ARTHUR C. LUCAS, SC.D., CHP

CAREER SUMMARY

Mr. Lucas has over 40 years of experience in the nuclear industry and in regulatory programs. His experience includes laboratory management, quality assurance/quality control, Research Physicist at Oklahoma State University, environmental measurements, dosimetry, and radiation safety. Mr. Lucas has a proven track record of managing projects, meeting deadlines, and ensuring comprehensive regulatory compliance. Mr. Lucas served in numerous capacities that are described further below.

HEALTH PHYSICS / PROJECT MANAGEMENT / REGULATORY COMPLIANCE

2000-
Lucas Newman Science and Technologies, Inc. President / Senior Scientist

1999 -
Nextep Environmental, Inc. Senior Scientist / Project Manager

1996 to 1998
Stillwater Sciences, L.L.C. Partner in starting business for the production of sapphire crystals for dosimetry. Sold the business in August, 1998.

Research Physicist in Physics Department at Oklahoma State University. Worked in the development of dosimeters for personal monitoring along with methods for production of luminescent crystals for dosimetry. Studying methods for quality assurance of scintillation crystals for use in x-ray CT applications.

Operated as a consultant in measurement services for NORM cleanup. Designed, constructed and deployed instrumentation for measuring radon flux from soil surface of contaminated areas and capped landfills. Perfected methodology for thick sample alpha spectroscopy, reporting separately specific activity for uranium and thorium without chemical processing of samples. Served as senior HP for Ottawa, Illinois remediation site, overseeing measurement methodology, calibration, and sampling for radium in soil, dwellings, and air.

1983 to 1995
Victoreen, Inc., Cleveland, Ohio. Vice President for Technology. Worked in the development of instrumentation for radiation measurement and quality assurance in medical and health physics. Designed first microprocessor based instruments for alpha, beta, and gamma field survey. Designed first computer based continuous alpha monitor for radon daughters and airborne uranium and plutonium. Built business in government contract work directed at the design and production of dosimeters for mass military and civil radiation protection. Supervised radiation safety.

1970 to 1983
The Harshaw Chemical Co., Solon, Ohio. Initially, program manager for Navy dosimeter design. Designed and produced the radiation dosimeter which has been the mainstay in the U. S. Navy's nuclear submarine fleet from 1972 to the present.

Later, director of research and development with responsibility for broadly based program in development of materials and instruments for used in radiation detection and measurement including detectors for assay of radioactivity, CT scanners, PET scanners, RIA devices, and airport x-ray imaging devices. Designed first sodium iodide crystal based remote, microrem monitors for nuclear power stations operating on a single wire at distances up to one mile.

Supervised design, production, and deployment of first automatic TLD readers. Completed installation and calibration of systems worldwide.

Discovered or invented, BGO as a scintillator, Calcium fluoride(Tm) as a neutron detector. Implemented the first microprocessors in the company's engineering programs. Supervised radiation safety.

1969
One year leave of absence from EG&G, Inc to work for the **National Bureau of Standards (now NIST)** in Gaithersburg, Md. GS-14 level 2 grade. Developed optimum methods for production of monoenergetic x-rays in both continuous beam and pulsed modes. Set direction for future involvement of the NBS, now called NIST, in medical imaging. Designed proportional counting spectrometer for absolute measurements of x-rays at energies down to 100 eV.

1962 to 1970
EG&G, Inc. Santa Barbara, California. Scientist involved in measurement of energy and rate dependences of dosimetry materials that might be involved in personnel exposure in the event of nuclear accident or warfare. Developed pulsed calorimeter for determining dose in nanosecond bursts of energy.

Finally, as Senior Scientific Specialist, worked in launch of National Cancer Institute program to evaluate the use of neutrons in cancer radiation therapy. Worked with the Atomic Energy Commission (AEC), now the Department of Energy (DOE), to make fundamental measurements with mesons to determine the possible effectiveness in cancer radiation therapy. Active in design of programs to instrument cyclotrons, linacs, burst reactors, research reactors, nuclear weapons, fallout fields, and plasma fusion devices. Designed field portable, triple coincidence neutron spectrometer. Designed first spherical, tissue equivalent, proportional counter for determining absolutely dose in tissue as a function of LET. That design is now a worldwide standard for such measurements. Supervised radiation safety.

1954 to 1956
United States Army, Fort Bliss, Texas. Leave of absence from GE to serve in U. S. Army. Taught electronics of radar and missile guidance to future commanding officers of Nike missile sites.

1951 to 1963
General Electric Co. X-Ray Department, West Milwaukee, Wisconsin. Worked in the Radiation Physics Laboratory, initially as technician, finally, as engineer. Designed the first remotely manipulated plotters for water phantom simulation of patient dose distributions when exposed to x-rays or gamma rays. Designed electrometer systems for

measurement of small currents. Performed basic measurements in support of standard methods for characterizing x-ray and gamma ray beams. Made measurements directed at optimal use of x-ray equipment so as to achieve best diagnostic value with minimum radiation exposure to patient and operator. Made some of the first measurements indicating the possibility of creating 3-d images by x-ray. This became CT x-ray a few years later.

EDUCATION

1949-1951 Franklin College, Franklin, Indiana, Studied physics and math
1951-1954 Marquette University, Milwaukee, Wisconsin
B.S. degree in physics and math
1955--University of Texas, El Paso
Additional studies in math
1957-1961 Marquette University, Milwaukee, Wisconsin
Additional studies in math and physics
1963-1968 University of California, Santa Barbara
Additional studies in solid state physics, advanced math, quantum mechanics

PROFESSIONAL MEMBERSHIP

American Association of Physicists in Medicine
Health Physics Society
American Physical Society
Institute for Electrical and Electronic Engineers
National Council on Radiation Protection

CERTIFICATIONS

American Board of Health Physics. Comprehensive by examination, 1960 to present.