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Phillips recounted Desert Storm experience to Lab audience

John Phillips, group leader for Analytical Chemistry (CLS-1), sweltered in the 130-degree heat of the Iraqi desert in July.

He watched as Iraqi crews unearthed huge electromagnets and other gear used in Saddam Hussein's effort to develop nuclear weapons. Much of the equipment had been buried or blown up, and the disposal sites were littered with Soviet TNT, primers and detonators.

"When the Iraqis would start digging, we would back up a respectful distance," said Phillips, a member of the third United Nations team of nuclear experts sent to Iraq after the Gulf war. "Then we'd look around to the southeast of the disposal area, since the wind always blows from the northwest in the desert."

More than 11,000 miles from home, Phillips found a sand-covered Los Alamos report on nuclear technology that the wind had scattered from one disposal site. The scavenged report drove home for Phillips the breadth of Iraq's nuclear effort and the enormity of his job in tracking down how much of Iraq's nuclear capability had survived the allied bombings during Desert Storm.

Phillips told a Laboratory audience recently how he spent most of July with the U.N. team, literally sifting through the sand of the Iraqi desert. Other nuclear experts from Los Alamos have served on other U.N. inspection teams.

Iraqi officials stonewalled Phillips' team initially, concealing equipment and refusing interviews with the architects of Hussein's nuclear program.

"They kept us away from a lot of the technical people," Phillips said. "Their stories kept changing."

But on July 13, the BBC announced British and French planes agreed to support the United States plan to resume bombings of Iraqi nuclear facilities on the U.N. deadline of July 25 due to the lack of information provided to the teams, Phillips said.

“After that, there was a major decision at a very high level in Iraq to start cooperating with us,” he said.

Phillips showed photos of huge roof cranes and cement slabs that were emplaced to conceal the dismantled equipment at Tarmiya, where massive calutrons for enriching uranium through electromagnetic isotope separation had been installed.

The Tarmiya facility was capable of consuming up to 130 megawatts of power, yet the Iraqis initially said it was a transformer factory. They also claimed a similar facility in Northern Iraq was a factory for water-tank liners. Once all 70 calutrons for which it was designed were up and running, Tarmiya might be capable of producing up to 12 kilograms of weapons-grade uranium a year, Phillips said.

Commenting on an Iraqi video of the gleaming equipment shot at the opening of the facility in February 1990, Phillips said, “I was really impressed with the quality of the equipment at their disposal. . . . ES&H Tiger Teams might even appreciate it.”

More than 1,000 calutrons at Oak Ridge’s Y-12 plant were used to enrich uranium for the Manhattan project, but the technique was deemed too slow and costly for post-war weapons work.

Phillips said the Iraqis have done limited work on enrichment by gas centrifuge, chemical solvent extraction, ion exchange, gaseous diffusion and laser isotope separation, but electromagnetic isotope separation was by far the most advanced technique.

The inspection teams based their tours on aerial surveillance, ground inspections and information provided by the Iraqis themselves. The team faxed information to the U.N. Security Council, which was in session during July and so kept up pressure on Saddam Hussein to cooperate, Phillips said.

However, “I am worried about how long the United States and the allies will maintain a focus on it,” he continued.

The task of the U.N. inspection teams, under Resolution 687, is to assess Iraqi nuclear capabilities and materials and decide what should be destroyed to render that capability useless, Phillips said. Although Iraq has secretly produced some nuclear materials in violation of the Non-

Proliferation Treaty, Phillips praised experts from the International Atomic Energy Agency who have inventoried and sealed all the nuclear materials that were declared by the Iraqis. He also said he believes the IAEA and U.N. teams have identified most of the material from the electromagnetic isotope separation program.

The Iraqis went to great lengths to bury or destroy their enrichment and other equipment, Phillips said. They even brought in debris and scattered it around facilities to make it appear that bomb damage was greater than it was, and flushed tanks that had contained uranium solutions so the inspection teams couldn't obtain samples.

Phillips also showed photographs and videos of the nuclear research center at Tuwaitha and a bomb-riddled uranium extraction facility at Al Qaim.

After carpet bombing by U.S. B-52s and British aircraft, Phillips said of the Al Qaim facility, "There is not anything in there that needed to be removed to render their capability useless." Although U.N. experts estimated it would take up to three years to rebuild an adjacent fertilizer plant, the Iraqis told Phillips they would have it operating within four months.

"These people are motivated, they're well-educated," Phillips said. "They're working 12 hours a day, seven days a week, two shifts and they're very patriotic."

Phillips commented on the "incredible accuracy" of allied bombing which devastated all the declared nuclear facilities with minimal collateral damage — "what you might call rather aggressive arms control."

The Iraqis apparently have hydrodynamic computer codes and much of the other technology they would need to develop nuclear weapons within a few years, Phillips said. Some Iraqis told him the country already has the capability to produce a weapon, but hadn't made the political decision to build one, he added.

Iraqi officials claimed they spent about \$1 billion on their nation's nuclear program, a figure Phillips disputed.

“My feeling — and this is just speculation — was that there had to be close a billion dollars into each of the research facilities they had,” Phillips said. “I think it’s important that we keep track of countries like this.”