

**Yale-UN Oral History Project
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Jean Krasno, Interviewer
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Jean Krasno: In an interview I conducted with Rolf Ekéus, he mentioned to me that you had led an inspection team in 1996 to al Muthanna where you had risked your safety to go into a collapsed bunker to retrieve some important material. It turned out to be a turning event in discovering documents on VX. Can you tell me more about that day and your experience there? Why did you decide to undertake this mission? What was the significance of your discovery?

Cornelius Wolterbeek: During the Iran-Iraq war, Iraq concentrated all its Chemical Weapons (CW) research and development and production facilities, including some CW munitions at the Muthanna State Establishment (MSE) at that time also known in the West as Samara. This huge CW complex (5 square km) was partly destroyed in the Gulf War. Later from June 1992 to June 1994, MSE was used by UNSCOM's Chemical Destruction Group (CDG, or UNSCOM Inspection number 38) to destroy Iraq's remaining stocks of CW agents, munitions, and precursors, mainly in a CDG-built hydrolysis plant for the destruction of nerve agent and an incinerator for the destruction of Mustard agent, but also with explosives to deal with unstable munitions.

At that time I was involved in this work first as a Team Leader and later as the Chief Inspector of CDG (I served in total 14 months in the desert). During that time I learned much concerning the Iraqi CW program in MSE. Later I served as a senior chemical advisor to the

UNSCOM chairman for about 6 years in New York. During that time I got involved in UNSCOM's attempts to unravel the remaining secrets in Iraq's CW program. I conducted numerous Inspections to Iraq, and 12 inspections as a Chief Inspector. One of the first things I realized in 1992 was that MSE was heavily bombed and that its buildings collapsed with "sandwiched" floors. Important information and documents must still be there in flattened desks and cupboards.

For that reason, I proposed to the UNSCOM chairman to investigate the possibility of excavating R&D laboratories and CW plants at MSE. From 9-15 Dec. 1995, a reconnaissance inspection (UNSCOM 129A) was executed with structural engineers and EOD specialist to investigate MSE to establish at which places, documents could still be buried under the collapsed buildings, and exactly where possible unexploded Allied aerial bombs and other unstable munitions were located that should be avoided. After the reconnaissance in December, the most promising sites were put under remote camera surveillance.

On 24 February through 12 March 1996 excavation started with heavy local equipment (huge cranes) and special drilling and cutting equipment flown in from abroad in three planes. Six sections of buildings were excavated. Some 5,000 pages of documents, including memoranda, organizational papers, official letters, archive records, 100 computer disks and scientific papers were recovered. Also unknown Iraqi new types, including prototype binary munitions were found. For example, the salary administration made clear which scientist were working at which laboratory (and project), and a telephone directory was discovered, giving a snapshot of the thousands of scientist, senior management people, and production workers in MSE.

For VX, the importance was the discovery of the quality control laboratories sample logbooks which recorded each produced batch of chemical warfare agent a sample was taken and checked for quality. This included, of course, the VX batches produced in MSE. Another document found was the production method (“Cook Book”) for a unique VX precursor for a distinct MSE production plant. A third result was the sampling of gaskets of production equipment that did reveal traces of VX. After these discoveries, it was impossible for Iraq to deny a mature VX program in Iraq.

JK: Why is VX so serious? How much precursors did or does Iraq have in relation to the amount of VX produced? Does this add up? Is VX the most serious concern of the chemical weapons or are there other equally serious CW issues remaining in Iraq?

CW: I will list here in very short form the main reasons VX is so important; some are a little bit more convincing than others.

1. The VX program is the only CW program not admitted immediately after the Gulf War. It shared this feat with the biological program. In 1991 there was denial of any VX production, but after UNSCOM samples found VX degradation products, there was only acknowledgement of R&D. In 1995 there was admission of 1,250 kg and 10 tonnes of precursor, and end of 1995 admission of production of 3,9 tonnes of VX, and of 58,5 tonnes of precursors. After the excavation mission they had to admit a production facility specifically modified in 1988 for the industrial VX production, and not much later to admit a broad research effort with seven R&D teams in 1988-1990. So why was this VX program hidden from the UNSCOM

inspectors? The main logical reason is that Iraq wanted to keep this program alive underground and did not want UNSCOM to destroy all the equipment, chemicals and agents involved.

2. Saddam did acknowledge a “new binary CW agent” that only Russia and the US do have, in one of his speeches, and important Iraqi defectors did acknowledge presence of VX.

3. You can use VX in two ways, as a territorial denial (like Mustard) and as a nerve agent for attacks (like Sarin). In both cases it is more poisonous, for example about ten times more Sarin has to be used to achieve the same effect. Also in the hot desert summer, there are problems with the high volatility of Sarin. If used as a weapon, it is difficult to achieve and especially to maintain a deadly concentration for the required minimum time in the air. VX solves this volatility problem. It can thus replace both Mustard and Sarin. It is easier to store as a binary, and as used as a weapon less quantities are necessary for the same effect.

It is commonly assessed that VX is more difficult to produce than the other two, but the moment you do understand the different production methods available, there are ways of production that will enable you to use less corrosion resistant equipment that you will have to use for Sarin production. Part of the production can be done in stainless steel vessels that can be home produced in Iraq, avoiding corrosion resistant Hastaloy or glass lined equipment only available in industrial developed countries, and currently under the Australian List export controls.

JK: On the Special Munitions, were they marked or not? How were they marked, if they were and what significance does that have? How many did Iraq claim they had in 1991 and did those numbers add up? I am having trouble making the numbers match here.

CW: Your efforts to match the total figures in munitions and also in precursor accounting are doomed to fail for the following reasons:

UNSCOM own accounting started in earnest only after 1993-94, because before that time there was no reason to completely distrust the Iraqi declared figures, and destruction of unstable and leaking munitions was for humanitarian reasons a priority. Early disposal was done without precise recording and registration of single munitions, but through counting.

The second problem is that if you do find (the remains of) one CW warhead and one rocket motor in slightly different places, do they constitute one or two weapons? Also did the Iraqi side produce fake piles of remains of unilaterally destroyed munitions? For example, they tried to let remains of conventional Al Hussein warheads to pass for CB warheads.

Iraq adapted conventional munitions designs for CW munitions, and was able to import munitions production equipment for its CW munitions production. Iraq was able to produce the main munitions indigenously, so for example the 122mm warheads and the 250 gauge bombs were partly imported (thus traceable) and produced in house (only guessing is possible, because Iraq destroyed all production records, or declared those destroyed by Allied bombardments). So only for imports you can be sure that the figures are correct. All declared figures concerning indigenous production could be and are sometimes proven to be false. Also concerning the use of this munitions there are false declarations.

In this respect the famous “airforce HQ document” does give an accounting for use on Iran and does show huge gaps in the overall previous accounting. But the fact remains that Iraq could have produced any number and quantity indigenously without UNSCOM able to verify and the same is true for use. There are for example credible estimations that Iraq did possess about 1000 tonnes of Mustard agent just before the Gulf War, based upon production output capacity calculations of MSE mustard (P8) plants and satellite imagery that could detect plant activity and production times during that period, combined with information from Iraqi inventory- transport- and other documents. However, Iraq did declare and UNSCOM did find and destroy much less Mustard than this amount. So where is the remaining quantity?

Concerning precursors there is more or less the same problem because also here Iraq was able to produce some of these chemicals in house. If you look at VX as example, Iraq declared initially two different pathways. They offered some of the precursors specific for and belonging to these two pathways of producing VX to UNSCOM. However later three new and in principle better ways of syntheses for VX did surface after long intensive UNSCOM investigations.

UNSCOM believes that one of these new discovered ways is the one Iraq really used for its VX production. The consequence was that all imported precursors belonging to the first two ways declared “dead end streets” production methods, were given to UNSCOM with the sole purpose to conceal the new methods of production. Another problem is that already during the Iran-Iraq war, Iraq was looking into indigenous precursor production, If not for the Gulf War and UNSCOM, Iraq would this very moment be able to produce Sarin, Mustard and VX from scratch, without any need for precursor imports. They do have indigenously the phosphorus ores and the petrochemical industry needed for this type of chemical production and were on their

way in 1990 to become independent from any chemical imports from outside. They still do have this knowledge, but do currently miss some key equipment to produce for example PCI3, a key ingredient for CW agent production, because this equipment was destroyed by UNSCOM. However such equipment is available in the Western but also in the “Newer” world.

Remaining issues.

For political reasons (especially to make “progress”) the amount of remaining issues was arbitrary reduced to the so-called “Priority Issues,” that you must have found in the SC reports. However, numerous other (abandoned) issues remain. One example is the issue of the “cook books”. In Iraq UNSCOM did find the detailed production manual for one of the precursors. In here the production process is described in detail for the plant workers who do not have any chemical education in the form of a step-by-step recipe for production. Iraq never (wanted) was able to hand over the same cookbooks for production of the warfare agents. If UNSCOM could have studied these, it could have verified the Iraqi claim that Iraq was or is not able to produce stable (and because of that also storable) warfare agents that could still pose a threat today. Nobody can believe in earnest that Iraq did destroy such documents (it fits on a microfiche), it is more likely that a political decision was made not to show these because it would reveal Iraq’s state of the art. However through for example sampling, UNSCOM was able to prove that Iraqi Mustard is very pure and can be stored for decades.

Only in very rare cases (for example biological R-400 bombs) the special munitions are (were) marked, so often only very seasoned UNSCOM experts could distinguish conventional munitions from CW munitions (adapted from conventional munitions types) because of small differences between the production lots, for example, the year of production. Without deep

knowledge there was no way to distinguish the munitions other than because of the place these munitions were found, and through for example use of X-ray or ultra-sound equipment. So for the inexperienced UNMOVIC inspector it will be a difficult task to screen the huge conventional stockpiles for hidden CW munitions.

*Not a Recorded Conversation