

Curriculum Vitae

James B. Dyer, P.E., CEM, LEED AP, BEAP
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Education:

1993 Bachelors of Engineering, Vanderbilt University – (Mechanical)
2001 Masters of Science, Vanderbilt University – (Controls)

Employment History:

1986 Summer Intern, Georgetown Construction
1987 – 1989 Summer Intern, Orlando Utilities Commission
1994 HVAC Field Engineer, Test and Balance Corporation of Orlando
1994 – 2000 Engineer in Training, I.C. Thomasson Associates, Inc.
2001 – 2004 Mechanical Engineer, I.C. Thomasson Associates, Inc.
2004 – Present Senior Mechanical Engineer, I.C. Thomasson Associates, Inc.
2002 – Present President, Dyer Consulting, LLC
2007 – 2015 Senior Mechanical Engineer, Peninsula Forensic Engineering, Inc.
2016 – Present President, Peninsula Forensic Engineering, Inc.

Licenses and Accreditations:

P.E. Professional Engineer, State of Florida #59115
CEM Certified Energy Manager, Association of Energy Engineers
LEED AP O+M LEED AP, Building Operations + Maintenance, US Green Building Council, #10504530
BEAP Building Energy Assessment Professional, ASHRAE

Memberships:

AEE Association of Energy Engineers
ASHE American Society for Healthcare Engineering
ASHRAE American Society of Heating, Refrigeration, and Air-Conditioning Engineers
ASME American Society of Mechanical Engineers
FES Florida Engineering Society
FHEA Florida Healthcare Engineering Association
IDEA International District Energy Association
NSPE National Society of Professional Engineers

General Experience:

For the past 10 years Mr. Dyer has provided forensic engineering services for property owners, the insurance and real estate industry, and in support of litigation, with approximately 80% of cases in support of the defendant. Mr. Dyer has 24 years of experience in HVAC design, thermal and/or electric power plant design, operations and maintenance, mechanical process design, heating and cooling distribution, specialty air and fluid systems, plumbing, energy procurement, and environmental permitting for residential, commercial, and industrial facilities.

Mr. Dyer is routinely involved with project development and equipment evaluation through performance estimations and financial analysis, design, and specification of equipment/processes, construction management, commissioning and operations. The bulk of Mr. Dyer's recent work involves ASHRAE Level I, II, and III energy auditing of building systems and commissioning of HVAC, investigation of HVAC failures and improper design, remediation of faulty building mechanical systems and construction practices, and forensic engineering in support of litigation.

Areas of Expertise:

- Building envelope integrity, humidity, mold and mildew, and IAQ issues
- ASHRAE Level I, II, III Energy Audits & Facility Condition Assessments
- Steam, hot/chilled water central plant and distribution systems
- Refrigeration systems, CO₂, NH₃, transcritical/cascading
- Energy management systems and building controls
- Construction standards and standard practices
- Storm water and sewer systems and plumbing
- Combined heat and power plant systems
- HVAC/building re/retro/commissioning
- Potable water systems and plumbing
- HVAC system design and remediation



Forensic Engineering for Litigation Support:

- **STK Orlando, LLC v EXP US Services, LLC**, retained by Walsh Banks, PLCC for the defendant, Ninth Judicial Court, in and for Orange County, FL case no. 2016-CA-006449-0, Restaurant HVAC construction defect case.
- **Old Town Villages Condominium Association, Inc. v Portofino**, retained by Boyd and Jenerette, P.A., for the defendant, Saint Johns County 7th Judicial Circuit Court case no. 2015-CA-1288, construction defect case regarding plumbing
- **Memorial Healthcare System v Balfour Beatty/Centex**, retained by Broad and Cassel, LLP, for the plaintiff, construction defect case regarding potable water system design
- **Presas v FCIC**, served as defendant's expert, retained by Klein, Glasser, Park, & Lowe, P.L., Circuit court of Palm Beach Case no. 2015-CA-011574 DIV.AG, Plumbing failure investigation on behalf of Insurer
- **Poulter v Del Air**, served as co-defendant's expert, retained by Boyd & Jenerette, P.A., Orange County 9th Judicial Circuit Court case no. 2016-CA-005864-O, HVAC construction defect case
- **Lost Creek Resort Apartments**, retained by Broad and Cassel, LLP, pre-litigation construction defect defense regarding HVAC evaporator coil performance
- **Ives Dairy Townhomes v 360 Builders v International Plumbing**, served as defendant's expert, retained by Nationwide / Law Offices of Patricia Garagozlo, plumbing construction defect case, Mimi-Dade County 11th Judicial Circuit Court case no. 2015-020930-CA-01
- **WAL-MART Stores, Inc. v DHR Mechanical Services**, served as defendant's expert, retained by Wicker Smith, P.A. and Fulmer, Leroy & Albee PLLC., investigation of a failed cascading, transcritical CO₂ refrigerant system resulting in fire damage
- **Jones v Eastgroup**, served as defendant's expert, retained by Sellars, Marion, & Bacci, P.A., Hillsborough County 13th Judicial Court case No. 2015-CA-006143, plaintiff injured via fall from roof
- **E.D.I. II Investments, LLC v Run I-Drive, LLC**, served as defendant's expert, retained by Burr & Forman, LLP, Orange County 9th Judicial Circuit Court case no. 48-2016-SC, plaintiff claimed that tenant caused water damage and flooding
- **Vacation Villas v Winter Park Construction**, served as co-defendant's expert, retained by Broad and Cassel, LLP, Osceola County 9th Judicial Circuit Court case no. 2015-CA-000-999, plaintiff claimed HVAC design and general building construction did not meet performance required by Florida Building Code
- **Blue Heron Beach Resort v McMurray Construction Co.**, served as co-defendant's expert, retained by Nationwide / Law Offices of Patricia Garagozlo, Orange County 9th Judicial Circuit Court case no. 2014-CA-001794-O, plaintiff claimed plumbing installation did not meet performance required by Florida Building Code
- **Emerald Beach Resort Condominium I Association, Inc. v DooleyMack**, served as plaintiff's expert, Circuit Court of Bay County, Florida case No. 13-000321CA, plaintiff claimed high rise residential HVAC systems were improperly installed
- **Chuo v Interplan**, served as defendant's expert, retained by Wright, Fulford, Moorhead, & Brown, LLP, Orange County 9th Judicial Circuit Court case no. 2014-CA-005719-O, plaintiff claimed defendant's HVAC design did not meet performance required by Florida Building Code
- **Harbor House v The Related Group** Served as co-defendant's expert, retained by Nationwide / Law Offices of Patricia Garagozlo, Miami-Dade Circuit Court of the 11th Judicial Circuit case no. 12-006646 CA 40, plaintiff claimed plumbing construction did not meet performance required by Florida Building Code
- **Shower v Discount Plumbing** Served as defendant's expert, retained by Nationwide / Law Offices of Patricia Garagozlo, Osceola County Circuit Court of the 9th Judicial Circuit case no. 15-CA-182 ON, plaintiff claimed plumbing installation did not meet performance required by Florida Building Code
- **Orlando Florida Endoscopy Association v. Fleming Enterprises**, served and deposed as codefendant's expert, retained by Wicker Smith, P.A., Orange County 9th Judicial Circuit Court case no. 2010-CA-022018-O, plaintiff filed subsequent to damages from sewage infiltration
- **Billsborrow v. Cheney**, served as defendant's expert, Brevard County, plaintiff filed subsequent to personal injuries sustained by a product failure
- **Orange Lake CC, Inc. v. FLS of Florida, Inc.**, served as plaintiff's expert, retained by Godbold, Downing, & Bill, Orange County 9th Judicial Circuit Court case no. 2013-CA-009797-O, plaintiff filed for damages from catastrophic failure of a boiler due to improper repair and operation as per Florida Building Code
- **2021 North Lemans LLC v. Summit Contractors et al.**, served as codefendant's expert, retained by Quintairos,

Prieto, Wood, & Boyer, Hillsborough County case no. 11-CA-5476, plaintiff filed for damages due to improper HVAC equipment performance and installation as per Florida Building Code

- **Ocean Villas Daytona v. Ocean Villas LLC.**, served as plaintiff's expert, Volusia County 7th District case no. 2011-30181-CI-CI, plaintiff filed for damages due to improper HVAC equipment performance and installation as per Florida Building Code
- **Timacuan Park**, retained by the builder's attorney, Multiple deficiencies claimed as construction did not meet performance required by Florida Building Code
- **Campfield Condominiums**, retained by the builder's attorney, Multiple deficiencies claimed as construction did not meet performance required by Florida Building Code
- **Vacation Village**, retained by Progressive Plumbing's attorney, A penthouse common water heater failure caused significant water damage to lower floors in this multistory residential building

Forensic Engineering Analysis and Assessments:

- **Hannibal Square Apartments**, retained by property manager, moisture investigation
- **Rubin Residence**, retained by homeowner, moisture investigation
- **Garcia Residence**, retained by homeowner, moisture investigation
- **Hold Residence**, retained by homeowner, moisture investigation
- **Zeta Tau Alpha, UCF Campus**, retained by the national Zeta Housing Corporation, investigation regarding humidity control and building renovation.
- **Metcalf Building**, retained by Bishop Beale, investigation regarding water leaks
- **Community Medical Centers Meadow Woods**, retained by Shaw Mechanical Services, investigation of humidity and HVAC issues
- **Caribe Hotel, Orlando FL**, retained by Peninsula Engineering, Inc., Investigation of piping leaks and water quality
- **Hymel Residence**, retained by Shaw Mechanical, Investigation of moisture concerns within an encapsulated attic
- **Tasty Wok II**, retained by Owner, Investigation of plumbing leak and lease enforced repairs
- **Renaissance Condominium**, retained by association to determine cause of repeated domestic water PRV failures
- **Sanctuary Condominium**, retained by condominium association, design and construction management of a restaurant grease duct addition with supplemental blower
- **Sanctuary Condominium**, retained by condominium association, investigation into PVC storm water standpipe scaling
- **Lindsay Residence**, retained by homeowner, investigation regarding water and sewer utilities services
- **Bohemian Hotel, Celebration**, retained by hotel management, Investigation and remediation recommendations for chilled water piping insulation failure
- **Jaffee Residence**, retained by HVAC contractor, investigation of indoor air quality concerns
- **109 E. Church Building**, retained by property management, HVAC investigation and assessment of a 50,000 sqft office building
- **431 E. Horatio Building**, retained by owner's representative, HVAC investigation and assessment of a 30,000 sqft office building
- **Cannon Residence**, served as plaintiff's expert, HVAC investigation
- **SESCO Lighting Building**, retained by owner, HVAC condition assessment
- **Alaqua CC Containerized Gun Range**, retained by Owner, Provided engineering services for HVAC
- **Eliscu Residence**, retained by Shaw Mechanical, HVAC issues in a 14,000 sqft residence
- **Neville Residence**, retained by Shaw Mechanical, HVAC issues in a 12,000 sqft residence
- **Bill Residence**, retained by Owner, Investigation of HVAC unit
- **Belle Isle Charter School**, retained by Owner, Investigation of classroom buildings for HVAC performance
- **Day Residence**, retained by Owner, Investigation of humidity issues
- **Belle Isle PD**, retained by Owner, Investigation of humidity issues
- **Tasty Wok**, retained by Owner, Investigation of plumbing leak and lease enforced repairs
- **Give Kids the world**, retained by Owner, Investigation of rooftop unit noise
- **McGruder Eye Clinic**, retained by the owner, Building envelope investigation
- **Sea Club IV**, retained by the owner, Domestic plumbing replacement

- **Primrose Schools**, retained by the owner, Investigation and reporting to support 558 claim and remediation of the HVAC.
- **Hocking Residence**, retained by the builder's attorney, Multiple deficiencies claimed as construction did not meet performance required by Florida Building Code
- **HAS Golden/ASI**, retained by American Strategic Insurance, Investigation and reporting to support various residential plumbing losses/claims.
- **Paras Lodging dba Super 8 Leesburg**, retained by York Risk Services Group, Inc., Owner claimed damage to domestic hot water piping by lightning strike
- **Eidson Insurance Company**, retained by Eidson Insurance Company, Investigation of water penetration, moisture, and mold complaints by building occupants
- **Mayflower Office Building**, retained by First Capital Property Group, Investigation of moisture intrusion and stucco delamination in a multistory office building
- **Haas Residence**, retained by Homeowner's attorney, Homeowner suffered water damage due to failed kitchen plumbing fixture and required repairs and mold remediation, insurance company claimed mold and water damage was existing
- **Vero Beach Elementary**, retained by Vero Beach School Systems, Improper ventilation airflow design and control cause a positively pressured building and improper ventilation airflow as per Florida Building Code, repaired by existing contractor and engineer at their expense
- **Invitation Homes**, retained by York Risk Services Group, Inc., Domestic water plumbing failure caused flooding and extensive water damage
- **Salvation Army / Catherine Booth Towers**, retained by the Salvation Army, Whole building plumbing replacement
- **Lake Mary Marriot**, retained by the owner, Building plumbing investigation
- **Subway – Cornerstone at Summerport**, retained by Crossman Company property management, Building HVAC investigation

LEED Enhanced Building Commissioning:

- **Metlife**, Weston Lakefront Building 3, Cary, NC
- **MARS Petcare, Ovation East Building**, Franklin, TN
- **Dick's Sporting Goods**, Conklin, NY

Fundamental Building Commissioning

- **Bledsoe County Correctional Facility**, Bledsoe County, TN
- **Mayport Naval Air Station**, Jacksonville, FL.
- **Mercedes Benz USA Inc.**, Vance AL. Commissioned 30 rooftop air handling units for a new 1,300,000 sqft expansion of the automotive manufacturing facility. 5,000 tons of chilled water equipment was also commissioned.
- **Research Building 15, Durham VA Medical Center**, Durham NC. Re-commissioned the bottom two floors and retro-commissioned the top 3 floors of this laboratory building. Building was fully occupied with researchers from Duke University and the VA. Exhaust energy recovery, floor air handling units, laboratory room pressurization control, hot water reheat, and chilled water systems were commissioned. Pre-functional testing and final commissioning required oversight of and direction for Test and Balance personnel. Extensive rework of controls programming was required.
- **MacDill Air Force Base**, Tampa FL. Performed building commissioning and functional performance testing for the domestic hot water and Service/HVAC hot water systems. Significant controls modifications in the field were required for proper equipment operation.
- **Baltimore Hospital**, Baltimore MD. Performed retro-commissioning and functional performance testing for main air handling systems. Performed commissioning and functional performance testing for a water side economizer and three cooling towers.
- **Tennessee Valley Authority**, multiple sites within TN, AL, MS, KY, and NC. Provided retro and re commissioning for numerous energy savings projects throughout the TVA facility portfolio. Majority of sites are industrial utility.

Energy Auditing:

- **Department of Energy, Oak Ridge National Labs, Savannah River Site.** Performed building energy assessments and energy audits conforming to ASHRAE Level I and II for several dozen buildings. Facility process spent nuclear material, and as such special clearances and access issues were required. Auditing performance helped the facility meet government standards for water and energy reduction.
- **Florida Realtors Association, Orlando, FL.** Performed a Level II energy audit of the building, including additional assessment of chiller operations and pumping.
- **Tennessee Valley Authority, Energy Audits, Various Locations.** Provided ASHRAE Level I & II energy audits for roughly one thousand buildings located throughout the TVA service area. Building envelope, HVAC equipment and controls, water conservation, and lighting were evaluated for Energy Conservation Measures (ECM). Locations over 250,000 sqft each:

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|----------------------------------|--------------------------------------|--|
| Muscle Shoals Reservation | Allen Fossil Plant | Norris Dam and Engineering Labs |
| Gallatin Fossil Plant | Johnsonville Fossil Plant | Chickamauga Support Buildings |
| Cumberland Fossil Plant | Colbert Fossil Plant | Knoxville Support Buildings |
| Shawnee Fossil Plant | Magnolia Combined Cycle Plant | Walnut Grove Support Buildings |
| Paradise Fossil Plant | Brown's Ferry Nuclear Plant | Chattanooga Office Complex |
| Kingston Fossil Plant | Hartsville Nuclear Plant | Chickamauga Hydro Plant |
| Wats Bar Nuclear Plant | | Sequoyah Nuclear Plant |
- **TVA Energy Services (ESCO), Redstone Arsenal, AL.** Provided mechanical, electrical, and plumbing design for Detailed Energy Studies (DES) at TVA customer locations. The DES was performed to initiate a performance contract with the end use customer. ICT also provided design services, commissioning services and monitoring and verification services.
- **Tennessee Valley Authority.** Performed Sustainable Guiding Principle (SGP) audits for select buildings within the TVA portfolio. Buildings required renovations meeting SGP criteria for energy and water savings, as set by congressional order for federal buildings.
- Provided **ASHRAE Level I & II Energy Audits and Utility Invoice audits** for numerous commercial and healthcare facilities across the country. Building envelope, HVAC equipment and controls, water conservation, and lighting were evaluated for Energy Conservation Measures (ECM). Locations over 250,000 sqft each:

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|---------------------------------------|--------------------------------------|--------------------------------------|
| Nashville Airport ConRAC | Catskills Regional Medical | The Cleveland Clinic (23 |
| Desert Regional Medical Center | Center | hospitals) |
| Paris Regional Medical Center | United Medical Center | Mt. Sinai Medical Center |
| Brookhaven Memorial Hospital | Mississippi Hospital Gulfport | Bon Secours Healthcare system |
| Catholic Health East (20 | Medina Medical Center | (17 hospitals) |
| hospitals) | Vanderbilt University Medical | Western Maryland Health |
| Columbia Regional Health | Center | System |
| System | | |
- Provided Facility Condition Assessments for various commercial and industrial clients. Assessments evaluated major mechanical, plumbing building control, and fire protection systems.

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| Windsor Court Hotel | Columbia Regional Health | United Medical Center |
| | System | |

LEED Energy Modeling:

Performed LEED energy modeling and EA credit scoring for the following facilities:

- Tractor Supply Warehouse, Frankfort, NY
- Magellen 3 Building, Cary, NC
- Quicksilver Building, Athens, GA
- Highwoods Properties, Raleigh, NC
- Dick's Sporting Goods, Conklin, NY
- Hume Fogg School, Nashville, TN
- Old Nashville Jail, Nashville, TN
- Seven Springs West office building, Nashville, TN

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- Nashville Metropolitan Public Schools Health Building, Nashville, TN
 - Joint Institute for Advanced Material, University of Tennessee, Knoxville
 - Vehicle Maintenance Instruction Facility Complex, Fort Benning, GA
 - Rotary Wing Complex, Headquarters, Hangar and Wash Rack Facilities, Redstone Arsenal, AL
 - The Gaillard Center, Charleston, SC
 - Attorney General Building, Louisville, KY
 - MTSU Science Center, Murfreesboro, KY
 - Overton Elementary School, Nashville, TN
 - Metro Nashville Public Schools Healthcare Center, Nashville TN
 - El Paso International Airport CONRAC facility, El Paso, TX
 - Von Braun Phase IV, Redstone Arsenal AL
 - Windy Hill Barracks, Ft. Benning, GA

HVAC Design:

- The Tennessee Valley Authority, provided HVAC remodel designs for hundreds of buildings within the TVA portfolio.
- The Pentagon, Washington, D.C. Addition of a 2,500 ton plate and frame heat exchanger for water side free cooling.
- Baltimore Hospital, Baltimore, MD. Prepared initial selection, design and commissioning for a cooling tower replacement and water side economizer addition.
- Tennessee Valley Authority, provided oversight and design services to remediate thousands of small energy projects located throughout the TVA service territory.
- Tennessee Valley Healthcare System, Nashville, TN. Addition of a 900 ton plate and frame heat exchanger for water side free cooling. Performed a Life Cycle Cost Analysis for determination of value of defrost cycle on cooling towers. Utilized Trane Trace 700 and Owner's utility bills for a one-year period.
- Alvin C. York VA Medical Center, Murfreesboro, TN. Addition of a 1,200 ton plate and frame heat exchanger for water-side free-cooling. Performed a Life Cycle Cost Analysis for determination of the value of defrost cycle on cooling towers. Utilized Trane Trace 700 and Owner's utility bills for a one-year period.
- Bay Pines VA, Bay Pines, FL. Performed survey and design for steam to hot water heat exchanger replacements in numerous buildings. Project scope also include fire pump replacement and system redesign.
- Plaza Medical Center, Houston, TX. Prepared plans and specifications for a cooling tower replacement. New tower utilized variable speed fan and condenser water pump upgrades.
- Baltimore Hospital, Baltimore, MD. Performed energy modeling and analysis for a water side economizer addition. Secured funding via the Maryland Energy Authority.
- PCI Gaming, various Mississippi locations. Performed energy analysis for conversion of multiple rooftop units to 100% outside airflow.

Process and Power:

- Designed entire high temperature hot water (370 degrees F/300-pound) distribution system for Fort Carson, Colorado. Project adhered to CORPS specifications and revamped the heating plant with 134 service connections with 108,000 feet of Class A direct buried piping. Paralleled the project with an optional concrete shallow trench design. Existing system reliability remained at 100 percent throughout the entire scope of this project. Deliverables included drawings, specifications, and assorted bid documents, as well as engineering services throughout the project construction.
- Designed repair and replacement piping sections for steam service at the Redstone Arsenal, Huntsville, Alabama. CORPS specified, the scope included replacing condensate return lines and pumping stations. Piping was above and below ground and required the relocation and addition of manholes and over-road crossings. A complete stress analysis with seismic and wind analyses ensured system compatibility.

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- Vanderbilt University, Middle Tennessee State University, Penn State University, Ft. Bragg NC. Assisted in design of multiple college campus and military base 5 MW gas turbine based combined heat and power plants. CHP installations included waste heat recovery, chilled water production, and power production.
 - Fifty-megawatt reference plant conceptual design for General Electric. General Electric is using these sets of design documents to competitively enter the global market of heavy oil power generation. Design options include optional electric, hot water (recovery), or steam (recovery) oil heating, radiators or cooling towers, and several options of fuel conditioning, purifying, and waste oil treatment skids. Complete life cycle, environmental impact study, present value, O&M, fuel futures, plant mobility, and future international market utility and resource analyses are performed.
 - Numerous feasibility studies for introducing cogeneration technology to various industrial facilities. Studies include full construction budget, operations and maintenance costs, fuel costs, and miscellaneous costs associated with power and steam generation facilities. Some studies required the prediction of fuel costs following Federal DOE reports. Facilities included natural gas fired turbines, absorption chillers, heat recovery steam generators, and associated auxiliary and support equipment.
 - Designed entire compressed air and blower air piping arrangement for a large alumina manufacturer's expansion.

Economic / Utility Infrastructure Studies:

- Extensive utility growth, load and rate studies for Vanderbilt University. The studies were used to justify inter-facility steam, power, and chilled water billing rates. The studies were further used to justify a 25 million dollar cogeneration facility and centralized utility tunnels by allocating revenues towards future plant debt service. Continuing studies address central plant expansion, thermal loading, chilled water, load shedding, electrical peak shaving, and interruptible-power analysis for several separate divisions of the facility.
- Natural gas consumption study for Vanderbilt University. An economically attractive advantage due to Vanderbilt University's new cogeneration plant and increasing thermal loads was to sign a minimum required natural gas contract. Numerous studies were performed to identify this projected gas usage amount, gas prices, market, and projected gas futures. Study further justified the local gas supplier's self-installation of a new high pressure gas line.
- Numerous feasibility studies for introducing cogeneration technology to various industrial facilities. Studies include full construction budget, operations and maintenance costs, fuel costs, and miscellaneous costs associated with power and steam generation facilities. Some studies required the prediction of fuel costs following Federal DOE reports. Facilities included natural gas fired turbines, absorption chillers, heat recovery steam generators, and associated auxiliary and support equipment.

Environmental Permitting:

- Prepared the application for a Part 70 Operating Permit for the University of Florida.
- Prepared a construction permit application for a reciprocating engine based combined cycle plant for the school of Veterinary Medicine at the University of Florida.
- Provided air dispersion modeling services required by the addition of natural gas turbine-based combined heat and power equipment for an ethanol manufacturer located in Michigan.
- Prepared the construction permit for a biomass boiler burning wood chips for the Chillicothe VA in Ohio.
- Prepared the Prevention of Significant Deterioration (PSD) permit application for a new cogeneration facility at Vanderbilt University. The Federal PSD program is the most rigorous permitting process currently enforceable. Facility consists of twin GE PGT5-b 6.8 MW natural gas turbines, with 110,000 lb/hr steam heat recovery for each engine. Numerous environmental impact studies, ambient air quality modeling, air dispersion modeling, and local impact studies were included.
- Prepared the Title V Major Source Operating Permit for Clemson University, concurrent with modifications for a new cogeneration facility. Facility includes a Solar Turbines 5 MW and 4 MW natural gas turbines with heat recovery. Owner required state of the art technology, with real time access and monitoring via Clemson's intranet for classroom purposes.

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- Prepared Title V Major Source Operating Permit application for Middle Tennessee State University in Murfreesboro, TN. Facility emission sources included boilers totaling 105 million BTU/hr, surface coatings, and bio-hazardous waste incinerators.
 - Prepared Title V Major Source Operating Permit application revisions for Middle Tennessee State University in Murfreesboro, TN, including 5 MW gas turbine generator, a 99 MMBtu/hr duct burner and gas/oil package boiler, while decommissioning existing coal and gas boilers. The new equipment resulted in lower emissions and allowed the facility to opt out of the Title V program.
 - Prepared Title V Major Source Operating Permit application for Vanderbilt University in Nashville, TN. Facility emission sources included boilers totaling 340 million BTU/hr, diesel engine driven generators totaling over 5,000 KW, chemical research and production, and bio-hazardous materials handling.
 - Blackburn County Landfill, Hickory, NC. Construction and operating permitting services for the addition of a 60 MMBtu/hr sawdust burning boiler, supplying steam to steam turbines and process customers.
 - Title V permitting services for the biofuel facility including landfill gas reciprocating engines, landfill solid waste permitting and flaring. Annual reporting service are also performed.
 - Lena Road Landfill, Manatee County, FL. Client Siemen's Building Technologies. Construction permitting services for three 1.9MW Jenbacher landfill gas engines. Project scope also included permitting of a modified landfill gas flare interconnected with the engines. Modification of the landfill's title V operating permit was also performed.
 - United States Sustainable Energy. Ongoing permitting consultation and support. Determining the permitting requirements and scope of a biodiesel production line, storage and distribution facility.
 - Prepared the Title V Major Source Operating Permit application for Gaylord Opryland Hotel and Convention Center complex equipped with a 5 MW natural gas fired turbine, multiple industrial boilers permitted for 200 million BTU/hr, multiple satellite boilers permitted for 16 million BTU/hr, multiple satellite emergency generators permitted for 12.8 MW, various paint spray booths, multiple fuel oil and gasoline dispensing stations and tanks, and perchloroethylene dry cleaning machines. Prepared the Construction and Source Operating Permit applications for a single commercial boiler and dual diesel engine generators totaling 5.2 MW, and filed NPDES permit modifications for adding an additional outfall for once through non-contact cooling water discharge. RACT was required to evaluate further NO_x control for the facility.
 - Prepared the Title V Permit application modifications for the addition of a flue gas cleaning system (FGCS) for the Nashville Thermal Transfer Corporation municipal waste combustion facility. The FGCS consisted of dual rotary spray dryers and baghouse trains, activated carbon injection, lime injection, and a proprietary ammonia injection system. Record keeping, reporting, and reporting procedures were developed which gather data from the continuous emissions monitoring system.
 - Prepared the Title V Major Source Operating Permit application modifications for the addition of a 150 MMBtu/hr natural gas-fired boilers at the Nashville Thermal Transfer Corporation facility.
 - Prepared the Title V Major Source Operating Permit application for Vanderbilt Hospital, Nashville, Tennessee. The hospital/research facility is equipped with ethylene oxide sterilizers and multiple diesel engine generators totaling 6.4 MW.
 - Prepared the Title V Major Source Operation Permit application revisions for the addition of 12 MW of natural gas fired turbine generators to an institutional facility. The cogeneration addition has a steam generating capacity of 200,000 lb/hr. RACT was required to evaluate further control for the facility in addition to extensive modeling analysis.
 - Prepared the application for a permit to operate two previously unpermitted 46 million BTU/hr boilers at Middle Tennessee State University in Murfreesboro, TN.
 - Prepared the application for a permit to construct two diesel engine fired generators rated at 2,500 KW each for Vanderbilt University in Nashville, TN. RACT was required to evaluate further control of the source.
 - Prepared the application for a permit to construct for two diesel engine fired generators rated at 8,836 KW each for Opryland Hotel and Convention Center in Nashville, TN. RACT was required to evaluate further NO_x control for the source.

Curriculum Vitae

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- Prepared the application for permit to operate four diesel engine driven emergency generators totaling 6,400 KW for Aladdin Industries in Nashville, TN.
 - Prepared the application for permit to operate a process source that emits a HAP particulate for a facility in Nashville, TN. BACT was required to evaluate further control of the source.
 - Prepared numerous air permits for construction of emergency generators, multi fuel fired boilers, and other industrial fuel-burning equipment. Experienced with Federal, State, and local applications, reporting procedures, resources and guidelines, and PSD, NAAQS, LAER, MACT, BACT, RACT, or similar analyses and requirements.
 - Prepared numerous Storm Water Pollution and Prevention plans, NPDES water permitting, Spill Prevention, Control, and Countermeasure Plans, Emergency Episode Plans, and Emergency Release Plans on behalf of clients.
 - Numerous quarterly reports, annual reports, continuous emissions monitoring reports, excess emissions reports, and air dispersion modeling reports on behalf of various facilities. Several reports were prepared by creating automated reporting and record keeping strategies and software programs.
 - Prepared numerous feasibility studies for introducing cogeneration technology to various industrial facilities. Studies include full construction budgeting, operations and maintenance costs, projected fuel costs, and miscellaneous costs associated with power and steam generation facilities. Some studies required the prediction of fuel costs and equipment value following Federal DOE/FEMP LCC guidance. Facility equipment includes natural gas fired turbines, absorption chillers, heat recovery steam generators, and associated auxiliary and support equipment.