CURRICULUM VITAE

Anthony LaMastra

HEALTH PHYSICS ASSOCIATES, INC.
1005 Old Route 22, Lenhartsville, PA 19534

PROFESSIONAL CERTIFICATION: Certified Health Physicist, American Board of Health Physics, June, 1978.

STANDARDS COMMITTEE ACTIVITY: Represents the American Iron and Steel Institute on the following American National Standards Institute (ANSI) accredited committees:

- C95 - Non-Ionizing Radiation Hazards (Up to 100 GHz)
- N13 - Radiation Protection (Ionizing)
- N43 - Equipment for Non-Medical Radiation Applications
- Z136 - Safe Use of Lasers

Chairman, N43 Committee - Equipment for Non-Medical Radiation Applications

Co-Chairman, N43-5 Subcommittee - General Safety Standard for Installations Using Non-Medical X-Ray and Sealed Gamma-Ray Sources, Energies Up To 10 MeV.

Chairman, N43-9 Subcommittee - Design and Safe Use of Sources to Test Scrap Monitoring System.

Member of the following subcommittees (standards writing groups):

- N43-1 - Radiation Safety for X-Ray Diffraction and Fluorescence Analysis Equipment (N43.2-1977)
- N43-3.1 - Use of Sealed Source Radiography Equipment.
- N43-3.2 - Classification of Industrial Ionizing Radiation Gauging Devices, N538-1979.
- N43-3.3 - Sealed Radioactive Sources, Classification, N542-1977.
- N43-3.5 - Radiological Safety for the Design and Construction of Apparatus for Gamma Radiography.
- N43-7.1 - Safe Use of Industrial X-Ray Equipment.

PROFESSIONAL ASSOCIATIONS:

Health Physics Society
American Industrial Hygiene Association
Bioelectromagnetics Society
Society for Risk Analysis

EDUCATION:

Bachelor of Science, (biology), St. Joseph's College, Philadelphia, PA, June [redacted] EX. 6

Master's degree in Environmental Health, University of Minnesota, Minneapolis, MN, May [redacted] EX. 6

TRAINING IN RADIATION PROTECTION:

University of Minnesota - 18 quarter hours of course work in health physics and radiation biology, July 1968 thru May 1969.

Brookhaven National Laboratory - Three months summer residency program in health physics, June thru August, 1969.

January, 1993

EMPLOYMENT:

January 1985 to present: Consultant in ionizing and non-ionizing radiation protection: providing such services as developing and auditing radiation protection programs; developing detection systems to monitor scrap metal for radioactive material; evaluation and clean-up of contamination associated with scrap processing; evaluating ionizing radiation exposures and performing risk assessments; developing laser radiation safety programs and evaluating laser hazards; evaluating electric and magnetic field strengths; training personnel to work safely with radiation sources; assisting in the development of license applications. Major clients include Allegheny-Ludlum Steel, Allegro Microsystems, A.T.&T., BCM Engineers, Bethlehem Steel Corporation, Belden Wire Company, Carpenter Technology Corporation, Chambers Development Corporation, DuPont Environmental Remediation Services, EHG National Health Services, Essroc Materials, Georgia Pacific Corporation, Interstate-Intercorr, Hoescht/Celanese Corporation, Ingersoll-Rand Company, Knoll International, Lehigh University, Lukens Steel Company, Mack Trucks, MFS, Inc., Mobile Radiology Services, A.J. Oster, Prior Coated Metals, Rauer Coal Company, S.G.S. Thompson Microelectronics, Xerox Corporation.

January 1981 to present: (Consultant through Porter Consultants, Inc.), Referee/observer for emergency drill exercises at pressurized and boiling water reactors (Susquehanna, Oyster Creek, Salem and Hope Creek sites). Effluent assessment at PWR's and BWR's. Development of emergency drill exercise scenario data. Review environmental monitoring data from the TMI accident and prepare court testimony from same. Consultant to Philadelphia Electric Company for emergency response.

March 1972 to November 1984: Senior Health Physicist, Bethlehem Steel Corporation. Responsible for the development and oversight of the corporate radiation control program, both ionizing and non-ionizing. This included developing all training programs, manuals, and corporate regulations; overseeing in-house leak testing, personnel radiation dosimetry, and survey meter calibration and repair services; performing radon/radon daughter analyses in the corporation's iron, coal and uranium mines and decommissioning inactive uranium mining sites; performing specialized surveys and exposure investigations for ionizing, laser, radiofrequency, infrared, ultraviolet, ELF electromagnetic radiation and estimating the potential risks involved.

August 1969 to March 1972: Eastern Area Health Physicist, Pennsylvania Department of Environmental Resources. Responsible for supervising Pennsylvania's radiation protection program in the eastern third of the state. Supervised the clean-up of a radium dial painting and burial site. Developed and presented a 16 hour training course in radiation protection for medical x-ray technology students.

PUBLICATIONS:

Failure of an X-Ray Diffraction Safety Beam Shutter, Health Physics, March 1970.

Health Physics Aspects of Refractory Wear Monitoring Studies, presented at the annual Health Physics Society meeting, July 1984.

Practical Considerations of Detecting Radioactive Material in Steel Scrap, presented at the annual Health Physics Society meeting, June 1986.

Detection of Radioactive Material in Steel Scrap, presented at the Health Physics Society mid-year topical symposium, December 1988.

Radioactive Material in Steel Scrap: Its Occurrence, Consequences and Detection, Health Physics Associates, Inc, March 1989.

BETHLEHEM STEEL CORPORATION
GENERAL IONIZING RADIATION PROTECTION COURSE
December 6-10, 1976
Hunt Valley Inn, Cockeysville, Maryland

MONDAY

		Speaker
8:30 a.m. - 9:00 a.m.	Introduction and Announcements	H.J.Kinback, A.LaMastra
9:00 a.m. - 9:30 a.m.	Introduction to Health Physics	A. LaMastra
9:30 a.m. - 10:15 a.m.	Sources of Radiation, General	A. LaMastra
10:15 a.m. - 10:30 a.m.	Break	
10:30 a.m. - 12:00 noon	Sources in the Steel Industry	A. LaMastra
12:00 noon - 1:00 p.m.	Lunch	
1:00 p.m. - 3:00 p.m.	Atomic Structure and Radioactivity	S. W. Porter
3:00 p.m. - 3:15 p.m.	Break	
3:15 p.m. - 4:00 p.m.	Radiation Measurement Units	S. W. Porter
4:00 p.m. - 6:00 p.m.	Radiation Detection Theory and Survey Technique.	S. W. Porter

TUESDAY

8:30 a.m. - 9:00 a.m.	Review	
9:00 a.m. - 10:30 a.m.	Biological Effects	A. LaMastra
10:30 a.m. - 10:45 a.m.	Break	
10:45 a.m. - 12:00 noon	Biological Effects	A. LaMastra
12:00 noon - 1:00 p.m.	Lunch	
1:00 p.m. - 3:15 p.m.	Survey Technique	A. LaMastra
3:15 p.m. - 3:30 p.m.	Break	
3:30 p.m. - 4:00 p.m.	Radiation Protection Philosophy	A. LaMastra
4:00 p.m. - 5:00 p.m.	Unsealed Source Survey	A. LaMastra

WEDNESDAY
(Plant)

8:30 a.m. - 9:30 a.m.	Overview	A. LaMastra
9:30 a.m. - 12:00 noon	Survey of Steelside Gages	A. LaMastra
12:00 noon - 1:00 p.m.	Lunch	
1:00 p.m. - 3:30 p.m.	Survey of Tin Mill, Medical Sources	A. LaMastra
3:30 p.m. - 5:30 p.m.	Radiography Survey	A. LaMastra

THURSDAY

		Speaker
8:30 a.m. - 9:30 a.m.	Review	
9:30 a.m. - 11:00 a.m.	Personnel Monitoring	M. R. Buring
11:00 a.m. - 11:15 a.m.	Break	
11:15 a.m. - 1:00 p.m.	Methods of Protection	A. LaMastra
1:00 p.m. - 2:00 p.m.	Lunch	
2:00 p.m. - 3:00 p.m.	Waste Disposal	M. R. Buring
3:00 p.m. - 3:30 p.m.	Transportation Regulations	A.LaMastra, M.R.Buring
3:30 p.m. - 3:45 p.m.	Break	
3:45 p.m. - 5:30 p.m.	Accident Management	A. LaMastra

FRIDAY

8:30 a.m. - 9:30 a.m.	Review	
9:30 a.m. - 10:30 a.m.	NRC Regulations	G. W. Kerr
10:30 a.m. - 10:45 a.m.	Break	
10:45 a.m. - 12:00 noon	NRC,State, OSHA Relationship	G. W. Kerr
12:00 noon - 1:00 p.m.	Lunch	
1:00 p.m. - 1:45 p.m.	Bethlehem Steel Corporation Policies	A. LaMastra
1:45 p.m. - 3:30 p.m.	Test	A. LaMastra

Speakers

M. R. Buring, Radiation Protection Specialist, Metropolitan Edison Company, Reading, Pa.
G. W. Kerr, Assistant Director, State Agreements Program, NRC, Washington, DC.
H. J. Kinback, Superintendent, Environmental Control Department, Bethlehem Steel Corporation Sparrows Point Plant, MD.
A. LaMastra, Corporate Radiation Control Engineer, Bethlehem Steel Corporation, Bethlehem, Pa.
S. W. Porter, Certified Health Physics Consultant, Porter-Gertz Consultants, Inc., Ardmore, Pa.

The course was developed to qualify personnel throughout the Corporation to be named on specific radioactive material licenses to perform initial surveys, to supervise during gage relocation and to respond to unusual incidents or answer questions pertaining to radiation protection at the local level. It has been shown that a course geared to the types of sources and situations encountered within Bethlehem was not available from outside sources. It was intended primarily for engineer level personnel; (such as Industrial Hygienists, Safety Engineers, and Research Engineers); others were admitted, however, on a case-by-case basis, if they routinely perform radiation protection activities.

Heavy emphasis was placed on the types of sources common to the steel industry, the dose rates from those sources and methods of protection. The topics were covered by both lecture presentations and by "hands-on" field experience. In comparison with courses presented by gage manufacturers, we believe that this course better prepared those attending to adequately respond to the items described in the previous paragraph.

A full day (Wednesday) was spent at the Sparrows Point Plant and Shipyard, studying the following items:

(1) Types of sources:

Point level gages
Continuous level gages
Coke oven alignment interlock gages
Solid density gages (bins and pipes)
Slurry density gages (pipes)
Belt bulk density gages
Belt moisture/density gages
Bin moisture gages
Blast Furnace refractory wear indicating sources
Dew pointers
Radiography crank-out devices
Industrial radiography X-ray machines
Medical X-ray machines
Sheet thickness gages (isotope and X-ray)
Sheet coating weight gages (isotope and X-ray)

(2) The normal and non-routine locations of the above types of devices with respect to exposures to normal work stations and areas used on an infrequent basis.

(3) Shutter systems and other safety systems associated with the various devices by manufacturer and model. Sparrows Point Plant has most models of gages used throughout the Corporation. Those not found at Sparrows Point were presented using visual aids.

(4) Survey techniques and instruments of choice for the various devices described above.

(5) Guidelines in making an initial survey and providing surveillance during gage relocation.

(6) Performing leak tests of the various devices.

(7) Potential emergency situations and methods of controlling exposure from the various devices.

Many of the above items were covered during the four days of lectures. The day at the Plant allowed the students to gain first-hand experience with the specific devices. From over twenty years experience in using gaging devices, we have found that source housings and gage systems differ very little from each other in areas significant to health physics. It is our opinion that a trained industrial hygienist is capable of applying basic health physics theory to specific devices and applications. Approximately 15 hours were spent during the course describing specific source housings.

A test was given at the conclusion of the course. Each individual answer for questions 1 to 46 was given a value of one point. (Several questions from 18 to 46 have more than one correct response.) The problems at the end of the test were valued at 5 points each.

Following grading, a mean score was computed and a passing grade was set at the mean score minus one standard deviation. For this specific test, the passing grade was 68%; the mean source was 79.8%.

All tests were administered and corrected by A. LaMastra.

The corrected tests, along with the correct answers and reasons, were returned to the participants for their review. A record of questions missed by each participant was kept by A. LaMastra.

ADVANCED RADIATION PROTECTION TRAINING COURSE
BALTIMORE, MARYLAND - NOVEMBER 13-16, 1984

TUESDAY - November 13

8:00 - 8:30	Welcome W. Wilhelm., Supt. Environmental Control R. J. Brandt, M.D., Manager of Occupational Health and Safety
8:30 - 8:45	Course Overview
8:45 - 9:00	Film - "Safety Engineer's Don't Make Good Salesmen"
9:00 - 9:30	Units of Radiation/Radioactivity Measurement
9:00 - 10:30	Acute Effects of Radiation Exposure
10:30 - 10:45	Break
10:45 - 11:30	Film - "Working With Radiation and Protecting the Unborn"
11:45 - 1:00	Risks Associated With Radiation Exposure
1:00 - 2:00	Lunch
2:00 - 3:00	Principles of Survey Meter Operation
3:00 - 4:00	Demonstration of Differences in Survey Meter Response
4:00 - 4:15	Break
4:15 - 6:00	Time-Distance-Shielding Calculations

WEDNESDAY - November 14

8:00 - 9:00	Review
9:00 - 9:30	Requirements for Restricting Areas and Warning Signs
9:30 - 11:00	Gamma and Neutron Survey Technique, Initial Surveys, Follow-Up Surveys
11:00 - 5:00	Field Surveys in Plant

THURSDAY - November 15

8:00 - 9:00	Review
9:00 - 10:00	Bethlehem's Corporate Radiation Control Program

THURSDAY - November 15 - (Continued)

10:00 - 10:15	Break
10:15 - 12:00	Federal and State Regulations pertinent to the Corporate program
12:00 - 1:00	Lunch
1:00 - 2:00	Hazards of Internal Deposition of Radioactivity and Bioassay Methods
2:00 - 3:00	Contamination Control and Survey methods
3:00 - 3:15	Break
3:15 - 4:15	Problems Associated with Detecting Radioactivity in Steel Scrap
4:15 - 5:00	Transportation of Radioactive Material, Disposal Requirements

FRIDAY - November 16

8:00 - 10:00	Review
10:00 - 10:15	Break
10:15 - 12:00	Test

The course was developed to update the radiation protection training of personnel throughout the Corporation who perform initial surveys, supervise gage installations or relocations, and respond to exposure incidents or answer questions pertaining to radiation protection at the local level. Heavy emphasis was placed on the types of sources common to the steel industry, the dose rates from those sources and methods of protection. The topics were covered by both lecture presentations and by "hands-on" field experience.

A full day (Wednesday) was spent at the Sparrows Point Plant studying the following items:

(1) Types of sources:

Level gages
Solid density gages (bins and pipes)
Slurry density gages (pipes)
Belt bulk density gages
Bin moisture gages
Sheet thickness gages (isotope and X-ray)
Sheet coating weight gages (isotope and X-ray)

(2) The normal and non-routine locations of the above types of devices with respect to exposures to normal work stations and areas used on an infrequent basis.

(3) Shutter systems and other safety systems associated with the various devices by manufacturer and model. Sparrows Point Plant has most models of gages used throughout the Corporation. Those not found at Sparrows Point were presented using visual aids.

(4) Survey techniques and instruments of choice for the various devices described above.

(5) Guidelines in making an initial survey, follow-up surveys, and providing surveillance during gage installation, relocation or repair to source housings.

(6) Performing leak tests of the various devices.

(7) Potential emergency situations and methods of controlling exposure from the various devices.

Many of the above items were covered during the two days of lectures. The day at the Plant allowed students to gain hands-on experience with the specific devices.

A test was given at the conclusion of the course. Each individual answer for questions 1 to 25 was given a value of three points. The problems at the end of the test were valued at from 2 to 5 points each. All tests were administered and corrected by A. LaMastra.

The corrected tests, along with the correct answers and reasons, were returned to the participants for their review. A record of questions missed by each participant was kept by A. LaMastra.

20 HOUR GENERAL TRAINING COURSE IN IONIZING RADIATION PROTECTION

BETHLEHEM STEEL CORPORATION

Day 1

8:00	-	8:30	Introduction and announcements
8:30	-	9:00	Units of measurement
9:00	-	10:00	Sources of radiation and exposure levels
10:00	-	10:15	Break
10:15	-	10:45	Film - "Too Much of a Good Thing"
10:45	-	noon	Biological effects of radiation exposure
noon	-	13:00	Lunch
13:00	-	13:30	Film - "Working with Radiation & Protecting the Unborn"
14:30	-	15:15	Risk estimates and exposure limits
15:15	-	15:30	Break
15:30	-	16:15	Detecting and Measuring Radiation
16:15	-	17:00	Survey Technique

Day 2

8:00	-	8:30	Review
8:30	-	9:00	Personnel Monitoring
9:00	-	10:15	Time, distance calculations
10:15	-	10:30	Break
10:30	-	11:00	Shielding calculations
11:00	-	noon	Review of US NRC Regulations
noon	-	13:00	Lunch
13:00	-	14:00	OSHA, State and Company Regulations
14:00	-	14:45	Safe Working Procedures
14:45	-	15:00	Break
15:00	-	15:30	Emergency Procedures
15:30	-	16:15	Transportation of Radioactive Materials
16:15	-	17:00	Leak Testing and shutter checks

Day 3

8:00	-	9:00	Review
9:00	-	9:30	Disposal of Sealed Sources
9:30	-	10:00	Film: "A Source of Trouble"
10:00	-	10:15	Break
10:15	-	11:30	Test
11:30	-	noon	Review test

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20 HOUR GENERAL TRAINING COURSE IN IONIZING RADIATION PROTECTION

BETHLEHEM STEEL CORPORATION

This course is intended to instruct personnel in how to perform initial surveys and supervise the installation and relocation of gauging devices. The course is presented by Anthony LaMastra, Certified Health Physicist. Emphasis is placed on the types of sources common to heavy industry, the exposure rates from those sources and methods of protection.

A test will be given at the conclusion of the course, with a passing grade being 70 percent. All tests are administered and corrected by Mr. LaMastra. The corrected tests, along with correct answers and reasons, are returned to the participants for their review. A record of test scores and questions missed by each participant is kept by Mr. LaMastra.

The goals of the course are to enable participants to: (1) understand the units of radiation exposure, dose and activity, and personnel dose limits; (2) be able to perform a satisfactory survey and understand the limitations of survey equipment as it pertains to their operation; (3) be able to apply radiation protection methods to protect themselves and those working in the area; (4) recognize the potential hazards from various types of radiation sources; (5) know the limits of their competency in radiation protection matters; (6) know what to do in the event of an emergency; (7) know the requirements of applicable radiation protection regulations; and (8) understand the reasons behind safe working procedures and become motivated to follow safe procedures.

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