FOREWORD

Once again, it is a pleasure to be able to reflect on the accomplishments of the NIST Center for Neutron Research over the past year. In the reactor operations area, 1999 was another outstanding year. In spite of an unsheduled maintenance shutdown, the reactor operated 250 days, with a reliability factor of better than 90 %. The cold source availability for the period was 98 %; i.e., the cold source held the reactor from operation 4 days during the year. The remaining spent fuel in the storage pool was shipped, providing space for at least five years of operation. Also, an order has been placed for a new cooling tower which will not only provide needed capability for the next 25 years, but will also reduce the plume visible during cold weather. Last, steady progress has been made in preparing for a license renewal application to the Nuclear Regulatory Commission, in order to extend the period of operation beyond 2004.

We have also made great progress in instrumentation, with the back scattering spectrometer operational; with the spin echo spectrometer now being used for real measurements; and with the disk chopper spectrometer being commissioned. All three of these instruments will be available to "friendly" users in the next proposal cycle. Other work is also advancing well–the perfect crystal small angle scattering spectrometer (part of the NSF/NIST CHRNS) is being installed at the reactor; the first phase of the high intensity filter analyzer spectrometer is ready to begin installation; and the design and manufacture of new thermal neutron spectrometers is underway. This simultaneous development program has put severe strains on our resources, but we can now look forward to many years of benefit from the results.

Finally, as always, the results are seen in the output of the researchers who use the facility. As was done last year, we are presenting highlights of this work in the following chapters of this report. I think all can agree that the results truly speak for themselves.