

# **ROCKETDYNE WORKER HEALTH STUDY**

## **Appendix G**



## **Rocketdyne Follow-On Worker Health Study**

**Study Brochure  
October 2001**

**July 13, 2005**

# ROCKETDYNE *Follow-on Worker Health Study*

October 2001

*The Boeing Company, in partnership with the United Aerospace Workers (UAW), is conducting a follow-on to the Rocketdyne Worker Health Study.*

## BACKGROUND

The Rocketdyne Worker Health Study was initiated in 1991 at the request of state legislators responding to community concerns about using radioactive and toxic substances at the Santa Susana Field Laboratory (SSFL). Conducted by University of California at Los Angeles (UCLA) researchers, overseen by the California Department of Health Services (DHS) and funded by the US Department of Energy, the two-phase study focused on employee exposure to radiation, chemicals and asbestos. Throughout the process, Rocketdyne and the UAW worked with the DHS and UCLA to facilitate the study.

## OVERSIGHT PANEL FORMED

The DHS convened an oversight panel consisting of outside experts, community members, and UAW, DHS, and National Institute for Occupational Safety and Health (NIOSH) technical staff to select the investigator, oversee the conduct of the study and evaluate the results. The DHS Oversight Panel was confident in the principal findings of the UCLA study, although the study was limited by shortages of detailed exposure data.

## RADIATION PHASE RESULTS

The Rocketdyne Worker Health Study radiation phase was released in September 1997. The purpose of the radiation phase was to determine if exposure to radiation increased the risk of dying from cancer among 4,607 Rocketdyne/Atomics International (AI) employees. The UCLA researchers concluded that:



We take the issue of employee health very seriously. We are committed to this further study in order to get the best evaluation of the data that is possible. Because the health and safety of our employees is a top priority, we will conduct a detailed study of activities and exposures of Rocketdyne workers to continue answering your questions.

We plan to produce the most meaningful study possible by assembling the wealth of employee and retiree information and insight that comes from first-hand experience in our operations that required the use of hazardous materials. These individuals are in the best position to enrich our understanding of what actually took place over the past five decades. If you have information that would add value to this effort and would like to participate in the process, please call us at 800/808-1160.

At Rocketdyne, nearly 80 professionals in Safety, Health and Environmental Affairs are dedicated to ensuring a safe, clean and healthy workplace and environment. This commitment not only means protecting you on the job today, but also helping you better understand what past activities might have meant for your health.

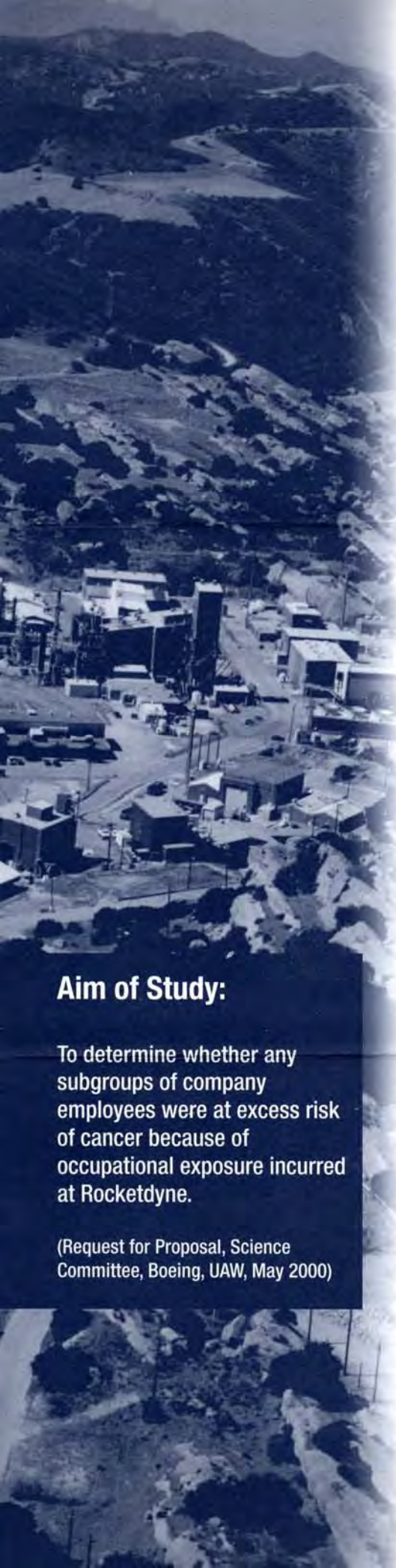


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- An increased risk existed for leukemia/lymphoma and lung cancer. 114 of 189 34 individuals in the high exposure group represented less than 1% of the 4607 people who were studied by UCLA for radiation exposure at Rocketdyne.
  - Overall, Rocketdyne workers had a lower incidence of death from “all causes” and “all cancers” when compared to both the US population and other worker groups.

## CHEMICAL PHASE RESULTS

The Rocketdyne Worker Health Study chemical phase was released in April 1999. In this phase, UCLA researchers examined the risk of dying from lung and other types of cancer among 6,107 Rocketdyne/AI employees presumed to have had the highest exposure to hydrazines, and 4,563 Rocketdyne/AI employees presumed to have had the highest exposure to asbestos. These groups were then compared to those workers presumed to have had lower exposure to the two selected chemicals. The chemical phase did not look at actual measured doses to individual workers, but instead, grouped workers in exposure classifications based on job titles. The UCLA researchers concluded that:

- A greater risk existed of dying from lung cancer among the group of workers with the presumed highest exposure to hydrazines.
- A potential increased risk existed of dying from cancers of the blood and lymph system, bladder and kidney among the group of workers with the presumed highest exposure to hydrazines.
- No association existed between asbestos exposure and lung cancer.

## EXPERT PEER REVIEW PROCESS

Distinguished outside experts, or peer reviewers, in the fields of epidemiology, biostatistics, oncology, toxicology, public health and occupational health were employed by Rocketdyne to provide a technical review for each phase of the study to aid in our understanding the results. The focus of their review was to evaluate the methodology, results, strengths and limitations of the study. Rocketdyne asked each peer reviewer to focus on certain aspects of the study based on his or her areas of expertise.

Rocketdyne’s outside peer reviewers played an invaluable role in evaluating the study to help our employees understand the health implications. The Rocketdyne review panel stated that the UCLA study was not conclusive but that it did raise questions about potential worker health issues that needed further study. Therefore, the panel recommended that Rocketdyne immediately begin a follow-on study to aid in providing those needed answers.

## MOVING FORWARD

In support of our commitment to answer questions raised by the UCLA study and on the recommendations of our expert review team, Rocketdyne, in partnership with the UAW, initiated a process two years ago to conduct a Rocketdyne Worker Health Follow-on Study.

The first step in this effort was completed in 1999. We assembled a new group of outside experts to oversee the Follow-on Study. Jointly selected by Rocketdyne and the UAW, the Rocketdyne Worker Health Science Committee is comprised of the following specialists in their specific areas of expertise and affiliations:

### Aim of Study:

To determine whether any subgroups of company employees were at excess risk of cancer because of occupational exposure incurred at Rocketdyne.

(Request for Proposal, Science Committee, Boeing, UAW, May 2000)

Scott Davis, PhD	Epidemiology/Radiation	University of Washington/ Fred Hutchinson Cancer Research Center
John Dement, PhD, CIH	Industrial Hygiene/Epidemiology	Duke University
Karl Kelsey, MD	Cancer/Toxicology	Harvard School of Public Health/ Brigham and Women's Hospital
John Peters, MD	Environmental Medicine	USC School of Medicine
Jack Siemiatycki, PhD	Epidemiology/ Biostatistics	University of Quebec/ Armand Frappier Institute
Laura Welch, MD	Occupational Medicine/ Radiation Epidemiology	George Washington University/ The Washington Hospital Center

The Science Committee was tasked with determining what the Follow-on Study would address and selecting a contractor to perform the work.

## PROJECT SCOPE

Boeing and the UAW jointly developed the process to select a contractor for the Follow-on Study, which was based on a process the UAW uses at other sites to study workers. The Science Committee reviewed the UCLA studies, visited SSFL and developed a project scope of work. The scope of work specifies the study of workers exposed to radiation during nuclear research or cleanup and/or potentially exposed to chemicals during rocket engine testing. These groups will include the same two worker groups studied by UCLA. The Follow-on Study will be more comprehensive by including a workers' total radiation dose from their entire work history and by evaluating all of the chemical usage associated with rocket engine testing. This study will include all appropriate exposure groups and will follow the workers an additional seven years since 1993, which was the ending date of records examined in the UCLA study.

A Request for Proposal was sent to more than 100 potential bidders, including universities, schools of public health and private consultants. Potential candidates submitted preliminary qualifications to aid the Science Committee in narrowing the selection to four qualified bidders. The four bidders submitted detailed proposals that were reviewed by the Science Committee. The UCLA study team did not submit preliminary qualifications.

## CONTRACTOR SELECTION

In December 2000, the Science Committee selected the International Epidemiology Institute (IEI), a leading epidemiology research organization that works in conjunction with Vanderbilt University. This selection was solely the responsibility of the Science Committee—neither Rocketdyne nor the UAW voted. The Science Committee concluded that IEI/Vanderbilt brought the most qualified team of experts in the radiation exposure area and had the most comprehensive approach to the chemical exposure assessment. The contract was signed and put into place effective January 2001.

The principal investigator is Dr. John Boice, Scientific Director at IEI, Professor of Medicine at Vanderbilt University and former head of the Radiation Epidemiology Branch of the National Cancer Institute. He brings over 25 years of experience in conducting studies of groups exposed to ionizing radiation, is currently advisor to the United Nations on radiation effects and is on the Main Commission of the International Commission on Radiation Protection and Measurement. The IEI team includes a wide-range of internationally known scientists from Oak Ridge National Laboratory, Oak Ridge Associated Universities and Vanderbilt University. IEI also has many years of experience in conducting studies of workers exposed to chemicals in manufacturing, assembly and maintenance in the aerospace industry.

## Study Improvements :

The Study will be more comprehensive by including a workers' total radiation dose from their entire work history and by evaluating all of the chemical usage associated with rocket engine testing.



Whenever humans are the subject of a research study, even an epidemiology study of potential health outcomes, the study protocol is reviewed to ensure that correct procedures are being used and employee records will be kept confidential. These reviews are conducted by Institutional Review Boards (IRB).

For the Follow-on Study, the IRB study protocol review covered areas such as how workers are to be contacted, the types of questions to be asked, and what measures IEI/Vanderbilt will employ to ensure that all data is handled confidentially. For this study, these measures will include the following:

- Files with personal identifiers (such as name, address, phone number) will be stored in locked cabinets in a secure location with access available only to study personnel.
- Personal identifiers will not be entered into the data analysis files.
- Computers will be password protected.
- All personal identifiers will be removed before the study becomes public.

Boeing required that two IRB reviews be completed and the study protocol approved before any employee or company information would be provided to the contractor. The first IRB review was performed by Boeing, with participation from the UAW, and the second was completed by Vanderbilt University. In both cases, the study protocol was approved.

### **WHAT'S NEXT?**

With oversight from the Science Committee, IEI/Vanderbilt will move forward with this Follow-on Study over the next three years. Some ways in which IEI/Vanderbilt will be gathering information include conducting employee and retiree interviews, reviewing historical company documents and searching records from the Social Security Administration and other federal and state departments of vital statistics.

Periodic updates will be made available to current and former employees during the Follow-on Study.

If you have questions or would like more information about the details contained in this communiqué, please call Rocketdyne at 800/808-1160 or the UAW Health & Safety Department at 313/926-5563.

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