



**Pace Analytical Services, Inc.**  
5203 Triangle Lane  
Export, PA 15632  
Phone: 724.733.1161  
Fax: 724.327.7793

NM583

37-27962-01  
03029779

U.S. Nuclear Regulatory Commission  
Region I  
Nuclear Materials Safety Branch 2  
475 Allentown Rd.  
King of Prussia, PA 19406-1415  
Attn: Ms. Kathy Dolce Modes

Subject: Request for Radiation Safety Officer Change Amendment to License No. 37-27962-01, Docket No./Reference No. 030-29779 / 37-27962-02

Dear Ms. Modes:

Pace Analytical Services, Inc., the current holder of materials license 37-27962-01, has submitted a request to the United States Nuclear Regulatory Commission for an amendment to its license to change the Radiation Safety Officer (RSO) from Richard Kinney to Andrew J. Lombardo and assistant RSO to Ellen C. Jakub, both employed by Civil and Environmental Consultants, Inc., resumes included. No other amendment was requested. This license authorizes use and possession of licensed material at the facilities in Export, Pennsylvania.

If you have any questions please call me at 724-733-1161.

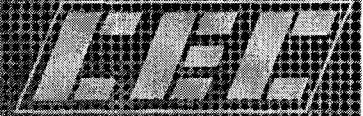
Sincerely,

James Dodsworth  
General Manager  
Pittsburgh Laboratory

Enclosures (2)

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REGION I  
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NMSS/RGN1 MATERIALS-002



## ANDREW J. LOMBARDO, CHP

### PRINCIPAL

Mr. Lombardo has more than 25 years technical and managerial experience in health physics and chemistry including radiological engineering and project management. He has significant experience in decommissioning, dose assessments, reactor health physics, regulatory audit and compliance, dosimetry, and management of radiation protection programs. He has served as a supervisor of a licensed dosimetry laboratory and as Director of Internal Dosimetry and Bioassay. He is certified by the American Board of Health Physics in Comprehensive Health Physics.

- Derived a soil remediation strategy combining dynamic dose modeling and real time gamma spectroscopy soil segregation to achieve favorable acceptance criteria and unrestricted release of a site contaminated with thorium. Currently providing over-site of the implementation of the remedy.
- Supports a private client during negotiations and technical scope development for the remediation of soils and structures on a former DOE contaminated site.
- Provided expert witness testimony and reporting in regards to residual radioactive contamination of open land (soil) areas and structures at a NRC licensed facility in regards to remediation of contamination, exposure and risk.
- Prepared an expert report on the final status of a site contaminated with Ra-226 and subsequently remediated over a 40 year time frame in regards to residual contamination and risk.
- Designed a MARSSIM- (NUREG-1575) based final status survey of a multiple radionuclide-contaminated former test reactor site, using surrogate radionuclides and scaling factors. Developed remediation and disposal strategies for soil, concrete basins, and underground process drain lines on the site.
- Developed a complex final status survey plan and provided oversight of the decommissioning of a multi-radionuclide laboratory facility and surrounding property including transuranic contamination and the use of Nuclear Regulatory Commission- (NRC) published screening values when applicable.
- Provided technical assistance, review, and approval of surveys, survey plans, and reports during the decommissioning of a test reactor facility.
- Developed a NUREG-1757 dose-based criteria decommissioning plan for unrestricted release in accordance with Subpart E of 10 Code of Federal Regulations (CFR) 20 for a former TENORM industrial site including remediation and survey of open land areas and structures.
- Designed a MARSSIM- (NUREG-1575) based final status survey of a multiple radionuclide-contaminated former laboratory site including impacted structures and soil.
- Managed the remediation and consolidation of a landfill contaminated with uranium, thorium, and radium including design of a MARSSIM- (NUREG-1575) based final status survey.
- Managed the decommissioning and final status survey of an NRC-licensed manufacturing facility contaminated with uranium and thorium. Activity oversight included development of the final survey plan and implementing procedures, remediation, and final survey implementation; manifesting for low-level radioactive waste shipments; and preparation of the final survey

### EDUCATION

M.S., Health Physics, University of Pittsburgh

B.S., Natural Sciences, Indiana University of Pennsylvania

### CERTIFICATIONS/TRAININGS

NVLAP certified in Thermoluminescent Dosimetry

Over 100 Health Physics Continuing Education Credits

Senior Leadership

Integrated Services

Personal Business Relationships

Civil & Environmental Consultants, Inc.



report.

- Served as project manager for the implementation of revised 10 CFR 20 at an NRC-licensed facility. Implementation included an extensive rewrite of all health physics programs and procedures and subsequent demonstration of compliance with the NRC.
- Responsible for the successful implementation of electronic dosimetry and access control system under severe time constraints at an NRC-licensed facility.
- Completed the timely reconstitution of design-basis accident analyses for radiological consequences, of record, against the current design basis of an NRC-licensed facility to meet a regulatory commitment.
- Served as project manager for the measurement, calculation, and documentation of neutron energy spectra inside two reactor containment buildings at an NRC-licensed facility.
- Project manager responsible for program development of the Post Accident Sampling System at an NRC-licensed facility as required for 100 percent power operations license.
- Responsible for dose reconstruction of an individual to support litigation. Project involved retrieval, review, and interpretation of numerous records spanning 30 years in support of reconstructing and documenting lifetime internal and external exposure for an individual.

#### **Technical/Management Experience**

- Served as Director of Radiological Services and then as Executive Vice President of an Environmental Consulting Firm providing technical, administrative and business leadership for a staff of thirty professionals.
- Managed a National Voluntary Laboratory Accreditation Program- (NVLAP) certified Thermoluminescent Dosimetry (TLD) laboratory for 6 years. Responsible for day-to-day activities of 10 Health Physics technicians and 3 clerks, 12,000 TLDs, 1,000 electric alarming dosimeters, 8,000 pocket ion chambers, National Institute of Standards and Technology traceable calibration of all dosimeters, dose measurement, records, and reporting.
- Served as Director of Internal Dosimetry and Bioassay program for 12 years. Responsible for bioassay sampling, review, interpretation and dose calculation for 2,000+ rad workers, procedures, quality assurance/quality control program, and records and reporting.
- Extensive radiation detection experience including spectroscopy systems, TLD, neutron dosimetry, and various survey instruments.
- Diverse radiological engineering experience including dose modeling calculations, shallow-dose equivalent calculation from exposure to contamination and/or discrete radioactive particles, and internal dosimetry calculations per ICRP 26 and 30.
- Experienced in regulatory audit and compliance; extensive NRC interface experience; and developed, performed, and documented numerous self-assessments in support of licensed activities.

#### **PRESENTATIONS AND PUBLICATIONS**

Mr. Lombardo has authored and presented various health physics papers ranging from public forum to technical group presentations. Most recently he has presented the following:

- 2006 Korean Power Engineering Company – Presented 40-hour training course "Decommissioning and Dose Based Criteria Development"

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- 2006 Pennsylvania Department of Environmental Protection, Harrisburg Pennsylvania – Presented 8-hour training course “Performing Dose Assessments and RESRAD Use”
- 2005 American Nuclear Society Decommissioning Seminar, Denver Colorado – Presented “Dynamic Dose Modeling/Soil Segregation: A Method for Reducing Uncertainty and Increasing Efficiency During Radiological Decommissioning”
- 2005 Waste Management Symposium, Tucson Arizona – Presented “Dynamic Dose Modeling/Soil Segregation: A Method for Reducing Uncertainty and Increasing Efficiency During Radiological Decommissioning”
- 2003 Argonne National Laboratory Decontamination and Decommissioning 40-hour Training Course, Toronto Canada – As part of the 40-hour training, presented two modules: Former Radiological Testing Facility, Final Facility Decommissioning, A Case Study and Test Reactor Auxiliary Facilities, Decommissioning Case Study

**PROFESSIONAL AFFILIATIONS**

American Nuclear Society  
American Academy of Health Physics  
Health Physics Society – National Organization  
HPS Working Group to revise ANSI-N343, American National Standard for Internal Dosimetry of Mixed Fission and Activation Products (Chairperson)  
RADOS Electronic Dosimetry User’s Group (Chairperson)  
Western Pennsylvania Chapter of the Health Physics Society

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Consultants, Inc.

**ELLEN C. JAKUB**  
**ASSISTANT PROJECT MANAGER**

Ms. Jakub has over 10 years experience in an industrial environment performing process and quality control functions and five years working in the consulting field dealing with radiological site issues. Her experience includes licensing, decommissioning, remediation oversight, and inspection activities for licensees of the United States Nuclear Regulatory Commission (USNRC) and various agreement states (Oklahoma, Iowa, New York). In addition, she has participated in permitting and compliance activities with the Allegheny County Sanitary Authority (ALCOSAN), Pennsylvania Department of Environmental Protection (PADEP), Ohio Environmental Protection Agency (OEPA), Oklahoma Department of Environmental Quality (OKDEQ), New York State Department of Environmental Compliance (NYSDEC), Iowa Department of Public Health (IDPH), and the United States Environmental Protection Agency (USEPA). Ms. Jakub has performed design and operation of industrial and municipal wastewater treatment systems, design and cost comparisons of groundwater treatment systems, and conducted various research projects.



*Radiological*

- Served as company Radiation Safety Officer, including revision of Radiation Safety Program, staff dosimetry, and license termination.
- Managed radiological consolidation/remediation project, including health and safety, dosimetry, instrument QA/QC, soil sampling, and data management.
- Prepared final status survey and soil sampling plans in accordance with the Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM).
- Compiled and analyzed data for remediation sites using the Wilcoxon Rank Sum statistical test in accordance with MARSSIM guidelines.
- Prepared final status data for submission to NRC.
- Reviewed RESRAD computer code input parameters for determination of Derived Concentration Guideline Levels (DCGLs).
- Performed Microshield modeling analyses for radiation dose estimation.
- Determined remediation site specific area factors using the NRC computer code DandD.
- Performed statistical calculations to determine significance of difference between on-site groundwater low-level radioactive contamination data and background levels.
- Reviewed Radiation Protection Action Plans for various landfills, incinerators, and transfer stations for the PADEP.
- Performed calculations to determine soil radioactivity levels on various sites.
- Designed treatment system for filtration of landfill leachate contaminated with radioactive dross and foundry sand.
- Performed leachability calculations to determine feasibility of solidification/stabilization remediation strategy for low-level radioactive waste.
- Prepared remedial action radiation support survey and sampling plan, and cost estimate.
- Performed audit of an industrial manufacturer's radiological safety program in accordance with Iowa Department of Public Health Bureau

**EDUCATION**

B.S., (Summa Cum Laude)  
Environmental Protection  
Science, Point Park College,  
Pittsburgh, PA

Member of Alpha Sigma Lambda  
honor society

B.S., Chemical Engineering,  
University of Pittsburgh

Occupational Safety and Health  
Administration 40-Hour health  
and safety training (HAZWOPER)

Occupational Safety and Health  
Administration 8-Hour refresher  
training (HAZWOPER)

Radiation Safety Officer 40-Hour  
training (RSO)

Federal Emergency Management  
Agency IS-3 Radiological  
Emergency Management course

Allegheny County Emergency  
Management Fundamental  
Course for Radiological Monitors

Radiation Safety Training Course  
for Field and Laboratory  
Operations Involving Handling or  
Exposure to Radioactive  
Materials

Air and Waste Management  
Association workshop on Air  
Toxics

Interconnections Packaging  
Circuitry (IPC) course in  
Statistical Process Control

Advanced classes in Microsoft  
Excel97 and Access97

of Radiological Health regulations (NRC agreement state).

- Prepared various NRC license amendments for an Oklahoma source material chemical processor.
- Revised chemical processor's Radiation Safety Manual, Safety Plan, Emergency Response Plan, and Operations Plan procedures for consistency with amended license and NPDES permit.
- Prepared Iowa nuclear materials manufacturing facility license renewal and Radiation Safety Program.
- Performed sampling of radioactively contaminated materials in preparation for building remediation.
- Performed sampling of radioactively contaminated groundwater.
- Performed sampling and final status survey of remediated soil.

#### *Environmental Compliance*

- Reviewed and amended chemical processor's NPDES permit.
- Monitored and disposed of stored process wastes. Investigated disposal sites for stored process wastes. Completed necessary U.S. Department of Transportation forms for transport of wastes.
- Reviewed and renewed permits for release of effluent streams to publicly owned treatment works (POTW), ALCOSAN, as well as PADEP, and OEPA. Monitored pH and metals concentrations in effluent streams for printed circuit board manufacturers in Pennsylvania and Ohio.
- Obtained air emission permits from OhioEPA for emission of sulfuric acid and metals at a printed circuit board manufacturing facility.
- Prepared USEPA regulatory documentation for tracking releases of toxic materials (Toxic Release Inventory, TRI), consisting of a material balance of all chemicals used in a printed circuit board manufacturing facility.

#### *Quality Control*

- Inspected landfill cap for deterioration.
- Provided engineering oversight on lead contaminated soil excavation.
- Implemented inspection and calibration systems in accordance with U.S. military specifications.
- Performed internal quality audits and supplier quality audits.
- Computerized rejection reports in order to target problem processes in a timely manner utilizing statistical process control.
- Prepared Chemical Process Control, Quality Assurance, and Standard Operating Procedures manuals.
- Set up destructive testing laboratory, researching and purchasing all material supplies and inspection equipment. Performed destructive and nondestructive testing.
- Supervised quality assurance inspectors and imaging personnel.
- Acted as liaison between clients and production, responding to all questions pertaining to manufacturing and pursuing all corrective actions. Led plant tours and client audits.

#### *Design*

- Reviewed municipal waste treatment system and recommended improvements, changing from extended aeration to contact stabilization.
- Designed wastewater pretreatment system for pesticide aerosol repackaging facility.
- Reviewed waste treatment system and recommended new treatment designs for a metal manufacturing facility, upgraded with the addition of a clarifier and additional filters, pumping and holding capacity.
- Investigated and recommended appropriate hazardous materials storage criteria for a boxcar manufacturing facility.
- Designed retrofit of existing hazardous liquids storage facilities, and designed new storage facilities.
- Prepared aboveground storage tank remedial action plan.
- Reviewed remediation strategies, remedial action plans, and feasibility studies for applicability, appropriateness, and cost effectiveness in pursuit of a liability lawsuit.

- Designed and oversaw operation of wastewater treatment system consisting of ferrous sulfate precipitation, flocculation, and clarification with a sludge press for de-watering.
- Designed and operated a copper plate-out for spent process baths to recover copper for resale.
- Operated and revised regeneration procedures for ion exchange for the removal of tin and lead from process rinse waters.
- Designed batch treatment of sulfuric acid etching solutions, chilling saturated solution to remove copper sulfate crystals for recovery.
- Designed groundwater treatment system for the removal of arsenic. Compared costs among chemical precipitation/filtration, anion exchange/regeneration, and activated alumina adsorption.
- Investigated equipment and software for the remote management of groundwater monitoring wells at Dense Nonaqueous Phase Liquid (DNAPL) remediation sites. Performed a cost analysis comparing systems from programmable logic controllers (PLCs) through contained proprietary systems.

#### *Process Control*

- Prepared strategy and performed field investigations to remedy solids buildup in steel pickling line.
- Compiled and reviewed process improvements for a chemical manufacturing facility in support of release from liability for further process improvements.
- Performed all chemical process control tests (titrations, weight differentials, solvent separation, etc.) for printed circuit plating lines. Monitored contracted chemical analyses.
- Computerized process control tests to pinpoint process failures utilizing statistical process control.
- Investigated process failures. Supervised chemists and process engineers. Investigated and implemented new chemistry and manufacturing processes.
- Installed copper oxide baths for pretreatment of innerlayers for multilayer printed circuit boards.
- Prepared multilayer laminating procedures and implemented chemical preparation processes.
- Researched and purchased collimated-light printer used for imaging fine-line circuitry.
- Designed application, imaging, and curing procedures for dry-film soldermask process.
- Revised application procedures for wet soldermask process.

#### *Research*

- Researched and compiled database pertaining to all aspects of Dense Non-Aqueous Phase Liquids (DNAPLs) including geochemistry, in-situ flow dynamics, and remediation techniques.
- Performed investigation into the toxicological effects of styrene, making recommendation for the Threshold Limit Value (TLV).
- Researched vitrification process for the long-term storage of radioactive waste.

#### **PROFESSIONAL AFFILIATIONS**

American Institute of Chemical Engineers (AIChE)  
Air and Waste Management Association (AWMA)  
Health Physics Society (HPS)

This is to acknowledge the receipt of your letter/application ~~dated~~ undated  
RECEIVED 4/4/2007, and to inform you that the initial processing which  
includes an administrative review has been performed.

AMEND. 37-27962-01  
There were no administrative omissions. Your application was assigned to a  
technical reviewer. Please note that the technical review may identify additional  
omissions or require additional information.

Please provide to this office within 30 days of your receipt of this card

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A copy of your action has been forwarded to our License Fee & Accounts Receivable  
Branch, who will contact you separately if there is a fee issue involved.

Your action has been assigned **Mail Control Number** 140344.  
When calling to inquire about this action, please refer to this control number.  
You may call us on (610) 337-5398, or 337-5260.