

Weapons of Mass Destruction (WMD) Iraq Survey Group Final Report

Investigation Into Uranium Pursuits and Indigenous Production Capabilities

Foreign Pursuits

ISG has not found evidence to show that Iraq sought uranium from abroad after 1991 or renewed indigenous production of such material—activities that we believe would have constituted an Iraqi effort to reconstitute a nuclear weapons program. As part of its investigation, ISG sought information from prominent figures such as Ja'far Diya' Ja'far—the head of the pre-1991 nuclear weapons program.

- According to Ja'far, the Iraqi government did not purchase uranium from abroad following its acquisition of yellowcake from Niger in 1981. However, Iraq also purchased uranium dioxide from Brazil in 1982. Iraq declared neither the Brazilian purchase nor one of the Niger purchases to the IAEA—demonstrating that the Iraqi Regime was willing to pursue uranium illicitly.

Regarding specific allegations of uranium pursuits from Niger, Ja'far claims that after 1998 Iraq had only two contacts with Niamey—neither of which involved uranium. Ja'far acknowledged that Iraq's Ambassador to the Holy See traveled to Niamey to invite the President of Niger to visit Iraq. He indicated that Baghdad hoped that the Nigerian President would agree to the visit as he had visited Libya despite sanctions being levied on Tripoli. Former Iraqi Ambassador to the Holy See Wissam Zahawie has publicly provided a similar account.

- Ja'far claims a second contact between Iraq and Niger occurred when a Nigerian minister visited Baghdad around 2001 to request assistance in obtaining petroleum products to alleviate Niger's economic problems. During the negotiations for this contract, the Nigerians did not offer any kind of payment or other *quid pro quo*, including offering to provide Iraq with uranium ore, other than cash in exchange for petroleum.
- ISG recovered a copy of a crude oil contract dated 26 June 2001 that, although unsigned, appears to support this arrangement.

So far, ISG has found only one offer of uranium to Baghdad since 1991—an approach Iraq appears to have turned down. In mid-May 2003, an ISG team found an Iraqi Embassy document in the Iraqi Intelligence Service (IIS) headquarters related to an offer to sell yellowcake to Iraq. The document reveals that a Ugandan businessman approached the Iraqis with an offer to sell uranium, reportedly from the Congo. The Iraqi Embassy in Nairobi—in reporting this matter back to Baghdad on 20 May 2001—indicated it told the Ugandan that Iraq does not deal with these materials, explained the circumstances of sanctions, and said that Baghdad was not concerned about these matters right now. [Figure 1](#) is the translation of this document.

Indigenous Production Capabilities

As a result of Desert Storm and IAEA inspection efforts, Iraq's indigenous yellowcake production capability appears to have been eliminated. ISG has uncovered no indicator Iraq had reconstituted production processes to refine uranium or produce yellowcake on a scale needed for a weapons program.

- Iraq's main plant for yellowcake production prior to 1991 was at Al-Qa'im. The plant was designed, erected, and commissioned by Mechim Company of Belgium during the period 1982 to 1984. Using phosphate ore from the Akashat mine and the Prayon process, the first batch of yellowcake was delivered to the IAEA in December 1985 with approximately 168 tons delivered through 1991.
- Bomb damage in 1991 destroyed the uranium extraction facility at the Al-Qa'im Superphosphate Fertilizer Plant. In 1991, inspectors found that Al-Qa'im had been heavily damaged in the war and the structure was unsafe. Visits to the site in interim years did not reveal any attempt to reestablish the plant to produce yellowcake.
- During the years of intrusive inspections, the IAEA also closed and sealed the Abu Skhair mine to curtail Iraq's secondary pilot plant production capability for acquiring uranium. A year before the closure of the Abu-Sha'ir mine under IAEA supervision in 1993, the processing plant was converted to produce "Alum" from kaolin ore. Subsequent visits by UNSCOM/IAEA continued to report inoperability of the mine. The operation established at Abu-Sha'ir in September 1988 produced 800 tons of ore, 10 tons of which were delivered to a pilot plant at the Geological Survey State Enterprise (GSSE) prior to 1991. Despite this effort, only 0.5 kg of yellowcake was obtained.
- Ja'far also claims that Iraq did not attempt to build another yellowcake production plant after 1991 (see [Figure 2](#)).

[Figure 3. Graphite furnace \(top left\); mixer-settlers \(top right\); atomic absorption-flame emission spectrometer \(bottom left\); gas chromatography \(bottom right\).](#)

In May 2003, coalition forces visited the former yellowcake extraction plant at Al-Qaim and discovered 16 drums of yellowcake and radioactive waste—materials we believe were associated with the pre-1991 nuclear weapons program. These drums were transferred in late June 2003 to the yellowcake storage facility located at Tuwaitha. There is no evidence that this material had been produced after Desert Storm

ISG also investigated the Ibn-Sina' Facility—which in 1991 was part of Iraq's EMIS uranium enrichment program—but found no indicators that the chemical processes being developed there had produced more than a few kilograms of uranium-bearing wastes as a byproduct of phosphoric acid purification. ISG believes that the Ibn-Sina'—which concentrated much of the chemical engineering staff from the former PC-3 nuclear weapons program—would most likely have been involved in an effort to reestablish a uranium recovery capability, had such an effort been under way.

Iraq's Known Uranium Holdings

Known Iraqi uranium holdings have been accounted for by the Coalition and the IAEA. In June 2004, a joint IAEA and Coalition team verified the inventory of Iraqi uranium compounds—an inventory comprising both imported material and that indigenously produced prior to 1991 (see [figure 4](#)).

- During the 1970s and early 1980s, Iraq bought uranium in various forms from the international market. These materials included about 486 tons of yellowcake, 33,470 kg of "natural" uranium dioxide, 1,767 kg of "low-enriched" uranium dioxide (2.6 percent 235U), and 6,005 kg of "depleted" uranium dioxide from Portugal, Italy, Niger, and Brazil.

Prior to 1991, Iraq also acquired highly enriched uranium for its research reactors from France and Russia—material that was removed from Iraq following the 1991 Gulf war. Following the Husayn Kamil defection in 1995, Iraq admitted that in 1991 it had intended to use this highly enriched fuel as part of a "crash program" to develop a nuclear weapon (see Table 1).

Country	Organization/ Company	Time-frame	Uranium Form	Amount	Comment
Portugal	Emprese National de uranio EP	20 Jun 1980	"Yellowcake"	138.098 tons (uranium content approximately 103 tons)	IAEA notified through "ICR" report (29 Jun 80) (not subject to safeguards according to INFCIRC/153 corrected.)
		17 May 1982	"Yellowcake"	148.348 tons (uranium	No IAEA notification (not

		31 May 1982		content approximately 110 tons)	subject to safeguards according to INFCIRC/153 corrected.)
		20 Jun 1982			
Italy	SNIA-TECHINT through CNEN	12 Dec 1979	"Depleted" uranium dioxide	6,005 kg	Under IAEA safeguards
		12 Dec 1979	"Natural" uranium dioxide	4,006 kg	
		12 Dec 1979	"Natural" uranium dioxide (pellets & fuel rods)	500 kg	
		18 May 1982	"Low-Enriched" uranium dioxide (2.6% ²³⁵ U)	1,767 kg	
Niger	ONAREM (Office National Des Resources Minieres)	08 Feb 1981	"Yellowcake"	(uranium content 199.9 tons)	IAEA notified (not subject to safeguards according to INFCIRC/153 corrected.)
		18 Mar 1981			No IAEA notification (not subject to safeguards according to INFCIRC/153 corrected.)
Brazil	Through CNEN (Commissao Nacional de Energia Nuclear)	Sep 1981	"Natural" uranium dioxide	7,964 kg	No IAEA notification
		Jan 1982	"Natural" uranium dioxide	21,000 kg	