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This report is prepared for the U.S. Department of Energy (DOE), as required by DOE Order 5400.1, by the Environmental Protection Department (EPD) at the Lawrence Livermore National Laboratory (LLNL). The results of LLNL's environmental monitoring and compliance effort and an assessment of the impact of LLNL operations on the environment and the public are presented in this publication.

To produce a more readable and useful document for our diverse readership—including regulators, scientists and engineers, educators, the media, public interest groups, and interested citizens—we have, as last year, divided this report into two volumes. The first describes LLNL's environmental impact and compliance activities and features descriptive and explanatory text, summary data tables, and plots showing data trends. The summary data include measures of the center of data, their spread or variability, and their extreme values. The first volume contains the Executive Summary and the Compliance Summary; it features individual chapters on monitoring of air, sewage, surface water, ground water, soil and sediment, vegetation and foodstuff, and environmental radiation; and it contains chapters on site overview, environmental program information, ground water protection, compliance self-monitoring, radiological dose assessment, and quality assurance. Information on both the Livermore site and Site 300 are presented in each chapter.

The second volume, supporting Volume 1 summary data, is essentially a detailed data report that provides the individual data points, where applicable. Some summary data are also included in Volume 2, and more detailed accounts are given of sample collection and analytical methods.

Volume 1, which can be read without access to Volume 2, contains all information of interest to most of our readers. Volume 1 will be distributed as usual, but Volume 2 will be sent only upon request; a card for this purpose is included on the last page of Volume 1. Both volumes are available on the Internet at the address of LLNL's home page (<http://www.llnl.gov>) under the heading "Publications," under the subheadings "Institutional Publications" and "Technical Papers." Alternatively, one can use the address given on the inside front cover of this report.

As in last year's annual report, data are presented in *Système International* (SI) units. In particular, the primary units we use for radiological results are becquerels and sieverts for activity and dose, respectively, with curies and rem used secondarily ($1 \text{ Bq} = 2.7 \times 10^{-11} \text{ Ci}$; $1 \text{ Sv} = 100 \text{ rem}$). Units are discussed in the introduction of Chapter 13, Radiological Dose Assessment, in Volume 1.

Preface

This document is the responsibility of the Operations and Regulatory Affairs Division of EPD.

Monitoring data were obtained through the combined efforts of the Operations and Regulatory Affairs Division, Environmental Restoration Division, the Chemistry and Materials Science Environmental Services laboratories, and the Hazards Control Department of LLNL. Special recognition is deserved for the dedication and professionalism of the technicians who carried out environmental monitoring—David Ahre, Paris E. Althouse, Gary A. Bear, David L. Graves, Marion Heaton, Renee Needens, Terrance W. Poole, Donald G. Ramsey, Rebecca J. Ward, Rhonda L. Welsh and Robert Williams—and to the data management personnel—Nina Hankla, Jennifer Clark, Kimberly A. Stanford, and Suzanne Chamberlain. Special thanks also to Judith L. Kelly for secretarial support and collation and distribution of drafts.

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