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FOLLOW-UP STATEMENT TO
STATEMENT OF THE
COMMITTEE ON MILITARY ENVIRONMENTAL RESEARCH
ON THE STATUS OF RESEARCH INTO
BIOLOGICAL EFFECTS OF ENVIRONMENTAL CONTAMINANTS
AT ROCKY MOUNTAIN ARSENAL

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16. Abstracts This report is, as the title indicates, a follow-up to the "Statement of the Committee on Military Environmental Research on the Status of Research into Biological Effects of Environmental Contaminants at Rocky Mountain Arsenal." The U.S. Army Medical Research and Development Command (USAMRDC) is charged with establishing environmental quality standards for the reclamation and renovation of contaminated land areas at military installations, and the Committee on Military Environmental Research (MER) is asked to evaluate the USAMRDC research program and review the findings. In its interim statement of January 1977, the Committee recommended that the decomposition rates and products, under field conditions, of DIMP and DCPD should be determined in soils and water; and additional mutagenic screening tests should be undertaken, because preliminary results were inconclusive. The follow-up statement describes the Army's planned research on the decomposition rates and products of DCPD and DIMP in soils and water under field conditions, as well as the results of the mutagenic screening tests, and gives the Committee's reaction to both.				
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The project that is the subject of this report was approved by the Governing Board of the National Research Council, whose members are drawn from the Councils of the National Academy of Sciences, the National Academy of Engineering, and the Institute of Medicine. The members of the Committee responsible for the report were chosen for their special competences and with regard for appropriate balance.

This report has been reviewed by a group other than the authors according to procedures approved by a Report Review Committee consisting of members of the National Academy of Sciences, the National Academy of Engineering, and the Institute of Medicine.

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FOLLOW-UP STATEMENT TO
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COMMITTEE ON MILITARY ENVIRONMENTAL RESEARCH
ON THE STATUS OF RESEARCH INTO
BIOLOGICAL EFFECTS OF ENVIRONMENTAL CONTAMINANTS
AT ROCKY MOUNTAIN ARSENAL

The U.S. Army Medical Research and Development Command (USAMRDC) has been conducting a research program to establish environmental standards for the land renovation program at the Rocky Mountain Arsenal near Denver, Colorado. Early in the program, diisopropylmethylphosphonate (DIMP) and dicyclopentadiene (DCPD), two contaminants that were believed to have originated in waste-disposal operations on the military reservation, were detected in ground water off post. An extensive literature review indicated that insufficient data were available to propose environmental standards. Contracts were immediately awarded to produce the required information.

To provide guidance in design and implementation of programs to minimize any off-post hazard, the USAMRDC in August 1976 requested that the Committee on Military Environmental Research (MER) review proposed temporary guidelines that were based on results of acute and subacute toxicity studies. These guidelines were to be used until the results of lifetime feeding studies could be obtained. In its interim statement "... on the Status of Research into Biological Effects of Environmental Contaminants at Rocky Mountain Arsenal," dated January 1977, the committee recommended that

1. the decomposition rates and products, under field conditions, of DIMP and DCPD should be determined in soils and water;
2. because preliminary results were inconclusive, additional mutagenic screening tests should be undertaken.

Consideration was given to subjecting the compounds to the full National Cancer Institute (NCI) carcinogenesis protocols should they be found mutagenic in the screening tests.

Prior to a committee meeting on May 23, 1977, the members were provided with copies of the reports of two contractors that had independently rerun the mutagenic screening tests on DIMP and DCPD. In these tests the contractors used Salmonella typhimurium strains TA-1535, TA-1537, TA-1538, TA-98, TA-100, and Saccharomyces cerevisiae strain D4. In the activation system, homogenate from Sprague-Dawley adult male rat livers induced by Aroclor 1254 was used. All tests were negative.

At the May 23, 1977 meeting, committee members were briefed on the Army's plans for research on the decomposition rates and products of the contaminants in soils and water under field conditions. The degradation studies will cover aerobic and anaerobic conditions in water, in the light, and in the dark. Biodegradation studies will include the rate of disappearance from water, the rate of mineralization in both water and soil, and the products of biodegradation.

In response to the briefing and the review of the mutagenicity test results, the committee submits the following statement:

The Committee on Military Environmental Research has been briefed on the proposed research plan to investigate the degradation of DIMP and DCPD in natural bodies of water and in the soil. It agrees with the general outlines of the research proposed.

The committee has reviewed the follow-up mutagenicity studies that were undertaken as a result of its earlier recommendation to the USAMRDC. The results of these independent studies, both of which used the Ames test indicate

that the previous problems concerning the initial Ames studies on DIMP and DCPD have been resolved. Based on the negative findings, there is no compelling reason for undertaking the NCI carcinogenesis protocols at the present time.