Milestones in the History of
Los Alamos National Laboratory

1943  The Los Alamos laboratory, under the direction of J. Robert Oppenheimer, begins operation as Project Y of the Manhattan Project. The Bethe-Feynman formula, a simple method for calculating the yield of a fission bomb, is derived.

1944  The world’s third nuclear reactor (a uranium-solution-fueled “Water Boiler” named LOPO) achieves criticality.

1945  The world’s first nuclear bombs (Little Boy, a gun-type uranium bomb, and Fat Man, an implosion-type plutonium bomb) are proved successful. Norris E. Bradbury is named second director of the Laboratory.

1946  The world’s first plutonium-fueled nuclear reactor (Clementine) first achieves criticality.

1947  The Monte Carlo technique for particle-transport computations is formulated.

1948  Helium-3 is first liquefied.

1950  A new cyclotron-focusing method (“thomas” focusing) is developed that makes variable-energy machines possible.

1951  First thermonuclear reaction is demonstrated in the George shot of the Greenhouse test series.

1952  The MANIAC computer becomes operational. The first thermonuclear explosion is achieved in the Mike shot of the Ivy test series. The first facility for handling liquid hydrogen on a large scale becomes operational. Plutonium-244, plutonium-246, americium-246, einsteinium-253, and fermium-256 are discovered in the debris of the Mike shot.

1953  The Lady Godiva critical assembly first achieves prompt criticality. The $S_n$, or discrete ordinates, method for solving neutron-transport problems is formulated.

1954  The first thermonuclear bomb containing solid fusion fuel is demonstrated in the Bravo shot of the Castle test series.

1955  The Rover Project to investigate the use of nuclear reactors to power rockets is initiated.

1956  The neutrino is detected with the help of a recently developed liquid scintillator. The MANIAC II computer and the Omega West nuclear reactor become operational.

1957  The particle-in-cell (PIC) method for numerical fluid dynamics is invented.

1958  A helium-3 refrigerator providing temperatures below 0.45 kelvin is developed.

1959  Plutonium-238 is used as a power source in space.

1960  The KIWI nuclear reactor for the Rover Project is operated at full power.

1961  The Stretch computer is developed in collaboration with IBM.

1963  Satellite-borne sensors to verify adherence to the Limited Test Ban Treaty are developed. PHERMEX, the world’s highest-intensity x-ray facility, is constructed.
1964 The world’s highest-voltage Van de Graaf accelerator is completed.

1965 The Phoebus I-A Rover reactor is tested at full power.

1967 The side-coupled cavity is developed for the LAMPF linear accelerator.

1968 Funding for construction of LAMPF is approved by Congress and President Johnson.

1969 The ultra-high-temperature nuclear reactor (UHTREX) begins operation at 2400°F.

1970 Harold M. Agnew is named third director of the Laboratory.

1971 Naturally occurring plutonium-244 is isolated.

1972 LAMPF accelerates protons to design energy. Isotopes of uranium are separated by selective laser excitation of UF₆.

1973 Around this time insensitive high explosives for use in nuclear weapons are developed.

1974 The Laboratory is named a national resource for stable isotopes.

1976 A portion of the Laboratory site is designated as a national environmental research park.

1977 Fusion neutrons are detected in a plasma confined by radiation from a carbon-dioxide laser.

1978 The Hot Dry Rock Program is initiated.

1979 Donald M. Kerr is named fourth director of the Laboratory. Universality of the approach to chaos in deterministic systems is discovered.

1980 The University of California establishes a branch of the Institute of Geophysics and Planetary Physics at the Laboratory. The Center for Nonlinear Studies is established.

1981 The Center for Materials Science is established.

1982 The Laboratory is designated as a national resource for flow cytometry. GenBank, the national database for nucleic-acid sequences, begins operation. A heavy-fermion superconductor is discovered.

1983 Congress approves long-term visits at LAMPF for citizens of the People’s Republic of China.

1984 The radio-frequency quadrupole cavity is developed for a neutral-particle accelerator.

1985 Siegfried S. Hecker is named fifth director of the Laboratory. A new technique (CORRTEX) is developed to verify yields of underground nuclear explosions.

1986 The world’s first high-temperature hot-dry-rock system is successfully tested.

1987 The first edition of nucleotide-sequence data for HIV samples is published.

1988 The Laboratory is designated as one of three national centers for human-genome studies. A new type of chemical bond is discovered in the binding of molecular hydrogen to the central metal atom in certain metal complexes.

1989 A beam of energetic neutral particles is created in space.

1990 Superconducting tapes and thin films are fabricated.

1991 The Laboratory is designated as one of two centers for research on high-performance computing.

1993 Cross section for the scattering of electron neutrinos by electrons is determined experimentally.