

Two Iraqi Scuds hit central Israel. A US Patriot downs a Scud over Saudi Arabia.

Iraq fires an unknown number of Scud missiles at Israel and Saudi Arabia.

— "1991 Gulf War Chronology," *USA Today*, 3 September 1996, www.usatoday.com.

6 February 1991

Fohla De Sao Paulo reports that between October 1988 and June 1990, Brazilian technicians from the company Engenteria de Sistemas de Controle e Automacao (ESCA) provided consulting services to Iraq for the installation of a simulation laboratory for missile and satellite guidance and control. Descartes de Souza Teixeira, the engineer who coordinated ESCA's work for Iraq, denied that experts involved in the project had been consulted by the Iraqis on how to improve the Scud missile. However, another ESCA engineer claimed he answered several Iraqi questions on missile guidance and control. The Scud, which originally had a range of 270km, was increased through Iraqi modifications to 600km. Retired Brigadier General Hugo de Oliveira Piva, president of the HOP consulting firm, does not think that Iraq has successfully established a guidance and control simulation lab. HOP experts have also been in Iraq assisting in the development of technology for the Piranha missile.

— *Fohla De Sao Paulo*, 6 February 1991, p. A12, in "Consulting for Installation," *Nuclear Developments*, 25 February 1991, p. 16.

6 February 1991

Fohla De Sao Paulo reports that the Iraqi military received training in missile guidance systems not only from Brazilian technicians, but also from US, French, English, Chinese, German, and USSR specialists. Brazilian contributions also included assistance in improving the guidance system of the Scud-B.

— *Fohla De Sao Paulo*, 6 February 1991, p. A12, in "Training on Missile Guidance Systems," *Nuclear Developments*, 25 February 1991, p. 17.

8 February 1991

Retired Brigadier and former Argentine Air Force Chief Ernesto Crespo states "the Condor II project was never sold to Iraq," citing as evidence the fact that the Argentine-Egyptian project used solid fuel while the Iraqi project used liquid fuel. He criticizes former Foreign Minister Domingo Cavallo for "giving credence to ill-intentioned magazine reports and for not producing serious evidence." He affirms that Cavallo was wrong to blame the previous government for the alleged Condor sale because the Condor I already existed and the Condor II was under development when Alfonsin came into office. Crespo adds that the US, Germany, and France supplied Iraq with technology and that the US was among those countries that "seek to supply those materials (sensitive technology) and which want to be the absolute authorities on those issues." [NOTE: See 30 January 1991]

— *Noticias* (Buenos Aires), 8 February 1991, in "Ex-Air Force Chief Denies Iraqi Missile Deal," *Nuclear Developments*, 25 February 1991, p. 16.

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9 February 1991

According to an unattributed report in *Sawt Al Kuwait International*, Jordan is stockpiling Scud missiles for Iraq. The missiles are subsequently transported to Iraq by truck via the Amman-Baghdad road. Storage fees are "estimated at tens of millions of dinars."

— *Sawt Al Kuwait International* (London), 9 February 1991, p. 1 in "Jordan Allegedly Storing Scud Missiles for Iraq," *Nuclear Developments*, 25 February 1991, pp. 32-33.

11 February 1991

Der Spiegel publishes an unattributed report claiming that the Anlagen Bau Contor company has designed plans for a missile engine testing and fuel mixing facility, including UDMH, for Iraq. The plans were ordered by the Liechtenstein-based, Iraqi-backed Transmerkur company. German investigators believe the plans were carried to the Middle East in August 1990 by Holger Beaujean, an Anlagen Bau Contor engineer, along with a formula for Scud missile fuel.

— *Der Spiegel* (Hamburg), 11 February 1991, pp. 16-17; "Company Developed Missile Engine Testing for Iraq," *Nuclear Developments*, 25 February 1991, p. 53.

16 February 1991

Xinhua cites a U.S. military official as saying that Iraq has launched the 66th missile attack of the Gulf War on Saudi Arabia's Jubail industrial port.

— "Iraq Launches Missile Attack on Saudi Port of Jubail," Xinhua News Agency, 16 February 1991, in Lexis-Nexis Academic Universe, web.lexis-nexis.com; "Scud Missile Attacks and Inhibited Red Fuming Nitric Acid," Gulf Link, www.gulflink.osd.mil.

24 February 1991

Iraq fires two Scud missiles at Israel.

— "1991 Gulf War Chronology," *USA Today*, 3 September 1996, www.usatoday.com.

24 February 1991

Hundreds of US, British, Kuwaiti, and Saudi Arabian warplanes bomb Iraqi air bases and aircraft, chemical and nuclear plants, and missile sites. The Latifiyah (Taj Al-Marik) rocket solid fuel plants and rocket motor production facilities at Shahiyat are targeted with multiple strikes and heavily damaged. [NOTE: As part of the joint Condor missile program, the Abu Zaabal Specialty Chemical company helped Iraq build the Taj al-Marik solid fuel propellant plant in Latifiyah (al Hillah). The Shahiyat site is one of four associated with Project 1728 (project 144/3, Mutawakel) production of Al-Hussein class missile engines.]

— Thomas B. Hunter, "Needles in a Haystack: The Role of Special Operations Forces in Hunting Tactical Ballistic Missiles during Operation Desert Storm," *Journal of Counterterrorism & Security International*, 1 January 1999; "Al Rafah/Shahiyat," www.globalsecurity.org.

25 February 1991

According to the *Financial Times*, Iraq launches a Scud missile (Al-Hijarah) at the Negev desert region near the Israeli nuclear facility of Dimona. This is the 38th extended-range Scud-B rocket attack, carrying conventional

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explosives.

— Hugh Carnegie, "The Gulf War; Baghdad in Scud Attack on Israel," *Financial Times*, 25 February 1991, p. 1, in Lexis-Nexis Academic Universe, web.lexis-nexis.com; "Al-Hussein/Al-Husayn Al- Hijarah," Federation of American Scientists website, www.fas.org.

25 February 1991

An Iraqi Scud missile hits a US barracks at Khobar City, near Dhahran, in Saudi Arabia killing 28 Americans. According to Brigadier General Richard I. Neal of the United States Command, the US Patriot missile radar system failed to intercept the Iraqi Scud-because it fragmented when it entered the atmosphere.

— Donatella Lorch, "War in the Gulf: the Scud Attack; Twisted Hulk of Warehouse Tells a Grim Story of Death," *The New York Times*, 27 February 1991, p. A18.

25 February 1991

Iraq launches a Silkworm anti-ship missile. Allied warships shoot it down.

— "1991 Gulf War Chronology," *USA Today*, 3 September 1996, www.usatoday.com.

25 February 1991

Iraq launches a Scud at Bahrain but "US-supplied" Patriot defense missiles intercept it.

— George Esper, "Deadliest Scud Attack Kills 28 U.S. Soldiers, Injures 100," *The Associated Press*, 26 February 1991.

26 February 1991

According to the official Qatari news agency, Iraq fires its first Scud at Qatar. It crashes in a deserted area and causes no damage.

— George Esper, "Deadliest Scud Attack Kills 28 U.S. Soldiers, Injures 100," *The Associated Press*, 26 February 1991.

28 February 1991

Israel demands that any cease-fire agreements include the destruction of Iraq's missile launchers and stockpiles of non-conventional weapons.

— "The Gulf: Iraqi Arsenal Has To Be Destroyed," *The Daily Telegraph*, 1 March 1991, p. 5, in Lexis-Nexis Academic Universe, web.lexis-nexis.com.

At the end of the war

UNSCOM finds 62 complete Al-Hussein missiles, six MAZ-543 TELs, and four other TELs, along with parts of 88 other missiles and 9 TELs. The Iraqis are also suspected of hiding other missiles from the UN inspection teams. [14 of 28 fixed sites were also destroyed.]

— Thomas B. Hunter, "Needles in a Haystack: The Role of Special Operations Forces in Hunting Tactical Ballistic Missiles during Operation Desert Storm," *Journal of Counterterrorism & Security International*, 1 January 1999.

March 1991

A Federal Republic of Germany internal government report states that, contrary to press reports, German companies did not help extend the range of Iraqi Scud missiles. Dismantled Iraqi Scuds revealed no Western parts. In late March, the Stuttgart public prosecutor's office said it would not investigate Daimler-Benz in connection with

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the delivery to Iraq of Scud missile transport vehicles.

— "Probe Confirms German Role in Iraq's Chemical Weapons Buildup," *Christian Science Monitor*, 2 April 1991, p. 5.

March 1991

The US Department of Commerce releases documents that show that it approved 771 export licenses between 1985 and 1990 for \$1.5 billion worth of dual-use items to Iraq. One New Jersey firm received export approval for furnaces that Iraq could have used to cast highly enriched uranium into nuclear bomb cores. The report said that Commerce did not inform the Defense Department, but the sale was stopped by a presidential order. In two other cases, Commerce approved the sale of machine tools and lasers to Iraq.

— Douglas Frantz, "Flaws In US Export Policy Helped Iraq, Report Says," *Los Angeles Times*, 27 June 1991, p. A14.

4 March 1991

Israeli experts believe that a number of intact mobile Scud launchers remain in western Iraq.

— Bradley Burston, "Iraq Still Retains Mobile Launchers," *The Jerusalem Post*, 5 March 1991, in Lexis-Nexis Academic Universe, web.lexis-nexis.com.

By April 1991

Iraq makes significant progress in its indigenous production of the Al-Hussein missile.

— "Ambassador Richard Butler's Presentation to the UN Security Council, June 3, 1998," www.fas.org.

April 1991

Iraq retains technological and know-how documentation required for the production of proscribed missiles, particularly of the Al-Hussein class. The documentation includes detailed plans, procedure manuals, and drawings. [NOTE: See 20 August 1995]

— United Nations, "Report on Status of Disarmament and Monitoring," S/1999/94, 29 January 1999, www.un.org.

April 1991

The United States delays the shipment of an IBM Model 3090 computer, sold to the Brazilian aircraft manufacturer Embraer in December 1990, with President Bush's approval. The US claims that it needs Brazil's guarantee that the technology will not be used for military purposes or transferred to other nations. Brazil is active in missile design and cooperated with Iraq in the creation of tactical missiles and space satellites in the late 1980s. [NOTE: In 1988, Embraer participated in a consortium that supplied Iraq with missile technology. It also provided engineers for a project headed by retired Brazilian General Hugo de Oliveira Piva in which the Iraqis received training in rocket dynamics, flight testing, and rocket trajectory control, along with assistance in extending the range of Iraq's Scud missile. See 6 February 1991]

— Clyde H. Farnsworth, "A Standoff with Brazil on Computer," *The New York Times*, 12 April 1991, p. 2, in Lexis-Nexis Academic Universe, web.lexis-nexis.com; "Brazil," *Milavnews*, May 1991.

April 1991

Iraq begins carrying out an undeclared program to modify the Volga/SA2 surface-to-air missile system to a surface-to-surface application with a range of over 100 kilometers. Iraq is undertaking efforts to conceal the extent of its

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success in the indigenous production of missiles. [NOTE: Iraq admits this secret program in August 1995]

— United Nations, "Second Report under Resolution 1051," S/1996/848, 11 October 1996.

April-November 1991

Iraq continues to import guidance and control instruments for its Al-Hussein missiles. [NOTE: See August 1991. Iraq admits this in early 1992.]

— United Nations, "Report on Status of Disarmament and Monitoring," S/1999/94, 29 January 1999, www.un.org.

3 April 1991

The UN Security Council adopts Resolution 687 (SCR 687). Section C of the resolution "decides that Iraq shall unconditionally accept, under international supervision, the destruction, removal or rendering harmless of its weapons of mass destruction, ballistic missiles with a range over 150 km, and related production facilities and equipment." It also establishes a system of ongoing monitoring and verification of Iraq's compliance with the ban on these weapons and missiles. Resolution 687 requires Iraq to declare the location, amounts, and types of all such items within 15 days. After the adoption of SCR 687, Iraq maintains a project to construct a facility dedicated to the indigenous production of proscribed missile propellants for Al-Hussein missiles. Al-Hussein is a liquid fuel missile with a range of 600-650km. [NOTE: Iraq admits the existence of this project in 1996.]

— UNSCOM Chronology of Main Events, www.un.org; United Nations, "Report on Status of Disarmament and Monitoring," S/1999/94, 29 January 1999, www.un.org.

3 April 1991

Iraq retains a parachute device for "retarding" Al-Hussein warheads. [Iraq does not provide technically consistent explanations for the procurement of such systems prior to the adoption of Resolution 687 nor for the retention of the set until 1995.]

— United Nations, "Final Compendium," S/1999/94, 25 January 1999.

5 April 1991

Iraqi forces are detected retrieving equipment for missiles and weapons of mass destruction, as well as cleaning up suspected sites.

— Anthony H. Cordesman and Ahmed S. Hashim, *Iraq: Sanctions and Beyond* (Boulder, CO: Westview Press, 1997), p. 291.

6 April 1991

Iraq formally accepts the terms of a permanent cease-fire agreement as stipulated in Resolution 687. The agreement includes UN supervised destruction of Iraq's weapons of mass destruction, ballistic missiles, and Iraq's agreement to contribute to a reparations fund.

— UNSCOM Chronology of Main Events, www.un.org.

After 6 April 1991

After the adoption of SCR 687, Iraq decides to retain two-thirds of its proscribed missile "operational force" and seeks to retain all available capabilities, components, materials, tooling, and machines for its indigenous production of missile engines and guidance and control (G&C) components. Iraq attempts to conceal the actual

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scope of its pre-Gulf War missile program including its capability to indigenously manufacture proscribed missiles with liquid propellant engines.

— United Nations, "Report on Status of Disarmament and Monitoring," S/1999/94, 29 January 1999, www.un.org.

11 April 1991

The UN Security Council declares a formal end to the war after reviewing Iraq's message to ensure it has accepted the unconditional UN terms.

— UNSCOM Chronology of Main Events, www.un.org.

13 April 1991

According to Radio SPLA sources, Iraqi Deputy Prime Minister Tariq Aziz personally conveys a message from Saddam Hussein to the Sudanese President Umar Al-Bashir in Khartoum, regarding the transfer of Iraqi Scud missiles, long-range artillery, and chemical weapons to those Arab countries that supported the Iraqi occupation of Kuwait. The Al-Bashir government agrees to receive these weapons. [NOTE: See 22 July 1991]

— "Radio SPLA Says Iraq Transferring Chemical Weapons and Scuds to Sudan," *BBC Summary of World Broadcasts*, 18 April 1991; "Iraqi Deputy Prime Minister Visits Sudan after Yemen," *BBC Summary of World Broadcasts*, 15 April 1991; "Sudan Said Ready to Hold Iraq's Chemical Arms," *Nuclear Developments*, 31 May 1991, p. 23; *Sawt Al-Kuwait International*, 30 April 1991, p. 1 in "Sudan Said Ready To Hold Iraq's Chemical Arms," *Nuclear Developments*, 31 May 1991, p. 23.

18 April 1991

Iraq provides an initial declaration required under SCR 687. Iraq declares its possession of 53 Al-Hussein missiles and one operational Scud with a range of 320km, and 30 chemical warheads for Scuds as well as five conventional Al-Hussein missile warheads, four missile launchers, two mobile missile erectors, and 32 platforms. Iraq also declares that 28 fixed Scud launch platforms remain in operation in western Iraq. Iraq does not declare any weapon production facilities. The declaration includes a pledge "not to use, introduce, build or acquire any chemical weapons or missiles." The declaration does not mention the Tammuz-I, which is under development, or Al-Abbas. The Al-Abbas missile is a modified Scud with an extended range of 900km. [NOTE: The inventory of Iraqi missile holdings includes: one 8K14E, 30 300km range Scud missile, 50 650km Al-Hussein missiles, five 8F44 warheads, and 18 Al-Hussein conventional warheads, all located at Taji; 30 Al-Hussein chemical warheads at Dujayl; two 9M117M missile launchers, two Al-Walid missile launchers and two Al-Nida missile launchers at Rashid Camp, and 28 fixed and four 9M117M missile platforms in the Western Zone. Iraq has also produced Sarin for 2,500 Sakr-30 "missiles."]

— United Nations, "UNSCOM Chronology of Main Events," December 1999, www.un.org; Melissa Healy and James Gerstenzang, "Iraq Says It Has 11,131 Chemical Warheads in Stock," *Los Angeles Times*, 20 April 1991, p. A1, in Lexis-Nexis Academic Universe, web.lexis-nexis.com; "Iraq Admits To Chemical Warheads For its Scuds," *Financial Times*, 20-21 April 1991; "Gulf War Cease-Fire Established; Iraq Complies With First Step," *Arms Control Today* (May 1991), pp. 19, 23; "Iraq Tells Of Chemical Arms Cache," *Los Angeles Times*, 19 April 1991, pp. A1, A10; "Iraqi Report Says Chemical Arsenal Survived the War," *New York Times*, 20 April 1991, pp. 1, 4; "Iraq Declares Its Missile Inventory," *Jane's Defence Weekly*, 27 April 1991, p. 677.

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18 April 1991

UN Secretary-General Perez de Cuellar submits a report to the Security Council regarding the establishment of the United Nations Special Commission on Iraq (UNSCOM).

— United Nations, "UNSCOM Chronology of Main Events," December 1999, www.un.org.

19 April 1991

The UN Security Council accepts the 18 April request by Perez de Cuellar and establishes UNSCOM to carry out the tasks laid out in SCR 687. The UN Secretary-General appoints Swedish ambassador Rolf Ekeus as the Executive Chairman of UNSCOM.

— United Nations Special Commission, "UNSCOM Basic Facts," www.un.org.

19 April 1991

The United States claims that the declaration Iraq submitted on 18 April leaves out key details of Iraq's nuclear, chemical, and missile programs. US State Department deputy spokesman Richard Boucher states, "The declaration delivered in New York shows clearly that the Iraqis have significant stocks of chemical munitions, ballistic missiles, and warheads for these missiles, but their responses fall short of reality."

— "US Rips Iraq Weapons Report," *San Francisco Chronicle*, 20 April 1991, p. A5; "Iraqi Report Says Chemical Arsenal Survived the War," *The New York Times*, 20 April 1991, pp. 1, 4.

May 1991

Iraq unilaterally destroys 10.5 tons of unsymmetrical dimethyl hydrazine (UDMH). [NOTE: UNSCOM is unable to verify the quantity of the unilaterally destroyed UDMH as of January 1999. All of the Iraqi Scuds use kerosene as fuel. UDMH is liquid fuel more powerful than kerosene. Iraq needs to modify its Scud engine in order to use UDMH rather than kerosene. Iraq used some of the 10.5 tons of UDMH in the static test for a modified Scud-B engine.]

— United Nations, "Seventh Report under Resolution 715," S/1995/284, 10 April 1995; United Nations, "Final Compendium," S/1999/94, 25 January 1999; US Department of Defense, "Information Paper: Iraq's Scud-Ballistic Missiles," 25 July 2000 www.gulfink.osd.mil.

May 1991

US prosecutors along with officials from several other executive agencies investigate the activities of International Signal and Control (ISC), a Pennsylvania-based electronics firm. The primary allegation against ISC involves illegal shipments of ballistic missile technology, including telemetry tracking antennae, gyroscopic equipment, and highly sensitive photo-imaging film reactors to South Africa from 1984 until November 1989. Federal officials believe that some of the technology was later shipped to Iraq.

— "Saddam's Secret South African Connection," *Financial Times*, 24 May 1991, p. 6.

13 May 1991

Argentine President Carlos Saul Menem faces opposition from the Argentine Air Force over the dismantling of the Condor-II missile project. Menem says that civilian applications should be found for the project's technology, but US military experts insist that the Condor-II cannot be transformed into a space satellite launcher. [NOTE: Since Iraq used Scuds in the Persian Gulf War, the United States has set a higher priority on monitoring missile

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technology exports and, thus, has placed the Condor-II project under greater scrutiny. The ultimate goal of the project was to establish production facilities in Iraq and Egypt, allowing both nations to offset Israel's arsenal through indigenous production.]

— "Argentina's President Battles His Own Air Force on Missile," *The New York Times*, 14 May 1991, pp. A1, A5.

14 May 1991

The exchange of letters between the UN Secretary-General and the Iraqi Foreign Minister comes into force. This exchange sets out the rights, privileges and immunities of UNSCOM and its personnel in Iraq.

— UNSCOM Chronology of Main Events, www.un.org.

16 May 1991

Iraq submits revised declarations regarding missiles and additional chemical weapons.

— UNSCOM Chronology of Main Events, www.un.org; "Missile Proliferation Chronology," *Arms Control Reporter*, June 1991, pp. 706, B, 55-706, E, 4.

17 May 1991

Rolf Ekeus claims that it will take approximately three months for UNSCOM to certify Iraqi compliance with SCR 687. UNSCOM solicits information from regional intelligence sources and suspected pre-war suppliers of military-related material.

— "Inspectors Find Iraq's Nuclear Material," *Washington Post*, 23 May 1991, p. A46.

23 May 1991

The Coordinating Committee on Multilateral Export Controls (COCOM) high level meeting takes place in Paris. The meeting establishes a new "core list" for the export of high technology and related goods to former Soviet Bloc countries. Among the items "decontrolled" are all civilian avionics and aircraft; certain liquid fuel rocket engines; composite materials; 1.5 micron semiconductor manufacturing equipment, and sales of sophisticated 50 MHz minicomputers. According to Defense Electronics, there is concern that nations like Iraq and Libya could purchase these technologies through front countries in the Union of Soviet Socialist Republics, Vietnam, Cambodia, Cuba, Romania, or elsewhere.

— "COCOM Drops Controls on Allied High-Tech," *Defense Electronics*, July 1991, p. 14.

29 May 1991

Argentina's Defense Minister Erman Gonzalez announces the cancellation of the Condor-II missile project. He says that the project will be "deactivated, dismantled, reconverted and/or rendered unusable." Iraq had provided \$200-\$300 million for the project. [NOTE: Prior to cancellation, Condor hardware reached final development stages, but the missile still lacked an effective guidance system.]

— "Argentina," *Milavnews*, June 1991, p. 2; "Argentina to Scrap Condor Missile Project," *Financial Times*, 30 May 1991, p. 8.

29 May 1991

In pointing out the urgent danger of weapons proliferation in the Middle East, US President George Bush reveals his Middle East arms control proposal, which includes a freeze on buying, building, and testing of surface-to-

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surface missiles (SSM) by Middle Eastern nations. The proposal affects Iraq's Scuds and Israel's Jericho missiles.

— "Bush seeks Curb on Mideast Arms," *Los Angeles Times*, 30 May 1991, pp. A1, A10.

June 1991

Iraq destroys "substantial quantities" of weapons of mass destruction, according to the statement by Iraq's delegate to the United Nations on 20 March 1992.

— "U.N. Team Confirms Iraqi Claims Destroyed Missiles Found Buried at Several Sites," *St. Louis Post-Dispatch*, p. 6A, in Lexis-Nexis Academic Universe, web.lexis-nexis.com.

June 1991

Iraq acknowledges that it has more than 52 ballistic missiles, which contradicts its initial 18 April 1991 declaration.

— "UN Aides Say Iraq May Be Concealing Nuclear Material," *The New York Times*, 15 June 1991, pp. 1, 15.

1 June 1991

German firms are under investigation regarding their involvement in arms trade with Iraq: Anlagen Bau Contor, for the purchase of high-performance propulsion systems on behalf of Iraq; Havert Handelsgesellschaft, for engineering and technical improvements on the Scud-B; Inwako, also for Scud-B technical improvements; and MBB Transtechnica, for the supply of missile research calibrating instruments. Criminal proceedings are currently underway against Saad 16 general contractor Gildemeister Projekta and against PBG Projekt-Betreuungs for the supply of missile technology.

— "The Iraqi Connection," *International Defense Review* (June 1991), pp. 567-570.

3 June 1991

UNSCOM-3 Ballistic Missile Team 1 (UNSCOM-3/BM1) arrives in Iraq. Its activity includes the destruction of ballistic missiles and support equipment Iraq declared in the Baghdad, Al-Taji, and Habbaniyah areas. The team inspects three of eight declared repair and production facilities. The team destroys warheads; launchers; support vehicles; propellants located at Habbaniyah; and missiles including Al-Hussein, Scud-B, and Fahd. Fahd missiles are SSMS that Iraq modified from Volga/SA2 surface-to-air missiles.

— UN reports and interviews with UN personnel.

6 June 1991

UNSCOM-3/BM1 destroys five damaged missiles at Taji.

— UN reports and interviews with UN personnel.

17 June 1991

The UN Security Council adopts Resolution 699. [The resolution confirms that UNSCOM and the International Atomic Energy Agency have the authority to conduct activities under section C of Resolution 687, for the purpose of the destruction, removal or rendering harmless of the items specified in that resolution.]

— UNSCOM Chronology of Main Events, www.un.org.

Summer 1991

The Iraqi "high authority" orders the directors of the sites involved in Iraq's proscribed programs to protect

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"important documents" by packing them immediately, and delivering them on demand to representatives from Iraq's special security organizations.

— United Nations, "Note by the Secretary-General," S/1995/864, 11 October 1995.

26 June 1991

The US House Government Operations Committee adopts a report that a subcommittee on Commerce, Consumer, and Monetary affairs prepared. The report criticizes US export control policy and is most critical of the US Commerce Department, which approved exports to Iraq of US technologies that helped Saddam Hussein develop his missile, nuclear, biological, and chemical weapons programs, despite objections from the US Defense Department. US Representative Doug Barnard Jr., the subcommittee chairman, calls for the creation of an independent agency that would streamline the licensing process and set up a consistent export policy for sensitive technologies and equipment.

— Douglas Frantz, "Flaws In US Export Policy Helped Iraq, Report Says," *Los Angeles Times*, 27 June 1991, p. A14.

26 June 1991

At the US State Department regular briefing, Department spokesperson Margaret Tutwiler says that Iraq has defied UN resolutions either by under-reporting or not revealing details of its ballistic missiles. US intelligence photos indicate Iraq still has at least 700 Scud-type SSMs, mostly at Taji, north of Baghdad, where Iraq refurbishes and places them on new launchers.

— "State Department Regular Briefing," Federal News Service, 26 June 1991, in Lexis-Nexis Academic Universe, web.lexis-nexis.com.

28 June 1991

The "imagery" taken on this day shows that the Iraqis removed 15 biological warheads from a Tigris Canal site and transported them to "another" location. [NOTE: See 7 July 1991.]

— "Ambassador Richard Butler's Presentation to the UN Security Council, June 3, 1998," www.fas.org.

30 June 1991

Saddam Hussein sets up a special high-level committee to plan the concealment of weapons, materials, and plans from UNSCOM inspectors. Tariq Aziz is chairman of the committee.

— Andrew Cockburn and Patrick Cockburn, *Out of the Ashes: The Resurrection of Saddam Hussein* (New York: Harper Collins, 1999), p. 102.

30 June-14 October 1991

UNSCOM Ballistic Missile teams (1-5) conduct inspections in Iraq to make an inventory, identify for destruction, and monitor the destruction of all declared ballistic missiles with a range greater than 150 kilometers, their related parts and components, and all research, development, support and manufacturing capabilities. Also the teams supervise the destruction of "62 ballistic missiles, 18 fixed Scud missile launch pads, 10 launchers, 11 decoy missiles, 32 ballistic missile warheads, 127 missile storage support vehicles, a substantial amount of rocket fuel, and assembled 350mm type supergun, components for 350 and 1,000 millimetre superguns and 1 tonne of supergun propellant."

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— United Nations, "First Report of the Executive Chairman UNSCOM: Note by the Secretary-General," S/23165, 25 October 1991.

Between 30 June 1991 and February 1992

UNSCOM teams destroy over 80 missiles, 11 missile decoys, dozens of fixed and mobile launchers, eight missile transporters, and 146 missile storage units.

— Anthony H. Cordesman and Ahmed S. Hashim, *Iraq: Sanctions and Beyond* (Boulder, CO: Westview Press, 1997), p. 308. [Original: *Washington Post*, February 14, 1992, p. A33; *Washington Post*, January 15, 1992, p. A18..

Early July 1991

According to a later Iraqi declaration, Iraq unilaterally destroys 45 "special warheads" (20 for chemical weapons, 25 for biological weapons).

— United Nations, "Report on Status of Disarmament and Monitoring," S/1999/94, 29 January 1999, www.un.org.

Early July 1991

UNSCOM supervises the destruction of 52 tons of imported missile oxidizer (AK271) and 20 tons of imported missile main fuel (TM185). [NOTE: Iraq declared the importation of 2,895 tons of this oxidizer (AK271) and 818 tons of main fuel, but has yet to provide any supporting documents to substantiate this declaration.]

— United Nations, "Report on Status of Disarmament and Monitoring," S/1999/94, 29 January 1999, www.un.org.

Early July 1991

According to a report submitted by UNSCOM executive chairman Rolf Ekeus to the UN Secretary-General, UNSCOM supervises the destruction of 48 missiles that Iraq declared operational, 14 conventional warheads, six operational mobile launchers, and other support equipment and materials.

— United Nations, "Second Report under Resolution 1051," S/1996/848, 11 October 1996; United Nations, "Fourth Report under Resolution 1051," S/1997/774, 6 October 1997.

July 1991

According to the March 1992 Iraqi declaration, Iraq destroys some missile launchers unilaterally at Bismayah. [NOTE: Prior to March 1992, Iraq claimed that several launchers had been destroyed during the Iraq-Iran War. Then, Iraq changed its claim. UNSCOM establishes in July 1997 that Iraq's statement on the unilateral destruction of missile launchers in the summer of 1991 was false.]

— "Ambassador Richard Butler's Presentation to the UN Security Council, June 3, 1998," www.fas.org; United Nations, "Note by the Secretary-General," S/1997/774, 6 October 1997.

July 1991

Iraq confirms the existence of its five "superguns" development project, called the "Babylon" project. Iraq acknowledges that it pursued a program to develop a "supergun" capable of firing shells up to 800km and its possession of a long-range "supergun" and components to build additional larger caliber weapons. This type of gun is capable of delivering prohibited munitions beyond 150km. [In response to SCR 687, Iraq declared components that it had acquired for both the 350mm and 1,000mm guns.]

— "Iraq Has Destroyed Its Declared Ballistic Potential: U.N. Inspector," *Agence France Presse*, 9 December 1991;

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United Nations, "Final Compendium," S/1999/94, 25 January 1999; "U.N. Releases Iraqi 'Supergun' Photos; Device to Be Destroyed," *Los Angeles Times*, 24 August 1991, p. A18; "Iraq," *Milavnews*, August 1991, pp. 15-16.

July 1991

According to an Iraqi declaration, Iraq sends 10 semi-trailers of undamaged components for its indigenous missile engine production to the Tikrit area to conceal them from UNSCOM. A week later, Iraq decides to destroy the components from 9 of 10 of the semi-trailers by exploding and burying them at the Al-Alam site. The tenth semi-trailer is diverted from destruction for retention and concealment at a farm near Baghdad. [See March 1992.]

— "Ambassador Richard Butler's Presentation to the UN Security Council, June 3, 1998," www.fas.org.

July 1991

According to a later Iraqi declaration, Iraq unilaterally destroys 20 imported turbo pumps not used since April 1991. It explodes nine of them, buries them in the desert, then excavates and melts the metal in a foundry; the remaining 11 are also melted in a foundry [NOTE: Iraq has provided no documentary evidence to confirm this declaration]. According to the UN report, "Iraq declared that it had not been able to indigenously produce turbo pumps for proscribed missile engines. Iraq attempted to acquire them by importing complete turbo pumps or by importing their components for final assembly in Iraq. Iraq declared that it had failed to assemble any complete turbo pumps from imported components. All turbo pump components were declared as unilaterally destroyed. Iraq stated that it had imported 34 turbo pumps from the specific foreign supplier. The importation was part of the implementation of an overall order for 305 turbo pumps from this supplier. The commission has been able to obtain data on the quantity of the turbo pumps ordered and imported by Iraq directly from this supplier. See April or May 1992, in conflict with the Iraqi declaration, inventory records of the unilateral destruction of July 1991 list eight turbo pumps."

— United Nations, "Report on Status of Disarmament and Monitoring," S/1999/94, 29 January 1999, www.un.org.

1-7 July 1991

UNSCOM-3 Ballistic Missile Team 1 begins destruction of Iraqi ballistic missiles. The team visits seven different sites and facilities. Three of the sites are former production and repair facilities that were destroyed by coalition bombing. The team carries out the initial inventory and supervision of the destruction of all declared missiles, launchers and support equipment.

— United Nations, "First Report of the Executive Chairman UNSCOM: Note by the Secretary-General," S/23165, 25 October 1991.

2-6 July 1991

UNSCOM-3/BM1 supervises the destruction of "61 Scud-type missiles, 28 live warheads, 10 mobile launchers, two fixed launchers, nine liquid-fuel transporters and eight missile transport vehicles."

— United Nations, "First Report of the Executive Chairman UNSCOM: Note by the Secretary-General," S/23165, 25 October 1991; "28 Iraqi Missile Warheads Destroyed," *Xinhua News Agency*, 6 July 1991, in *Lexis-Nexis Academic Universe*, web.lexis-nexis.com; Michael Hirsh, "U.N. Team to Hunt for Nuclear Equipment; Scud Warheads Destroyed," *Associated Press*, 6 July 1991, in *Lexis-Nexis Academic Universe*, web.lexis-nexis.com.

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2 July 1991

UNSCOM-3/BM1 inspects and supervises the destruction of 12 Al-Hussein missiles at Taji. Destruction activities also take place at the Al-Taji military base north of Baghdad. UNSCOM plans to destroy all 61 Iraqi declared missiles by July 7th.

— UN reports and interviews with UN personnel; "U.N. Experts Destroy 39 Iraqi Ballistic Missiles," Agence France Presse, 3 July 1991, in Lexis-Nexis Academic Universe, web.lexis-nexis.com; "U.N. Team Declaring Dissatisfaction, Set To Leave Iraq," *Washington Post*, 3 July 1991, p. A3.

3 July 1991

UNSCOM-3/BM1 conducts inspections at Taji and Habbaniyah. At Taji, the team supervises the destruction of 27 Iraqi ballistic missiles, including 18 Al-Hussein and nine Al-Fahd.

— UN reports and interviews with UN personnel; "U.N. Experts Destroy 39 Iraqi Ballistic Missiles," Agence France Presse, 3 July 1991, in Lexis-Nexis Academic Universe, web.lexis-nexis.com.

4-5 July 1991

UNSCOM-3/BM1 conducts inspections and destruction activities at Taji and Habbaniyah.

— UN reports and interviews with UN personnel.

5 July 1991

According to an Iraqi declaration disclosing the status of its ballistic missile force, some of the 819 missiles imported in the period ending in 1988 are unilaterally destroyed. [NOTE: Iraq claimed that it destroyed 85 missiles in July and October 1991. However, UNSCOM found only 83 missile engines from destruction sites.]

— United Nations, "Note by the Secretary-General," S/1997/774, 6 October 1997; United Nations, "Fourth Report under Resolution 1051," S/1997/774, 6 October 1997; United Nations, "Second Report of the Executive Chairman of UNSCOM," S/23268, 4 December 1991; United Nations, "Report on Status of Disarmament and Monitoring," S/1999/94, 29 January 1999, www.un.org.

6 July 1991

UNSCOM-3/BM1 inspects and conducts destruction activities at Nabai. The team also inspects undeclared sites in the immediate vicinity of Taji (Nasser Plant and FROG missile systems). The team supervises the destruction of 28 Iraqi conventional missile warheads for the Al-Hussein and Al-Fahd missiles at the Al-Taji launch site.

— UN reports and interviews with UN personnel; "28 Iraqi Missile Warheads Destroyed," Xinhua News Agency, 6 July 1991, in Lexis-Nexis Academic Universe, web.lexis-nexis.com; "Iraq Destroys Scud Warheads; Nuclear Team Arrives," Associated Press, 6 July 1991, in Lexis-Nexis Academic Universe, web.lexis-nexis.com.

7 July 1991

UNSCOM-3/BM1 completes its mission.

— United Nations, "First Report of the Executive Chairman UNSCOM: Note by the Secretary-General," S/23165, 25 October 1991.

7 July 1991

According to a 1997 Iraqi declaration, 15 biological weapons warheads stored at a Tigris Canal site are transported

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away for decontamination at another location. [NOTE: The imagery displayed shows that warheads were removed from the site some 10 days before the declared date.]

— "Ambassador Richard Butler's Presentation to the UN Security Council, June 3, 1998," www.fas.org.

7 July 1991

US intelligence believes Iraq possesses more than 40 gas warheads.

— "To Bomb or Not To Bomb," *San Jose Mercury News*, 7 July 1991, p. C7.

8-9 July 1991

According to a March 1992 Iraqi declaration, 15 special missile warheads arrive at Nibai and are destroyed.

— "Ambassador Richard Butler's Presentation to the UN Security Council, June 3, 1998," www.fas.org.

10 July 1991

US State Department officials say Iraq attempted to conceal its chemical, biological, and nuclear weapons, and Scud missiles in spite of the UN ceasefire agreement. UN inspectors, following US intelligence leads, are searching for an underground bunker near Baghdad where 400 Scud and Scud-variant missiles are reportedly hidden.

— "Satellite Spots Iraq Burying Atomic Gear," *Washington Times*, 10 July 1991, pp. A1, A10, www.nti.org.

11 July 1991

The Independent quotes the daily *Haaretz* report: Israel sources believe that Iraq still has Scud missiles and has not handed over all its long-range missiles to UNSCOM inspectors.

— Michael Sheridan, "Iraq May Still Have Scuds," *The Independent* (London), 11 July 1991, p. 13, in Lexis-Nexis Academic Universe, web.lexis-nexis.com.

15 July-20 July 1991

Iraq destroys 89 missiles unilaterally. The Iraqis carry the missiles to the destruction site on board triple carriers and trucks from missile storage sites at Taji, Dawrah, Abu-Gharaib, Bismayah, and other locations prior to the destruction. br />— UN reports and interviews with UN personnel.

18 July 1991

UNSCOM-10/BM2 arrives in Baghdad. The team inspects the southeast corner of the Taji camp and the Al-Harith surface-to-air (SAM) refurbishment plant. The objective of the mission is to investigate information about additional missiles and related equipment previously undeclared by Iraq. The team discovers 11 decoy Al-Hussein and additional support equipment.

— UN reports and interviews with UN personnel; United Nations, "First Report of the Executive Chairman UNSCOM: Note by the Secretary-General," S/23165, 25 October 1991.

18 July 1991

In a document filed with UNSCOM, Iraq acknowledges that it has a 35.5cm supergun with a 50m-long barrel at the Jabal Hamrayn military base. The document says that Iraq "tested" the gun. Iraq also admits having steel tubes, including one it intended to use as part of a separate 39-inch supergun.

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— Peter James Spielmann, "Iraq Acknowledges It Was Building 'Superguns,'" Associated Press, 19 July 1991, in Lexis-Nexis Academic Universe, web.lexis-nexis.com.

18-20 July 1991

UNSCOM-10/BM2 finds undeclared decoy missiles and additional support equipment in the vicinity of a site previously inspected by the first ballistic missile team.

— United Nations, "First Report of the Executive Chairman UNSCOM: Note by the Secretary-General," S/23165, 25 October 1991.

20 July 1991

UNSCOM-10/BM2 completes its mission.

— United Nations, "First Report of the Executive Chairman UNSCOM: Note by the Secretary-General," S/23165, 25 October 1991.

22 July 1991

US intelligence strongly believes that Iraq transferred a large number of Scud missiles to other Arab countries, presumably to avoid their discovery by UN inspection teams. The sources say that Iraq has allegedly stored 400 Scud missiles in Yemen and Sudan. [NOTE: See 13 April 1991]

— "Iraqi Nuclear Equipment Said Sent to Algeria," *Proliferation Issues*, 8 August 1991, p. 16, www.nti.org. Original source *Al-Ahrrar* (Cairo), 22 July 1991, p. 1..

Late July 1991

According to a March 1992 Iraq declaration, Iraq unilaterally and secretly destroys 85 operational missiles, over 130 warheads (both conventional and chemical), eight operational mobile launchers, and missile force support equipment, without UNSCOM's supervision of the destruction, as required by Resolution 687.

— United Nations, "Note by the Secretary-General," S/1996/848, 11 October 1996.

August 1991

Iraq unilaterally destroys "regenerated" oxidizer it produced and "non-regenerated" oxidizer it collected together with propellants for Scud-B/Al-Hussein class missiles. [NOTE: Iraq does not use its nitric acid production facility to manufacture oxidizer for Al-Hussein class missiles. Instead, Iraq engages in "refurbishment" of residues of AK271 remaining in storage tanks after fuelling missiles during 1990. Iraq collected some 55 tanks of oxidizer residues, which is over 150 tons of oxidizer.]

— United Nations, "Report on Status of Disarmament and Monitoring," S/1999/94, 29 January 1999, www.un.org.

August 1991

Iraq initiates a secret project to construct a surface-to-surface missile called "J-1" (based on the Volga/SA2 with certain modifications, particularly to its engine and guidance and control system) without notifying UNSCOM as required by the UN Security Council resolutions. According to an Iraqi statement, Lieutenant General Hussein Kamil issues the orders both for the project itself and for the requirement to keep it a secret from UNSCOM. [NOTE: The Iraqis tell UNSCOM, regarding the ongoing J-1 project, that Iraq is merely developing a non-proscribed Ababil-100 missile that it had declared to UNSCOM. Iraq does not declare any aspect of the J-1 program—from design to parts

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manufacturing to flight-testing--to UNSCOM until August 1995.]

— United Nations, "Final Compendium," S/1999/94, 25 January 1999.

August 1991

UNSCOM discovers a facility in Iraq for the development and production of guidance and control instruments for Al-Hussein class missiles. [NOTE: Iraq did not declare efforts to produce guidance and control instruments for its Al-Hussein class missiles. See April-November 1991]

— United Nations, "Report on Status of Disarmament and Monitoring," S/1999/94, 29 January 1999, www.un.org.

August 1991

Iraq admits its reverse-engineering efforts in developing and producing guidance and control instruments for Al-Hussein class missiles.

— United Nations, "Report on Status of Disarmament and Monitoring," S/1999/94, 29 January 1999, www.un.org.

1 August 1991

Rolf Ekeus confirms the existence of chemical warheads containing Sarin nerve gas for Iraq's Scud missiles.

— "Iraq," *Milavnews*, August 1991, pp. 15-16.

8-15 August 1991

UNSCOM-8/BM3 undertakes a survey of the declared supergun, propellant, and unassembled parts at three different sites. The team obtains a significant number of documents and blueprints related to the construction and development of this system.

— United Nations, "First Report of the Executive Chairman UNSCOM: Note by the Secretary-General," S/23165, 25 October 1991.

8 August 1991

UNSCOM-8 BM3 inspects and identifies production, repair, and test equipment and machinery associated with the Scud, Al-Hussein, and Badr-2000 missiles for destruction at five declared and seven undeclared sites. At one undeclared site, the team discovers an additional 187 Scud fuel, oxidizer, and starter storage tanks. The team also finds 30 Scud warhead canisters containing chemical-filled warheads at Al-Dujayl. [NOTE: See 31 August -9 September 1991]. [NOTE: Iraq declared seven ballistic missile facilities at Fallujah, Latifiyah, Al-Dawrah, Al-Musayyib, and Al Qa-Qa State Establishment as destroyed, inspected, and confirmed as heavily damaged. However, Iraq reconstructed several facilities.]

— United Nations, "First Report of the Executive Chairman UNSCOM: Note by the Secretary-General," S/23165, 25 October 1991.

8 August 1991

According to a senior US State Department official, Iraq probes the black market in order to replace weapons destroyed during the Gulf War. The official also states that Iraq probably is still hiding several hundred Scud missiles around the country.

— Times Wire Services in "Iraq Reportedly Taps Black Market to Rebuild Banned Arms Programs," *Los Angeles Times*, 8 August 1991, p. A10.

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9 August 1991

UNSCOM-8/BM3 inspects declared Balat Al-Shuhada' Plant and Dhu Al-Fiqar Factory at Fallujah (Habbaniyah Solid Motorcase Production Facility) and the undeclared Al-Amer Plant (Fallujah Scud Assembly Plant).

— UN reports and interviews with UN personnel.

10 August 1991

UNSCOM-8/BM3 inspects the undeclared Batra Scud Assembly Plant at Al-Radwan and the Shabiyat Liquid Engine Research, Development, Testing and Engineering Facility at Al-Rafah Project 328 (Shahiyat Unidentified Facility under Construction) and the declared Al-Dawrah facility, in particular Launcher Workshop 144/5.

— UN reports and interviews with UN personnel.

11 August 1991

UNSCOM-8/BM3 inspects the declared Jabal Hamrayn supergun and undeclared sites at Al-Dujayl, such as the Sumaykah SSM support facility, Southeast, Southwest, and Orchard.

— UN reports and interviews with UN personnel.

12 August 1991

UNSCOM-8/BM3 inspects declared Balat Al-Shuhada' Plant and Taj Al-Ma'arik Factory at Latifiyah. In building 40 (128) at Taj Al-Ma'arik, the team finds the following items; two-inch diameter motor casting chamber and propellant transport container; one inert sub-scale motor with mandrel for Al-Ababil; and two Badr-2000 mandrels. In building 28 (148) at Taj Al-Ma'arik, the team observes oxidizer conditioning in two APC transport containers, one larger for the Badr-2000/Sakr-200 and one smaller for Al-Ababil. In building 26/27 (161) at Taj Al-Ma'arik, the team observes an undamaged micromotor casting/curing facility, a contained bowl for the 3.8 liter mixer and 500 mm diameter mock-ups of Al-Ababil. The Iraqis request that UNSCOM eschew the destruction of at least one 1,135 liter mixer so it can be "modified for civilian uses."

— UN reports and interviews with UN personnel.

13 August 1991

UNSCOM-8/BM3 inspects the declared Al Qa-Qa State Establishment at Latifiyah, and supergun items at Iskandariyah. The team verifies the destruction of equipment at the Al-Rafah Plant and Balat Al-Shuhada' Plant, and Dhu Al-Fiqar Factory at Fallujah.

— UN reports and interviews with UN personnel.

14 August 1991

UNSCOM-8/BM3 inspects the declared Balat Al-Shuhada' Plant, Al-Yawm Al-Azim Factory at Al-Musayyib. Plant officials say future static testing and final assembly of 120km-range Sakr-200 ballistic missiles and future testing of unguided ASTROS and 122mm rockets would take place at the site.

— UN reports and interviews with UN personnel.

15 August 1991

UNSCOM-8/BM3 verifies the destruction of equipment at the Al-Dawrah Launcher Workshop 144/5, Balat Al-Shuhada' Plant, the Taj Al-Ma'arik Factory at Latifiyah, and the Balat Al-Shuhada' Plant and Al-Yawm Al-Azim

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Factory at Al-Musayyib.

— UN reports and interviews with UN personnel.

18 August 1991

The United Nations attempts to retrieve 11 Silkworm missiles that Iraq took in May 1991 from a naval base formerly maintained by Iraq in Kuwait.

— "Gulf Foe's Tensions Escalate to Gunfire," *San Jose Mercury News*, 18 August 1991, p. 18A.

August-September 1991

Iraq unilaterally destroys 137 out of a of total 818 tons of imported missile main fuel (TM185) and 407 out of a total of 2,895 tons imported missile oxidizer (AK27I). [NOTE: Iraq has yet to provide any supporting documents as of 25 January 1999.]

— United Nations, "Report on Status of Disarmament and Monitoring," S/1999/94, 29 January 1999, www.un.org.

August-October 1991

According to the November 1995 Iraqi declaration, the Iraqis unilaterally melt, in foundries: (1) 54-57 indigenously produced combustion chamber and nozzle (CC/N) assemblies that are "rejected for integration into complete engines"; (2) 12 indigenously produced CC/N assemblies integrated into complete engines and used in static tests; (3) 7-10 indigenously produced CC/N assemblies accepted for integration into complete engines and not used as of April 1991. [NOTE: Iraq indigenously produced some 80 CC/N in total. According to UNSCOM's analysis, ingots presented by Iraq as evidence of the unilateral destruction do not show expected evidence of the destroyed CC/N assemblies. See November 1995.

— United Nations, "Final Compendium," S/1999/94, 25 January 1999.

15 August 1991

UNSCOM-8 BM3 completes its mission.

— United Nations, "First Report of the Executive Chairman UNSCOM: Note by the Secretary-General," S/23165, 25 October 1991.

15 August 1991

The UN Security Council adopts Resolution 707. It demands that Iraq provide full, final, and complete disclosure, as required by Resolution 687, of all aspects of its programs to develop weapons of mass destruction and ballistic missiles with a range greater than 150 kilometers.

— UNSCOM Chronology of Main Events, www.un.org.

16 August 1991

Iraq provides UNSCOM-8/BM3 with a declaration of additional Scud fuel and oxidizer storage tanks. [NOTE: See 8-15 August 1991 and 16-30 October 1991.]

— United Nations, "First Report of the Executive Chairman UNSCOM: Note by the Secretary-General," S/23165, 25 October 1991.

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31 August-9 September 1991

UNSCOM-11 Chemical Weapons inspection team 3 examines the 30 chemical-filled ballistic missile warheads declared by Iraq and found by UNSCOM-8 in the Al-Dujayl area. [NOTE: See 8-15 August 1991.]

— United Nations, "First Report of the Executive Chairman UNSCOM: Note by the Secretary-General," S/23165, 25 October 1991.

September 1991

Ambiguity exists concerning the activities of the Al Qa-Qa State Establishment. According to Iraqi officials, Iraq developed bridge wires at Al Qa-Qa for "fire-set" components used to separate missile stages with precision.

[NOTE: Such devices are also crucial for precise detonation of high explosives in a nuclear implosion device.]

— "Unresolved Questions Loom on Iraqi Centrifuge Effort," *Nucleonics Week*, 12 September 1991, pp. 7-9.

6 September 1991

UNSCOM-13/BM4 initiates its mission. It plans to inspect declared fixed launch sites in the Western Zone as well as other undeclared possible missile support facilities using UN helicopters, but Iraq rejects the use of helicopters.

— United Nations, "First Report of the Executive Chairman UNSCOM: Note by the Secretary-General," S/23165, 25 October 1991.

6-13 September 1991

UNSCOM-13/BM4 observes the destruction of Scud fuel and oxidizer storage tanks located during the third ballistic missile inspection. The team finds four previously destroyed missile transport vehicles from Al Taji that have been spot welded together and moved to that location. Also, the team observes an additional undeclared Scud missile storage support/carrier. [NOTE: See 8-15 August 1991 and 16-30 October 1991.]

— United Nations, "First Report of the Executive Chairman UNSCOM: Note by the Secretary-General," S/23165, 25 October 1991.

7 September 1991

UNSCOM-13/BM4 inspects the declared Al-Dujayl open storage facility and undeclared Tikrit and Al-Sahra Air Base.

— UN reports and interviews with UN personnel.

9 September 1991

UNSCOM-13/BM4 verifies the destruction of missile-related equipment at the undeclared Khan Al-Mahawil Barracks.

— UN reports and interviews with UN personnel.

11 September 1991

Rolf Ekeus says that UN inspectors do not think they have located all of Iraq's Scud missiles. Ekeus also says Iraq had declared 800 Scud-type missiles and, despite UN-supervised destruction of 53 Al-Hussein and Al-Fahd type Scuds and the large number used in the Iran-Iraq and Gulf Wars, more may still exist.

— Reuters in "Some Scuds Still Not Found, U.N. Inspectors Fear," *Washington Times*, 12 September 1991, p. A8.

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12 September 1991

Thomas Brock, head of UNSCOM-13/BM4, says that the team would leave Iraq without completing its mission. The group planned on visiting sites in western Iraq, but Iraqi authorities denied them permission to use UN helicopters for the inspections. Iraq's Minister of State for Foreign Affairs, Mohammed Said Al-Sahaf, says the use of foreign helicopters poses a threat to Iraq's security.

— Reuters in "U.N. Team Giving up Iraq Missile Inquiry," *The New York Times*, 13 September 1991, p. A5.

13 September 1991

UNSCOM-13/BM4 departs Baghdad without completing its mission because Iraq denied it permission to use UN helicopters for the inspections.

— UN reports and interviews with UN personnel; United Nations, "First Report of the Executive Chairman UNSCOM: Note by the Secretary-General," S/23165, 25 October 1991.

19 September 1991

Rolf Ekeus states that there is concern that Iraq retains ballistic missiles and nuclear materials. UNSCOM is unable to account for 100 to 150 Scud missiles.

— "U.N. May Send Aide to Iraq on Inspection Issue," *Los Angeles Times*, 19 September 1991, p. A13, A14.

20 September 1991

US President George Bush reasserts his intention to take military action, if necessary, to force Iraqi compliance with UN resolutions. According to analysts, Iraq retains several hundred Scud missiles hidden from inspectors. They also believe that a significant proportion of the 819 Scuds originally sold by the Soviet Union to Iraq still exist and note that several mobile Scud launchers and some missile production equipment have not been located or destroyed.

— "Hussein Secretly Arranging New Weapon," *Los Angeles Times*, 21 September 1991, pp. A 1, A16.

23 September 1991

The President of the UN Security Council states that Iraq has failed to fulfill requirements under Resolution 707.

— UNSCOM Chronology of Main Events, www.un.org.

23-24 September 1991

Iraqi troops detain UN weapons inspectors in Baghdad on two separate occasions.

— "Iraq Blocking Weapons Inspections by UN Team," USIA Report, 23 September 1991, in www.fas.org.

25 September 1991

An IAEA inspection team led by David Kay finds extensive documents linking the nuclear weapons development program to an SSM project. [NOTE: See 8 October 1991.]

— "Dogged Nuclear Inspectors in Global Spotlight," *Los Angeles Times*, 25 September 1991, p. A10; United Nations, "First Report of the Executive Chairman UNSCOM: Note by the Secretary-General," S/23165, 25 October 1991.

28 September 1991

Iraq frees 44 UNSCOM inspectors from detention. Iraq sends a letter to Rolf Ekeus to discuss the use of UN

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helicopters for inspections. Rolf Ekeus calls the letter "a positive step" towards agreement on the use of helicopters, which will allow inspectors to cover more ground and enable them to spot Scud missile launching sites and other banned installations.

— "44 U.N. Inspectors Return to Hotel after Baghdad Lets Them Go Free," *The New York Times*, 28 September 1991, pp. 1, 6, in Lexis-Nexis Academic Universe, web.lexis-nexis.com.

30 September 1991

The Pentagon believes Iraq has operational Scud missiles, but is not sure if any Scud launchers still work.

— "Two Patriot Battalions," *Aviation Week & Space Technology*, 30 September 1991, p. 71.

Fall 1991

Iraq stops receiving proscribed Scud missile gyroscope components. [NOTE: Iraq reveals this in December 1994.]

— United Nations, "Second Report under Resolution 1051," S/1996/848, 11 October 1996.

October 1991

According to an August 1997 Iraqi declaration, Iraq unilaterally destroys five imported missile launcher chassis.

[NOTE: Prior to March 1992, Iraq claimed that those launchers were destroyed during the Iran-Iraq War. In March 1992, it declared that Iraq unilaterally destroyed them in the summer of 1991.]

— United Nations, "Final Compendium," S/1999/94, 25 January 1999.

October 1991

Iraq states that it had a limited, unsuccessful effort within Project 1728 to reverse engineer proscribed missile engines and had imported some components and equipment for that purpose. [NOTE: For years, Iraq insisted that the main purpose of Project 1728 had not been missile production, but the development of welding and other technologies for manufacturing agricultural pumps.]

— United Nations, "Final Compendium," S/1999/94, 25 January 1999.

October 1991

Iraq states that it considers the Ongoing Monitoring and Verification Plans, adopted as Resolution 715, to be unlawful and declares that it is not ready to comply with that resolution.

— UNSCOM Chronology of Main Events, www.un.org.

1 October 1991

UNSCOM-18/BM5 arrives in Baghdad and inspects an undeclared site at the Al-Taqaddum (Habbaniyah) Airfield SAM support area. The team discovers derelict SA-2 oxidizer vehicles. The team also searches for more than 24 Iraqi Scud missile launchers near the Syrian border and plans to use helicopters to search western Iraq and supervise the destruction of 28 fixed-site Scud launchers declared by Iraq.

— "U.N. Team Departs for Wide Searches of Iraqi; Helicopter Flights Approved," *Washington Post*, 2 October 1991, p. A25; "UN Inspector Prepare to Leave Iraq," *Monterey Herald*, 30 September 1991, p. 2; "U.N. Team Flies to Iraq; Copters Are Due Today," *Los Angeles Times*, 2 October 1991, p. 4, in Proquest, proquest.umi.com; United Nations, "First Report under Resolution 1051," S/1996/258, 11 April 1996; United Nations, "Sixth Report under Resolution 715," S/1994/1138, 7 October 1994; UN reports and interviews with UN personnel.

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1-14 October 1991

UNSCOM-8/BM5 conducts inspections of fixed launch sites in the Western Zone. [NOTE: Although Iraq declared 25 out of a total of 28 launch sites as destroyed, additional destruction is prescribed and carried out.] The team inspects a number of partially constructed fixed launch sites at undeclared sites and destruction procedures are agreed upon. The team also returns to the supergun and supervises the destruction of the gun in the Jabal Hamrayn Mountains, north of Baghdad, as well as the propellant for the supergun located south of Baghdad. The team initiates the destruction of the other supergun components at Iskanderiyah but is not yet completed. The team inspects several undeclared sites revealing no "observable ballistic missile activity."

— United Nations, "First Report of the Executive Chairman UNSCOM: Note by the Secretary-General," S/23165, 25 October 1991.

2 October 1991

UNSCOM-18/BM5 inspects Al-Dujayl (Sumaykah -West), Al-Abaychi, Shahab Ahmad, and Tikrit (Al-Sahra) Airfield. At Al-Dujayl, the team attempts to verify destruction of 187 oxidizer tanks for the second time. [NOTE: It is not known whether the 187 tanks include fuel tanks as well.] The team finds 78 oxidizer tanks at Abaychi (that Iraq declared during UNSCOM-8), and verifies their destruction. At Shahab Ahmad, the team finds no proscribed items. At Tikrit Airfield, the team finds six Scud warhead canister halves and 173 FROG-7 missiles in shipping containers.

— UN reports and interviews with UN personnel.

3 October 1991

UNSCOM inspectors begin over-flights of Iraqi territory to search for Scud missiles and launchers using helicopters provided by Germany.

— "U.N. Begins Air Searches for Iraqi Scuds," *Los Angeles Times*, 4 October 1991, p. A4, in Lexis-Nexis Academic Universe, web.lexis-nexis.com.

3 October 1991

UNSCOM-18/BM5 inspects Jabal Hamrayn and Iskandariyah as well as Western Zone launch sites.

— UN reports and interviews with UN personnel.

4 October 1991

UNSCOM-18/BM5 subteam inspects two sites at Al-Qaim and H-2 Airfield Short-Range Ballistic Missile (SRBM) complex. The other subteam inspects Wadi Al-Jabariyah and verifies the destruction of proscribed missile-related equipment at Wadi Ar Ratqa.

— UN reports and interviews with UN personnel.

5 October 1991

UNSCOM-18/BM5 inspects the Wadi Amij SRBM and the Qasr Amij SRBM complexes. The team conducts short-notice inspections of the Zawr Hawran and Wadi Hawran SRBM complexes and attempts to verify destruction of proscribed missile-related equipment at Wadi Al-Jabariyah.

— UN reports and interviews with UN personnel.

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6 October 1991

UNSCOM-18/BM5 conducts a short-notice inspection of the ammunition storage facility Ar Rutbah, and SRBM complexes at Shuayb Al-Awaj and Qasr Amij East.

— UN reports and interviews with UN personnel.

7 October 1991

UNSCOM-18/BM5 inspects the Al-Karama Electronics Production Plant adjacent to the State Electrical Industries Enterprise. The team also visits Iskandariyah and Al Qa-Qa to witness the process of destruction of supergun components and propellant.

— UN reports and interviews with UN personnel.

8 October 1991

UNSCOM-18/BM5 verifies the destruction of an installed 350mm supergun at Jabal Hamrayn.

— UN reports and interviews with UN personnel; "Allies to Detail Ban on Iraqi Arms," *The New York Times*, 9 October 1991, p. A6.

8 October 1991

The IAEA submits its 6th on-site inspection report to the UN Security Council. In the report, the IAEA says that the documents found by its inspection team on 25 September 1991 suggest Iraq worked on revising a nuclear weapons design and link the Iraqi Atomic Energy Commission (IAEC) to an SSM project, presumably the intended delivery system for a nuclear weapon. The team also found a document suggesting the parallel development of a missile delivery system for the ongoing nuclear weapons program. In the document, the Ministry of Defense instructed the IAEC to postpone an experiment until after SSM testing. [NOTE: See 25 September 1991.]

— United Nations, "Report on the 6th IAEA On-Site Inspection in Iraq under UNSCR687," S/23122, 8 October 1991.

9 October 1991

UNSCOM-18/BM5 witnesses the destruction of hydraulic and starter fuel delivery components of two Scud launch control vehicles at Ramad. The team then returns to Bahrain.

— UN reports and interviews with UN personnel.

9 October 1991

UNSCOM-18/BM5 supervises the destruction of Iraq's 350mm "supergun" located 120km north of Baghdad.

[NOTE: According to Iraqi officials, Iraq test fired this "supergun."]

— UN reports and interviews with UN personnel; "Allies to Detail Ban on Iraqi Arms," *The New York Times*, 9 October 1991, p. A6.

12 October 1991

UNSCOM-18/BM5 completes discussions of questions related to the Iraqi missile program.

— UN reports and interviews with UN personnel.

13 October 1991

UNSCOM-18/BM5 visits Al-Anbar Space Flight Center. The team finds the Center largely stripped of equipment and

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fixtures.

— UN reports and interviews with UN personnel.

5 October 1991

The New York Times states that a preliminary UNSCOM report indicates that Iraq tested a surface-to-surface missile capable of carrying an atomic bomb. However, according to the quote by *The New York Times* of comments by David Kay, chief of the inspection mission, the test was for the missile itself. Kay further says that this missile project is "beyond the drawing stage."

— "Iraq Tested Missile to Carry A-Bomb, U.N. Report Says," *The New York Times*, 5 October 1991, p. A2, in Proquest, proquest.umi.com.

9 October 1991

Israeli Defense Minister Moshe Arens says that Israel will take all steps necessary to ensure the security of Israel given that "according to our assessment the Iraqis are still capable of launching missiles against Israel."

— "Iraq Complains to US about Israeli Reconnaissance," *Flight International*, 16 October 1991, p. 16, www.nti.org.

11 October 1991

The UN Security Council adopts Resolution 715. It approves the plans for Ongoing Monitoring and Verification submitted by the UN Secretary-General and the International Atomic Energy Agency Secretary-General. [NOTE: Iraq accepts the Resolution on 26 November 1993.]

— UNSCOM Chronology of Main Events, www.un.org.

14 October 1991

UNSCOM-18/BM5 completes its mission.

— United Nations, "First Report of the Executive Chairman UNSCOM: Note by the Secretary-General," S/23165, 25 October 1991.

21 October 1991

The German authorities accuse the German company Thyssen Machine Building GmbH of illegal transactions with Iraq. The Federal Republic of Germany's Economics Ministry documents show that Thyssen Machine Building GmbH signed a contract with Iraq to deliver turbopumps for use in Project 1728. The Ministry reports that export licenses for the pumps "may have been obtained fraudulently on the basis of incorrect information and the presentation of altered documents."

— *Das Bild* (Hamburg), 21 October 1991, pp. 1, 6 in "Companies Suspected In Iraq Weapons Production: Large Companies Involved," 7 November 1991, *Proliferation Issues*, 7 November 1991, pp. 1, 6.

24 October 1991

In his report to the UN Secretary-General, Executive Chairman of UNSCOM, Rolf Ekeus claims that UNSCOM inspection teams cannot account either for all the relevant missiles that Iraq obtained or constructed, or obtain a full disclosure of plans and progress in future ballistic missile development.

— United Nations, "First Report of the Executive Chairman UNSCOM: Note by the Secretary-General," S/23165, 25 October 1991.

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November 1991

UNSCOM inspectors discover that sophisticated German technology and parts were essential to the development of Iraq's missile programs. Some of the equipment found in Iraq still bore the stamp of the German Technical Control Board. Iraq used all aspects of German technology in the modification of Soviet-made Scud-B missiles, doubling their range to approximately 600km. [NOTE: See 21 October 1991.]

— *Der Spiegel* (Hamburg), 18 November 1991, pp. 41-52, in "Iraq Missile Program Involvement Detailed," FBIS-WEU-91-225, 21 November 1991, pp. 11-14.

November 1991

UN inspectors allege that Soviet and Austrian firms played a role in Iraq's supergun project, which appears on a list that Iraqi officials provided. They refute claims made by the supergun's designer, Brussels-based Space Research, that the project was intended only for a satellite launch. Iraqis tells inspectors that missiles fired by the guns were intended to be accurate within 800 km. The documents reveal Iraq's intention to produce indigenously the projectiles and their guidance systems.

— "More Countries Named in Supergun Affair," *Flight International*, 13 November 1991, p. 4.

1 November 1991

In his report submitted to the UN Security Council, Chairman of UNSCOM, Rolf Ekeus accuses the Iraqi government of a pattern of misinformation, concealment, and lack of cooperation in failing to account for 300 Scud missiles formerly in its arsenal. UNSCOM spokesman Johan Molander says that the United Nations knew Iraq obtained 800 Scuds from the Soviet Union prior to the Gulf War and an accounting of those fired during the war or destroyed afterward leaves 300 unaccounted for. Molander also says UN inspectors have differing opinions on the issue and some believe the Scuds could have been destroyed in tests or launchings. He says inspectors found evidence that Iraq had ordered equipment on behalf of civilian firms and diverted it to military use once it arrived.

— "300 Iraq Scuds Missing, U.N. Team Reports," *Los Angeles Times*, 2 November 1991, p. A10, in Lexis-Nexis Academic Universe, web.lexis-nexis.com.

18 November-1 December 1991

The UN inspectors find three vehicles used to transport Scud missiles which "had apparently been discarded and overlooked." [NOTE: the Iraqis acknowledge that the site where the Scud carriers were found had been used to store Scud missiles during the Gulf War.]

— "U.N. Inspectors Find Chemical Bomb Making Equipment in Iraq," *Agence France Presse*, 12 December 1991.

19 November 1991

The Iraqi government proposes to the United Nations that it "be permitted to modify its Badr-2000 Project, which produces Scuds, to produce liquid fuel tanks and rubber insulators for the oil industry, explosives for road construction, cement quarries, and to produce Al-Ababil missiles, which have a 62-mile range."

— Victoria Graham, "Iraq Rejects U.N. Plan for Weapons Destruction," *The Associated Press*, 28 February 1992, in Lexis-Nexis Academic Universe, web.lexis-nexis.com.

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25 November 1991

UNSCOM inspectors uncover a "more complete" story behind Iraq's "supergun" project and evidence linking its designer, Gerald Bull, to Baghdad's largest missile. Iraq had planned to construct five "superguns," two of which would have been 150mm long and 1,000mm in diameter. UNSCOM teams also find a proposal from Bull's company, SRC Engineering (Belgium), to build a long-range missile so that Iraq can launch a satellite or deliver a warhead by clustering between five and eight liquid-fueled rockets together. The program is called Project Bird. — "Iraq's Domsday Weapon," *U.S. News & World Report*, 25 November 1991, p. 40.

27 November 1991

US Senator Dale Bumpers introduces a bill (S.2124) which would place a 10-year prohibition on imports from any companies that the president certifies have "knowingly participated in the Iraqi or North Korean programs to develop ballistic missiles." The bill also directs the president to present a report, in open and classified versions, listing companies that provided "financial services, transportation and other essential services, as well as hardware and software support" to Iraq's ballistic missile program, and detailing these companies' impact on the program. — "Ballistic Missile, Nuclear, Chemical & Bio Weapons Nonproliferation," *Arms Sales Monitoring* No. 9-10, 102nd Congress, 11-12/91, p. 5.

2-8 December 1991

UNSCOM-23/BM6 supervises the destruction of 32 fixed missile sites in western Iraq as well as 288 launch platforms. The team verifies "the destruction of components of a 1,000-mm super cannon and carries out the operation on the steel tubes at a base at Iskandariyah, 50 kilometers south of Baghdad. — "Iraq Has Destroyed Its Declared Ballistic Potential: U.N. Inspector," *Agence France Presse*, 9 December 1991.

2 December 1991

UNSCOM-23/BM6 verifies the destruction of fixed missile launch sites in the Western Zone of Iraq. The sites include H-2, Zawr Hawran complex, Wadi Ar Ratqa complex, and Wadi Al-Jabariyah complex. — UN reports and interviews with UN personnel.

3 December 1991

UNSCOM-23/BM6 conducts a short-notice inspection of undeclared Saad-16 at Mosul. The team finds high-level rebuilding activities at the site. — UN reports and interviews with UN personnel.

4 December 1991

UNSCOM-23/BM6 continues the inspection at Saad-16. The team verifies the destruction of a fixed missile launch site at Saddam Airfield. It conducts a short-notice inspection of Salah Al-Din General Establishment at the Saad-13 facility. — UN reports and interviews with UN personnel.

5 December 1991

UNSCOM-23/BM6 verifies destruction of launcher bases at the Al-Dawrah workshop. The team inspects Al-

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Musayyib Rocket Motor Test Facility, Khan Al-Mahawil Barracks, and the Iskandariyah Facility.

— UN reports and interviews with UN personnel.

6 December 1991

UNSCOM-23/BM6 verifies the destruction of fixed missile launch sites and triple carriers at Taji. The team inspects a storage area at Taji, the Taji refurbishment plant, Al-Matuwakel (Project 1728), Taji military installation (Project 144/3), Taji Steel Fabrication plant (Central Tool Room Plant), Al-Mutawakel evacuation area, and Sabiyat facility. The inspectors find laboratory equipment at a research and development center in Mosul and at a factory site in Al-Taji, which they judge to be primarily intended for use in ballistic missile production and testing. The team also destroys "two trailers for transporting Al-Hussein and Scud missiles, which UNSCOM previously destroyed but Iraq subsequently welded together for carrying shorter-range missiles, and six other trailers."

— UN reports and interviews with UN personnel; "Iraq Has Destroyed Its Declared Ballistic Potential: U.N. Inspector," Agence France Presse, 9 December 1991; "Iraq's Destruction of Missile Launch Sites Verified," Xinhua News Agency, 18 December 1991, in Lexis-Nexis Academic Universe, web.lexis-nexis.com.

7 December 1991

UNSCOM-23/BM6 inspects the Badr General Establishment and Khan Azad facility. The team conducts further inspections of the Al-Nur facility, storage area for Al-Nasser facility.

— UN reports and interviews with UN personnel.

8 December 1991

UNSCOM-23/BM6 verifies the destruction of supergun component at Iskandariyah. The team also verifies the destruction of Al-Hussein trailers in the Al-Nabai area.

— UN reports and interviews with UN personnel.

9 December 1991

UNSCOM-23/BM6 completes its mission.

— United Nations, "First Report under Resolution 1051," S/1996/258, 11 April 1996; United Nations, "Sixth Report Under Resolution 715," S/1994/1138, 7 October 1994; S/1996/848 of 11/10/1996.

9 December 1991

UNSCOM-24/BM7 initiates its mission to verify Iraq's destruction of long-range missiles and superguns.

— United Nations, "Sixth Report under Resolution 715," S/1994/1138, 7 October 1994; S/1996/848 of 11/10/1996; "U.N. Overseer Says Iraq's Long-Range Missile Stock Destroyed," Xinhua News Agency, 9 December 1991.

9 December 1991

The Head of a UN inspection team, Patrice Palanque of France reports that "Iraq has destroyed the components of a giant cannon, one meter in diameter, and has now eliminated all its declared ballistic weapons of mass destruction." He says, "The destruction of everything the Iraqis had identified as part of their ballistic capacity has been verified."

— "Iraq Has Destroyed Its Declared Ballistic Potential: U.N. Inspector," Agence France Presse, 9 December 1991.

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9 December 1991

A UN overseer to monitor Iraq's disarmament says that "Iraq's long-range missile stock has been destroyed under the UN resolution." Alastair Livingston, the Bahrain-based regional representative of the UNSCOM says, "...theoretically, we have destroyed Iraq's long-range missile stock."

— "Iraq Has Destroyed Its Declared Ballistic Potential: U.N. Inspector," Agence France Presse, 9 December 1991.

9-17 December 1991

UNSCOM-24/BM7 oversees the destruction of missile launch sites in western Iraq and monitors the destruction of 22 parts from a 1,000mm supergun.

— "U.N. Inspectors Oversee Destruction of New Missile Sites in Iraq," Agence France Presse, 19 December 1991.

11 December 1991

UNSCOM-24/BM7 inspects Hadithah Ammunition Storage Depot West and Hadithah Revetted Storage Area for concealed Scud activity. Both are undeclared sites.

— UN reports and interviews with UN personnel.

11 December 1991

UNSCOM-24/BM7 finds three undeclared Scud missile carriers "which had apparently been discarded and overlooked" at an ammunition dump 64 km west of Karbala.

— Peter James Spielmann, "Iraqi Chemical Bomb Plant Found Hidden at Sugar Factory," *Associated Press*, 11 December 1991, in Lexis-Nexis Academic Universe, web.lexis-nexis.com.

12 December 1991

UNSCOM-24/BM7 inspects the following seven undeclared sites: the T-1 Pumping Station, the Al-Qaim SA-2 Support Facility, the Al-Qaim SA-3 Support Facility, the Al-Qaim SA-2/SA-3 Support Facility, and the Wadi Sidariyah Orchard. At the T-1 Pumping Station, the team looks for missile-related documents.

— UN reports and interviews with UN personnel.

13 December 1991

UNSCOM-24/BM7 inspects T-1 Revetted Storage Area, Al-Qaim mine, Shab Al-Agharri, and Wadi 1 (Al-Malussi). All the sites are undeclared sites.

— UN reports and interviews with UN personnel.

14 December 1991

UNSCOM-24/BM7 inspects undeclared H-2 Airfield and H-2 Storage Southeast. At H-2 Airfield, the team looks for missile-related documents.

— UN reports and interviews with UN personnel.

15 December 1991

UNSCOM-24/BM7 completes its inspection of Hadithah Ammunition Storage Depot West and the Hadithah Revetted Storage Area.

— UN reports and interviews with UN personnel.

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17 December 1991

UNSCOM-24/BM7 completes its mission.

— United Nations, "Sixth Report under Resolution 715," S/1994/1138, 7 October 1994; S/1996/848 of 11/10/1996.

Late 1991

According to the Iraqi National Congress, Saddam Hussein orders Hussein Kamel to develop a sophisticated weapons system to avert the US HARM missile, which locks onto and destroys radar facilities. A special team of engineers work on the project at Al-Hareth.

— "Strategic Projects of the Iraqi Military Industrialization Organization," Iraqi National Congress, 9 September 1997, www.inc.org.uk.

End of 1991

UNSCOM completes the destruction of proscribed missiles and related materials that Iraq declared in its FFCD (Full, Final and Complete Declaration). However, UNSCOM comes to the conclusion that Iraq did not declare all such missiles and materials or disclosed all its proscribed missile capabilities and programs in the FFCD.

— United Nations, "Report on Status of Disarmament and Monitoring," S/1999/94, 29 January 1999, www.un.org.

End of 1991

Iraq evacuates equipment for the J-1 program from Mutawakel. [NOTE: See August 1991].

— UN reports and interviews with UN personnel.

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