Chemical Warfare Program

Iraq has the ability to produce chemical warfare (CW) agents within its chemical industry, although it probably depends on external sources for some precursors. Baghdad is expanding its infrastructure, under cover of civilian industries, that it could use to advance its CW agent production capability. During the 1980s Saddam had a formidable CW capability that he used against Iranians and against Iraq's Kurdish population. Iraqi forces killed or injured more than 20,000 people in multiple attacks, delivering chemical agents (including mustard agent[1] and the nerve agents sarin and tabun[2]) in aerial bombs, 122mm rockets, and artillery shells against both tactical military targets and segments of Iraq's Kurdish population. Before the 1991 Gulf war, Baghdad had a large stockpile of chemical munitions and a robust indigenous production capacity.

Documented Iraqi Use of Chemical Weapons

Date	Area Used	Type of Agent	Approximate Casualties	Target Population
Aug 1983	Hajj Umran	Mustard	fewer than 100	Iranians/Kurds
Oct-Nov 1983	Panjwin	Mustard	3,000	Iranian/Kurds
Feb-Mar 1984	Majnoon Island	Mustard	2,500	Iranians
Mar 1984	al-Basrah	Tabun	50 to 100	Iranians
Mar 1985	Hawizah Marsh	Mustard/Tabun	3,000	Iranians
Feb 1986	al-Faw	Mustard/Tabun	8,000 to 10,000	Iranians
Dec 1986	Umm ar Rasas	Mustard	thousands	Iranians
Apr 1987	al-Basrah	Mustard/Tabun	5,000	Iranians
Oct 1987	Sumar/Mehran	Mustard/nerve agents	3,000	Iranians
Mar 1988	Halabjah	Mustard/nerve agents	hundreds	Iranians/Kurds

[1] Mustard is a blister agent that causes medical casualties by blistering or burning exposed skin, eyes, lungs, and mucus membranes within hours of exposure. It is a persistent agent that can remain a hazard for days.

[2] Sarin, cyclosarin, and tabun are G-series nerve agents that can act within seconds of absorption through the skin or inhalation. These agents overstimulate muscles or glands with messages transmitted from nerves, causing convulsions and loss of consciousness. Tabun is persistent and can remain a hazard for days. Sarin and cyclosarin are not persistent and pose more of an inhalation hazard than a skin hazard.

Chemical-Filled Munitions Declared by Iraq

Iraqi 250-gauge chemical bomb.

Iraqi 500-gauge chemical bombs.

Iraqi DB-2 chemical bomb.

Iraqi R-400 chemical bombs.

Iraqi 155-mm chemical shell.

Iraqi Al Husayn chemical warheads.

122-mm rockets filled with the chemical nerve agent sarin prior to destruction.

Although precise information is lacking, human rights organizations have received plausible accounts from Kurdish villagers of even more Iraqi chemical attacks against civilians in the 1987 to 1988 time frame—with some attacks as late as October 1988—in areas close to the Iranian and Turkish borders.

- UNSCOM supervised the destruction of more than 40,000 chemical munitions, nearly 500,000 liters of chemical agents, 1.8 million liters of chemical precursors, and seven different types of delivery systems, including ballistic missile warheads.

More than 10 years after the Gulf war, gaps in Iraqi accounting and current production capabilities strongly suggest that Iraq maintains a stockpile of chemical agents, probably VX,[3] sarin, cyclosarin,[4] and mustard.

- **Iraq probably has concealed precursors, production equipment, documentation, and other items necessary for continuing its CW effort.** Baghdad never supplied adequate evidence to support its claims that it destroyed all of its CW agents and munitions. Thousands of tons of chemical precursors and tens of thousands of unfilled munitions, including Scud-variant missile warheads, remain unaccounted for.

- UNSCOM discovered a document at Iraqi Air Force headquarters in July 1998 showing that Iraq overstated by at least 6,000 the number of chemical bombs it told the UN it had used during the Iran-Iraq War—bombs that remain are unaccounted for.

- Iraq has not accounted for 15,000 artillery rockets that in the past were its preferred means for delivering nerve agents, nor has it accounted for about 550 artillery shells filled with mustard agent.

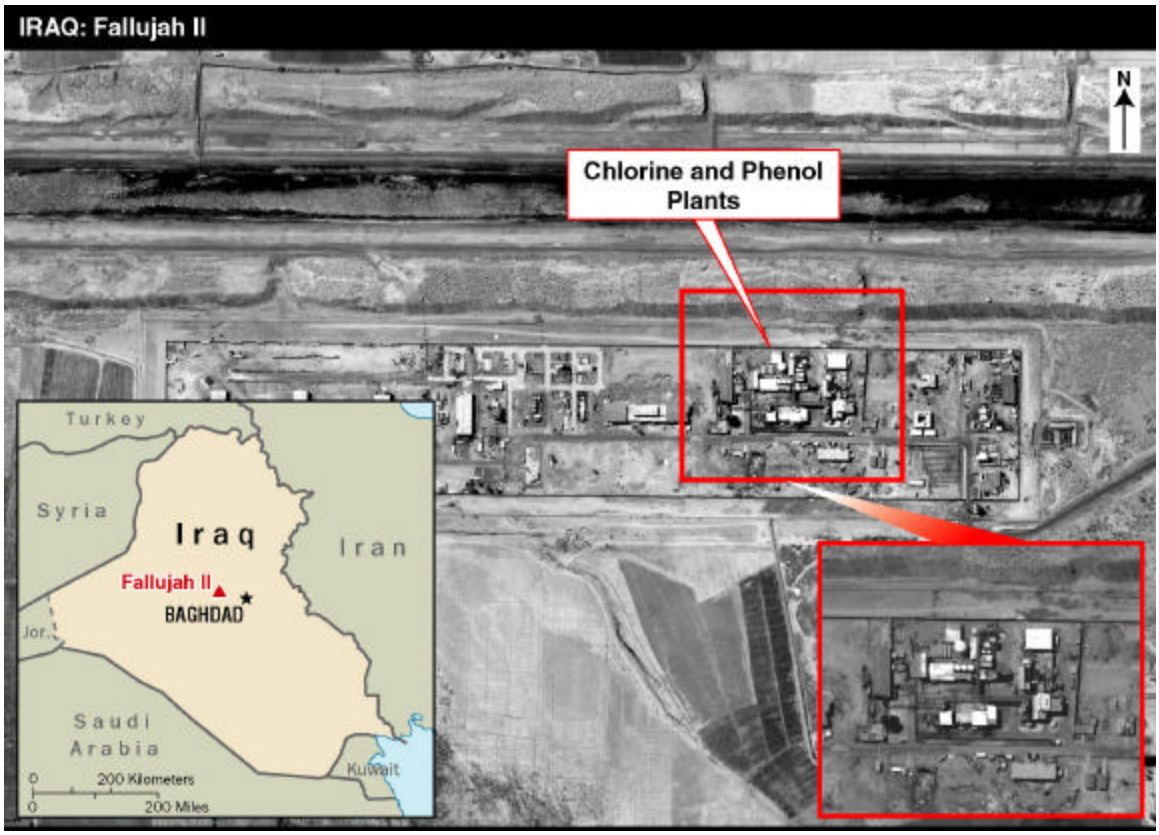
- Iraq probably has stocked at least 100 metric tons (MT) and possibly as much as 500 MT of CW agents.

Baghdad continues to rebuild and expand dual-use infrastructure that it could divert quickly to CW production. The best examples are the chlorine and phenol plants at the Fallujah II facility. Both chemicals have legitimate civilian uses but also are raw materials for the synthesis of precursor chemicals used to produce blister and nerve agents. Iraq has three other chlorine plants that have much higher capacity for civilian production; these plants and Iraqi imports are more than sufficient to meet Iraq's civilian

[3] VX is a V-series nerve agent that is similar to but more advanced than G-series nerve agents in that it causes the same medical effects but is more toxic and much more persistent. Thus, it poses a far greater skin hazard than G-series agents. VX could be used for long-term contamination of territory.
[4] See footnote 5.

needs for water treatment. Of the 15 million kg of chlorine imported under the UN Oil-for-Food Program since 1997, Baghdad used only 10 million kg and has 5 million kg in stock, suggesting that some domestically produced chlorine has been diverted to such proscribed activities as CW agent production.

- Fallujah II was one of Iraq's principal CW precursor production facilities before the Gulf war. In the last two years the Iraqis have upgraded the facility and brought in new chemical reactor vessels and shipping containers with a large amount of production equipment. They have expanded chlorine output far beyond pre-Gulf war production levels—capabilities that can be diverted quickly to CW production. Iraq is seeking to purchase CW agent precursors and applicable production equipment and is trying to hide the activities of the Fallujah plant.



Iraq: CW-Related Production Facilities and Declared Sites of Deployed Alcohol-Filled or Chemical Agent–Filled Munitions During Desert Storm