



Traprock Peace Center

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We thank Dr. Doug Rokke, former U.S. Army DU Project Director and DU team health physicist, for forwarding this report to Traprock Peace Center.

Jim Tuite wrote the following section as part of the [Reigle Report](#), heard before the Committee on Banking, Housing and Urban Affairs, United States Senate, on May 25, 1994.

U.S. Exports of Biological Materials to Iraq

The Senate Committee on Banking, Housing, and Urban Affairs has oversight responsibility for the Export Administration Act. Pursuant to the Act, Committee staff contacted the U.S. Department of Commerce and requested information on the export of biological materials during the years prior to the Gulf War. After receiving this information, we contacted a principal supplier of these materials to determine what, if any, materials were exported to Iraq which might have contributed to an offensive or defensive biological warfare program. Records available from the supplier for the period from 1985 until the present show that during this time, pathogenic (meaning "disease producing"), toxigenic (meaning "poisonous"), and other biological research materials were exported to Iraq pursuant to application and licensing by the U.S. Department of Commerce. Records prior to 1985 were not available, according to the supplier. These exported biological materials were not attenuated or weakened and were capable of reproduction. According to the Department of Defense's own Report to Congress on the Conduct of the Persian Gulf War, released in April 1992: "By the time of the invasion of Kuwait, Iraq had developed biological weapons. It's advanced and aggressive biological warfare program was the most advanced in the Arab world. The program probably began late in the 1970's and concentrated on the development of two agents, botulinum toxin and anthrax bacteria... Large scale production of these agents began in 1989 at four facilities in Baghdad. Delivery means for biological agents ranged from simple aerial bombs and artillery rockets to surface-to-surface missiles."

Included in the approved sales are the following biological materials (which have been considered by various nations for use in war), with their associated disease symptoms:

Bacillus Anthracis: anthrax is a disease producing bacteria identified by the Department of Defense in The Conduct of the Persian Gulf War: Final Report to Congress, as being a major component in the Iraqi biological warfare program. Anthrax is an often fatal infectious disease due to ingestion of spores. It begins abruptly with high fever, difficulty in breathing, and chest pain. The disease eventually results in septicemia (blood poisoning), and the mortality is high. Once septicemia is advanced, antibiotic therapy may prove useless, probably because the exotoxins remain, despite the death of the bacteria.

Clostridium Botulinum: A bacterial source of botulinum toxin, which causes vomiting, constipation, thirst, general weakness, headache, fever, dizziness, double vision, dilation of the pupils and paralysis of the muscles involving swallowing. It is often fatal.

Histoplasma Capsulatum: causes a disease superficially resembling tuberculosis that may cause pneumonia, enlargement of the liver and spleen, anemia, an influenza like illness and an acute inflammatory skin disease marked by tender red nodules, usually on the shins. Reactivated infection usually involves the lungs, the brain, spinal membranes, heart, peritoneum, and the adrenals.

Brucella Melitensis: a bacteria which can cause chronic fatigue, loss of appetite, profuse sweating when at rest, pain in joints and muscles, insomnia, nausea, and damage to major organs.

Clostridium Perfringens: a highly toxic bacteria which causes gas gangrene. The bacteria produce toxins that move along muscle bundles in the body killing cells and producing necrotic tissue that is then favorable for further growth of the bacteria itself. Eventually, these toxins and bacteria enter the bloodstream and cause a systemic illness.

In addition, several shipments of Escherichia Coli (E. Coli) and genetic materials, as well as human and bacterial DNA, were shipped directly to the Iraq Atomic Energy Commission. The following is a detailed listing of biological materials, provided by the American Type Culture Collection, which were exported to agencies of the government of Iraq pursuant to the issuance of an export licensed by the U.S. Commerce Department:

Date : February 8, 1985
Sent To : Iraq Atomic Energy Agency
Materials Shipped:

Ustilago nuda (Jensen) Rostrup

Date : February 22, 1985
Sent To : Ministry of Higher Education
Materials Shipped:

Histoplasma capsulatum var. farciminosum (ATCC 32136)
Class III pathogen

Date : July 11, 1985
Sent To : Middle and Near East Regional A
Material Shipped:

Histoplasma capsulatum var. farciminosum (ATCC 32136)
Class III pathogen

Date : May 2, 1986
Sent To : Ministry of Higher Education
Materials Shipped:

1. Bacillus Anthracis Cohn (ATCC 10)
Batch # 08-20-82 (2 each)

Class III pathogen

2. Bacillus Subtilis (Ehrenberg) Cohn (ATCC 82)
Batch # 06-20-84 (2 each)
3. Clostridium botulinum Type A (ATCC 3502)
Batch # 07-07-81 (3 each)
Class III pathogen
4. Clostridium perfringens (Weillon and Zuber) Hauduroy, et al (ATCC
3624)
Batch # 10-85SV (2 each)
5. Bacillus subtilis (ATCC 6051)
Batch # 12-06-84 (2 each)
6. Francisella tularensis var. tularensis Olsufiev (ATCC 6223)
Batch # 05-14-79 (2 each)
A virulent, suitable for preparations of diagnostic antigens
7. Clostridium tetani (ATCC 9441)
Batch # 03-84 (3 each)
Highly toxigenic
8. Clostridium botulinum Type E (ATCC 9564)
Batch # 03-02-79 (2 each)
Class III pathogen
9. Clostridium tetani (ATCC 10779)
Batch # 04-24-84S (3 each)
10. Clostridium perfringens (ATCC 12916)
Batch #08-14-80 (2 each)
Agglutinating type 2
11. Clostridium perfringens (ATCC 13124)
Batch #07-84SV (3 each)
Type A, alpha-toxigenic, produces lecithinase C.J. Appl.
12. Bacillus Anthracis (ATCC 14185)
Batch #01-14-80 (3 each)
G.G. Wright (Fort Detrick)
V770-NP1-R. Bovine Anthrax
Class III pathogen
13. Bacillus Anthracis (ATCC 14578)
Batch #01-06-78 (2 each)
Class III pathogen
14. Bacillus megaterium (ATCC 14581)
Batch #04-18-85 (2 each)
15. Bacillus megaterium (ATCC 14945)
Batch #06-21-81 (2 each)
16. Clostridium botulinum Type E (ATCC 17855)
Batch # 06-21-71

Class III pathogen

17. *Bacillus megaterium* (ATCC 19213)
Batch #3-84 (2 each)
18. *Clostridium botulinum* Type A (ATCC 19397)
Batch # 08-18-81 (2 each)
Class III pathogen
19. *Brucella abortus* Biotype 3 (ATCC 23450)
Batch # 08-02-84 (3 each)
Class III pathogen
20. *Brucella abortus* Biotype 9 (ATCC 23455)
Batch # 02-05-68 (3 each)
Class III pathogen
21. *Brucella melitensis* Biotype 1 (ATCC 23456)
Batch # 03-08-78 (2 each)
Class III pathogen
22. *Brucella melitensis* Biotype 3 (ATCC 23458)
Batch # 01-29-68 (2 each)
Class III pathogen
23. *Clostridium botulinum* Type A (ATCC 25763)
Batch # 8-83 (2 each)
Class III pathogen
24. *Clostridium botulinum* Type F (ATCC 35415)
Batch # 02-02-84 (2 each)
Class III pathogen

Date : August 31, 1987
Sent To : State Company for Drug Industries
Materials Shipped:

1. *Saccharomyces cerevesiae* (ATCC 2601)
Batch # 08-28-08 (1 each)
2. *Salmonella choleraesuis* subsp. *choleraesuis* Serotype typhi (ATCC 6539)
Batch # 06-86S (1 each)
3. *Bacillus subtillus* (ATCC 6633)
Batch # 10-85 (2 each)
4. *Klebsiella pneumoniae* subsp. *pneumoniae* (ATCC 10031)
Batch # 08-13-80 (1 each)
5. *Escherichia coli* (ATCC 10536)
Batch # 04-09-80 (1 each)
6. *Bacillus cereus* (11778)
Batch #05-85SV (2 each)
7. *Staphylococcus epidermidis* (ATCC 12228)

Batch # 11-86s (1 each)

8. *Bacillus pumilus* (ATCC 14884)
Batch # 09-08-80 (2 each)

Date : July 11, 1988
Sent To : Iraq Atomic Energy Commission
Materials Shipped

1. *Escherichia coli* (ATCC 11303)
Batch # 04-875
Phase host
2. Cauliflower Mosaic Caulimovirus (ATCC 45031)
Batch # 06-14-85
Plant Virus
3. Plasmid in *Agrobacterium Tumefaciens* (ATCC 37349)
(Ti plasmid for co-cultivation with plant integration vectors in *E. Coli*)
Batch # 05-28-85

Date : April 26, 1988
Sent To : Iraq Atomic Energy Commission
Materials Shipped:

1. H_ulambda4x-8, clone: human hypoxanthine phosphoribosyltransferase (HPRT) Chromosome(s): X q26.1 (ATCC 57236) Phage vector
Suggest host: *E coli*
2. H_ulambda14-8, clone: human hypoxanthine phosphoribosyltransferase (HPRT) Chromosome(s): X q26.1 (ATCC 57240) Phage vector
Suggested host: *E coli*
3. H_ulambda15, clone: human hypoxanthine phosphoribosyltransferase (HPRT) Chromosome(s): X q26.1 (ATCC 57242) Phage vector
Suggested host: *E. coli*

Date : August 31, 1987
Sent To : Iraq Atomic Energy Commission
Materials Shipped:

1. *Escherichia coli* (ATCC 23846)
Batch # 07-29-83 (1 each)
2. *Escherichia coli* (ATCC 33694)
Batch # 05-87 (1 each)

Date : September 29, 1988
Sent To : Ministry of Trade
Materials Shipped:

1. *Bacillus anthracis* (ATCC 240)
Batch # 05-14-63 (3 each)
Class III pathogen
2. *Bacillus anthracis* (ATCC 938)

- Batch # 1963 (3 each)
Class III pathogen
3. Clostridium perfringens (ATCC 3629)
Batch # 10-23-85 (3 each)
 4. Clostridium perfringens (ATCC 8009)
Batch # 03-30-84 (3 each)
 5. Bacillus anthracis (ATCC 8705)
Batch # 06-27-62 (3 each)
Class III pathogen
 6. Brucella abortus (ATCC 9014)
Batch # 05-11-66 (3 each)
Class III pathogen
 7. Clostridium perfringens (ATCC 10388)
Batch # 06-01-73 (3 each)
 8. Bacillus anthracis (ATCC 11966)
Batch #05-05-70 (3 each)
Class III pathogen
 9. Clostridium botulinum Type A
Batch # 07-86 (3 each)
Class III pathogen
 10. Bacillus cereus (ATCC 33018)
Batch # 04-83 (3 each)
 11. Bacillus cereus (ATCC 33019)
Batch # 03-88 (3 each)

Date : January 31, 1989
Sent To : Iraq Atomic Energy Commission
Materials Shipped:

1. PHPT31, clone: human hypoxanthine phosphoribosyltransferase (HPRT)
Chromosome(s): X q26.1 (ATCC 57057)
2. Plambda500, clone: human hypoxanthine phosphoribosyltransferase
pseudogene (HPRT) Chromosome(s): 5 p14-p13 (ATCC 57212)

Date : January 17, 1989
Sent To : Iraq Atomic Energy Commission
Materials Shipped:

1. Hulambda4x-8, clone: human hypoxanthine phosphoribosyltransferase
(HPRT) Chromosomes(s): X q26.1 (ATCC 57237) Phage vector;
Suggested host: E. coli
2. Hulambda14, clone: human hypoxanthine phosphoribosyltransferase
(HPRT) Chromosome(s): X q26.1 (ATCC 57540), Cloned from human
lymphoblast, Phase vector
Suggested host: E. coli

3. Hulambda15, clone: human hypoxanthine phosphoribosyltransferase (HPRT) Chromosome(s): X q26.1 (ATCC 57241) Phage vector;
Suggested host: E. coli

Additionally, the Centers for Disease Control has compiled a listing of biological materials shipped to Iraq prior to the Gulf War. The listing covers the period from October 1, 1984 (when the CDC began keeping records) through October 13, 1993. The following materials with biological warfare significance were shipped to Iraq during this period.

Date : November 28, 1989
Sent To : University of Basrah, College of
Science, Department of Biology
Materials Shipped:

1. Enterococcus faecalis
2. Enterococcus faecium
3. Enterococcus avium
4. Enterococcus raffinosus
5. Enterococcus gallinarium
6. Enterococcus durans
7. Enterococcus hirae
8. Streptococcus bovis
(etiologic)

Date : April 21, 1986
Sent To : Officers City Al-Muthanna,
Quartret 710, Street 13, Close 69, House 28/I,
Baghdad, Iraq
Materials Shipped:

1. 1 vial botulinum toxoid
(non-infectious)

Date : March 10, 1986
Sent To : Officers City Al-Muthanna,
Quartret 710, Street 13, Close 69 House 28/I,
Baghdad, Iraq
Materials Shipped:

1. 1 vial botulinum toxoid #A2
(non-infectious)

Date : June 25, 1985
Sent To : University of Baghdad, College of
Medicine, Department of Microbiology
Materials Shipped:

1. 3 years cultures
(etiologic)

Candida sp.

Date : May 21, 1985
Sent To : Basrah, Iraq
Materials Shipped:

1. Lyophilized arbovirus seed
(etiologic)
2. West Nile Fever Virus

Date : April 26, 1985
Sent To : Minister of Health, Ministry of
Health, Baghdad, Iraq
Materials Shipped:

1. 8 vials antigen and antisera (r. rickettsii and r. typhi) to



diagnose rickettsial infections (non-infectious)

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