



ROY RAKIEWICZ TECHNICAL DIRECTOR

CREDENTIALS

- ♦ B.S., Environmental Resource Management, Pennsylvania State University, 1981
- ♦ Pennsylvania Independent Oil and Gas Association (PIOGA) Environmental Committee, Co-Chair Air Quality Subcommittee (2015 - 2020)

PROFESSIONAL EXPERIENCE

- ♦ 2004-Present: All4 LLC., Kimberton, PA – Technical Director
- ♦ 1998-2004: UAI Environmental, Inc., Reading, PA – Vice President and Principal Consultant
- ♦ 1986-1998: Roy F. Weston, Inc., West Chester, PA – Project Manager
- ♦ 1985-1986: General Battery Corporation, Reading, PA – Reading Smelter, EH & S Manager
- ♦ 1981-1985: General Battery Corporation, Reading, PA – Corporate Air Monitoring Group Leader

TECHNICAL EXPERTISE

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| ✓ Environmental/air quality audits/assessments | ✓ Permit strategy and negotiation |
| ✓ State/Federal air permitting programs including Nonattainment NSR, PSD, and Title V | ✓ Inhalation risk assessment evaluations |
| ✓ Plantwide Applicability Limits (PALs) and flexible operating permits | ✓ Compliance strategies for new and existing rules, i.e., NESHAP, NSPS, CAM, BART, RACT, etc. |
| ✓ Air pollution control technology economic and technical feasibility review | ✓ Agency inspection/litigation support |
| | ✓ Technical and advocacy support to industry associations |
| | ✓ Non-hazardous secondary material evaluation |

PROFESSIONAL OVERVIEW

Mr. Rakiewicz, a Technical Director with All4 LLC, has more than 40 years of combined environmental management, air quality, and related consulting experience. Mr. Rakiewicz held several corporate and facility level positions during his five years at General Battery Corporation (now Exide Corporation). Since 1986, he has worked as a consultant primarily focused on assisting industrial clients in understanding and operating within the complex Federal and state air quality regulatory requirements.

Mr. Rakiewicz has participated in multiple environmental audits over his career and most recently planned and successfully executed comprehensive air quality compliance assessments for confidential companies with complex and highly regulated manufacturing operations located across multiple states.

Mr. Rakiewicz's primary work area is permitting of complex new source review (NSR) and NSR avoidance projects across diverse industrial sectors including automobile and light duty truck manufacturing, power generation, and secondary aluminum production. Mr. Rakiewicz has significant experience in developing plantwide applicability limitation (PAL) permits for facilities in several industrial sectors including automobile and light duty truck plants and cement manufacturing plants. Mr. Rakiewicz has air permitting and regulatory experience across many industrial sectors including pharmaceutical, oil and gas production, lead acid battery manufacturing, secondary lead smelting, iron and steel production, and petroleum refining. In addition to permitting and compliance, Mr. Rakiewicz's experience includes regulatory strategy development; interaction with regulatory authorities and stakeholders; permit negotiations; regulatory cost analyses; compliance monitoring, recordkeeping, and reporting; emissions testing; air emission inventory development; and air pollution control technology evaluations.



REPRESENTATIVE AIR QUALITY ENVIRONMENTAL AUDIT/ASSESSMENT EXPERIENCE

Multi-Facility Air Quality Audit/Assessment, Confidential Manufacturer, Served as Technical Director and ALL4 Program Lead for the successful completion of a multi-facility air quality compliance assessment program that occurred over several years. The program included pre-assessment planning, extended multi-person site inspections, interviews of facility personnel, detailed desktop reviews of compliance records (federal and state regulations), emissions reports, stack test reports, continuous emissions monitoring systems (CEMS) system details and reports, construction permits and associated applications including new source review (NSR) applications, operating permits and associated applications, internal emissions calculations, annual emissions reports, risk management plans, toxic release inventory reports, oral reporting of air quality assessment findings, and preparation of formal assessment reports for each facility.

Multi-Facility Air Quality Audit/Assessment, Confidential Metals Refiner, Served as Technical Director and ALL4 Program Lead for the successful completion of a multi-facility air quality compliance assessment program that occurred over two calendar years. The program included pre-assessment planning, extended multi-person site inspections, interviews of facility personnel, detailed desktop reviews of compliance records (federal and state regulations), compliance plans and protocols, work practices, stack test reports, continuous emissions monitoring systems (CEMS) system details and reports, construction permits and associated applications including new source review (NSR) applications, operating permit and associated applications, internal emissions calculations, annual emissions reports, risk management plans, toxic release inventory reports, oral reporting of air quality assessment findings, and preparation of formal assessment reports for each facility.

REPRESENTATIVE AIR QUALITY PERMITTING EXPERIENCE

Minor NSR Permitting, Confidential Lead-Acid Battery Manufacturer, Served in multiple technical and management roles for the successful air quality permitting of new and modified sources of lead emissions associated with the production of lead acid batteries. Tasks included preparation of air quality permit applications, evaluation of air pollution control technology, emissions calculations, compliance strategies for applicable federal and state air quality regulations including Standards of Performance for New Stationary Sources, (NSPS), National Emissions Standards for Hazardous Air Pollutants (NESHAP), and for state-specific air quality requirements.

Minor NSR Permitting, Confidential Secondary Lead Production Facility, Served in multiple technical and management roles for the successful air quality permitting of new and modified sources of lead emissions associated with the secondary lead smelting. Tasks included preparation of air quality permit applications, evaluation of air pollution control technology, emissions calculations, compliance strategies for applicable federal and state air quality regulations including NSPS, NESHAP, and for state-specific air quality requirements.

PSD and NSR Air Permitting, Power Client, Senior Consultant: Served as Senior Consultant for the preparation of a NNSR application that included provisions for PSD avoidance. The application was to



increase allowable operating hours for associated heat recovery steam generators, which were originally limited to avoid NNSR requirements. The project required relaxing emissions limits that were originally intended to avoid major NNSR requirements and had to be re-evaluated as if had never been constructed. The project triggered major NNSR requirements including LAER and emissions offsets. The PSD requirements were avoided.

PSD and NSR Air Permitting, Power Client, Indiana, Technical Director: *Developed PSD avoidance and state construction air permit application for a new nominal 25-MW natural gas-fired combined cycle cogeneration plant at an existing industrial facility in Indiana.*

PSD and NSR Air Permitting, Power Client, Indiana, Technical Director: *Developed an air quality permitting strategy to avoid triggering PSD for a new nominal 25-MW natural gas-fired combined cycle cogeneration plant at an existing industrial facility in Indiana.*

PSD Permit Application, Confidential Secondary Aluminum Production Facility, Senior Consultant: *Served as Senior Consultant for the preparation of a PSD construction permit application for the installation of new equipment and numerous modifications across the entire facility. The permitting effort included best available control technology (BACT) determinations for multiple pollutants from both process and combustion related sources and complex air quality dispersion modeling for multiple pollutants to demonstrate compliance with national ambient air quality standards (NAAQS) and PSD increments, which included numerous discussions with both the state and U.S. EPA Regional personnel. The effort was characterized by state as the most complex PSD application that they had ever evaluated. The final permit was issued in about 7 months from submittal.*

Construction Permit Application, Rail Wheel Manufacturing Facility, Senior Consultant: *Led the development of a Plan Approval Application for proposed modification within the facility EAF melt shop that impacted numerous other facility production processes. The application included an extensive site-wide emission inventory and NSR non-applicability analysis that utilized the “actual-to-projected-actual” applicability test for modified and affected emissions units and the “actual-to-potential” test for new emissions units. The analysis included the use of “excludable” emissions in accordance with the 2003 NSR revisions.*

REPRESENTATIVE REGULATORY COMPLIANCE EXPERIENCE

Air Quality Compliance Assistance, Confidential Manufacturing Facility, *Served as Technical Manager providing technical assistance to the facility to identify possible sources of lead emissions. Tasks included emission mitigation planning, air permitting assistance, air quality dispersion modeling, and assistance with related compliance activities including ambient air monitoring and emissions testing.*

Regulatory Compliance Planning, Confidential Lead-Acid Battery Manufacturer, *Served in multiple technical and management roles related to developing and implementing compliance strategies for new and revised federal NSPS and NESHAP rules and state-specific rules including reasonable available control technology (RACT). Tasks included review and comment of new and proposed rules, assessing facility compliance status, developing compliance strategies and emissions test plans, developing rule*



specific operation and maintenance and compliance plans, development of best management practices (BMP), preparation of RACT plans, and development of emission test plans and protocols.

Regulatory Compliance Planning, Confidential Secondary Lead Production Facility, Served in multiple technical and management roles related to developing and implementing compliance strategies for new/ revised federal NSPS and NESHAP rules and state-specific rules including reasonable available control technology (RACT). Tasks included review and comment of new and proposed rules, assessing facility compliance status, developing compliance strategies and emissions test plans, developing rule specific operation and maintenance and compliance plans, development of alternative monitoring petitions (AMP) for U.S. EPA consideration, development of best management practices (BMP), preparation of RACT plans, and development of emission test plans and protocols.

BART Evaluations, Portland Cement Plants, Senior Consultant: *Developed Best Available Retrofit Technology (BART) proposals for Cement Kilns at two Pennsylvania client facilities in accordance with Appendix Y of the Regional Haze regulations. The proposals included the development of historical (baseline) and projected future emission inventories, complete BART evaluations for various NOX and SO2 air pollution control strategies, dispersion modeling using CALPUFF to evaluate the impact of technically feasible retrofit controls on Class I area visibility, and proposed BART determinations for each cement kiln and BART pollutant. The project included significant technical and policy discussions with PADEP personnel both during the preparation of the proposal document and during the PADEP technical review period.*

Air Quality Compliance Support Services, Multiple Natural Gas Producers, Senior Consultant: *Served as Senior Consultant to assist client achieve and maintain compliance with the provisions of the recent 40 CFR Part 60 Subparts OOOO, OOOOa, and OOOOb - Standards of Performance for Crude Oil and Natural Gas Facilities and numerous Pennsylvania air quality regulations.*

Miscellaneous Compliance Support Services, Automobile Manufacturing Facility, Senior Consultant: *Managed and provided comprehensive multi-disciplinary compliance support services for almost 20 years including air permit support, monitoring, recordkeeping, reporting, emission testing, land and water services (i.e., wetlands delineations and surface water studies), regulatory reconnaissance and support (i.e., review and comment on proposed regulations that affect client). Specific assignments included developing compliance protocols for innovative painting technologies; developing permit applications for various lost foam casting emission units (iron and aluminum); development of a spreadsheet to track compliance with PAL conditions; prepared various compliance demonstration reports including Title V semi-annual reports, evaluated VOC emission control costs for painting operations; prepared a compliance protocol document for retrofit of add-on controls in the paint shop, developed a BACT demonstration for several VOC sources in the lost foam foundry area of the facility and completed an initial facility air toxics inventory.*

Automotive Paint Shop Compliance Recordkeeping System, Automobile Manufacturing Facility, Senior Consultant: *Developed recordkeeping concept and program logic for an automotive paint shop recordkeeping system used to document compliance with PAL conditions, NSPS requirements and NESHAP requirements. The system is based on the guidelines presented in the "Automotive Protocol"*



and is written in Visual Basic® format. The system calculates VOC and PM emissions and presents them daily utilizing monthly material usage records, monthly production records, transfer efficiency, coating/solvent compositional data, capture efficiency and VOC control efficiency.

Standards of Performance for New Stationary Sources, Subpart MM, Automobile Manufacturing Facility, Senior Consultant: Developed test protocols for conducting transfer efficiency testing, oven solvent load testing and oxidizer VOC destruction and removal efficiency testing. Prepared initial compliance demonstration document for affected sources at the facility and managed compliance testing program.

OTHER MISCELLANEOUS EXPERIENCE

RCRA Delisting Petition Automobile Manufacturing Facility, Project Director: *Managed a team to assist the facility in the development of a petition to delist facility wastewater treatment plant sludge from the categorical F019 waste classification. The effort included screening client purchased materials for constituents that are considered hazardous, assessing the likelihood of those materials entering the wastewater sludge, development of a waste sampling and analysis plan, developing of a laboratory bid specification and preparation of a delisting petition for consideration by the U.S. EPA.*

Compliance Emission Testing, Confidential Client, Project Manager: *Developed a compliance test protocol utilizing an innovative testing technique and conducted pre-compliance and compliance test programs for a catalytic oxidizer serving 19 independent pharmaceutical batch processes. Received approval from client and state agency to simulate worst-case process conditions by generating inlet VOC concentrations using a custom solvent injection system. Both the development and utilization of the injection system and compliance testing were successful during the initial and subsequent test programs.*

Confidential Uranium Foundry and Waste Processing Facility, Field Team Leader: *Performed source sampling using various U.S. EPA reference methods to sample for particulate matter, radionuclides, hydrogen fluoride and oxides of nitrogen. Responsibilities included client coordination, scheduling, supervision of field team during entire 3-week project duration and report preparation. The objective of the testing was to determine the compliance status of each operation tested.*

Various Industrial Sources, Emissions Testing Field Team Leader: *Performed source emission testing and lead source emission testing field teams on a variety of emission testing activities. Responsibilities included client coordination, scheduling, supervision of field team and final report preparation. Facilities tested included cement plants, glass plants, foundries, cogeneration facilities, chemical production plants, automotive surface coating operations, brass rolling mills, combustion units, process heaters and furnaces, secondary lead smelters, lead-acid battery manufacturing facilities, municipal waste incinerators and various metal processing facilities.*