

BIOLOGICAL TESTING INVOLVING HUMAN SUBJECTS BY  
THE DEPARTMENT OF DEFENSE, 1977

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HEARINGS  
BEFORE THE  
SUBCOMMITTEE ON  
HEALTH AND SCIENTIFIC RESEARCH  
OF THE  
COMMITTEE ON HUMAN RESOURCES  
UNITED STATES SENATE

NINETY-FIFTH CONGRESS

FIRST SESSION

ON

EXAMINATION OF SERIOUS DEFICIENCIES IN THE FEDERAL  
DEPARTMENT'S EFFORTS TO PROTECT THE HUMAN SUBJECTS  
OF DRUG RESEARCH

MARCH 8 AND MAY 23, 1977



Printed for the use of the Committee on Human Resources

U.S. GOVERNMENT PRINTING OFFICE

WASHINGTON 20540-1977

## Annex D

## Production of Biological Warfare Agents and Munitions

Background. Production of all BW agents including antipersonnel and anticrop material, was based on technology developed in laboratory and pilot plant facilities at Fort Detrick. The first pilot plant, intended for the production of botulinum toxin, was completed in October 1943. A second plant was built in March 1944 to produce anthrax spores and the anthrax simulant. From these beginnings until cessation of offensive BW operations in 1969, Fort Detrick produced test quantities of a large number of antipersonnel and anticrop BW agents and developed the production process eventually employed at the Vigo and Pine Bluff Arsenal production facilities. A wide variety of process equipment, some of which was developed for the first time to support the unique requirements of BW production, constituted the numerous pilot plant facilities at Fort Detrick.

Antipersonnel agent and munition production. The first large scale BW munition production facility was constructed at the Vigo Ordnance Plant, near Terre Haute, Indiana, beginning in May 1944. The Vigo Plant was intended to produce biological agents and vaccines and to fill and assemble biological munitions beginning with anthrax-filled bombs. The Vigo Plant was in a test operation phase producing BG, a harmless simulant of anthrax, when the end of WWII terminated plant operations. The plant was deactivated and eventually excessed by the Army in 1946.

The only facility operated for large scale production of antipersonnel BW agents was located at Pine Bluff Arsenal with construction completed in November 1953. The plant later became permanently identified as the Directorate of Biological Operations (DBO). The initial capability of producing bacterial agents was later expanded to include capabilities for producing

toxins in addition to viral and rickettsial agents and the unique capacity for growing and infecting mosquitoes with viral agents. The complex of buildings included those designed for agent fermentation, munitions filling/production and laboratory support operations. The entire facility was designed and constructed to provide both absolute safety to operating personnel and absolute containment of the highly toxic and infectious materials produced there. Between 1954 and 1967, the facility produced the following biological agents and toxins: Brucella suis, Pasteurella tularensis, Q fever rickettsia, Venezuelan Equine Encephalomyelitis, Bacillus anthracis, botulinum toxin and staphylococcal enterotoxin. Bulk agents and antipersonnel munitions filled with these various agents and toxins were produced and stored at DBO as a deterrent capability. DBO operations were terminated in November 1969, and all stocks of anti-personnel biological munitions, agents and toxins were subsequently destroyed in accordance with approved demilitarization plans. The facility was then decontaminated and deactivated, and on 15 May 1972, the complex (including land, buildings, and equipment) was turned over to the Food and Drug Administration, an agency of the Department of Health, Education and Welfare, who operate it as the National Center for Toxicological Research (NCTR).

Anticrop Biological Agent Production. Three anticrop biological agents were produced between 1951 and 1969. These included both stem rust of wheat and rye, and rice blast. Between 1951 and 1957, wheat stem rust spores and rye stem rust spores were produced from inoculated crops at planting sites located on Government installations.