

EXHIBIT - JCI 01

N.H.P.U.C. Case No.	PE 11-250
Exhibit No.	16-1
Witness	F.T. DiPalma C. Larrington
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Name: FRANK T. DiPALMA

Title: Director

Education: Fairleigh Dickinson University, MBA Management/Finance
New Jersey Institute of Technology, BS Mechanical Engineering
University of Michigan, Executive Development Program

Professional

Affiliations: American Gas Association
—Customer Service and Utilization Committee (Past Vice Chairman)
—Transmission Pipeline Operations Committee
Southern Gas Association
University of West Virginia, Institute of Technology (Adjunct Professor)
Institute of Electrical and Electronics Engineers (Past Member)
Society of Gas Operators

Career Synopsis:

An operations oriented engagement/project manager who leads teams of consultants to resolve complex business problems in energy utilities; skilled at directing, planning and implementing approach and objectives for client's project; experienced in engineering and operations management, process improvement, project management, construction, business development, marketing, customer service, strategic alliances, labor relations, strategic business planning, change management, organization assessments and regulatory compliance.

Selected Consulting Assignments:

Conduct Technical Due Diligence Power Generation Assets (2013)

Elliott Management Corporation

Elliott Management Corporation (Elliott) was interested in acquiring certain power generation assets located in Latin America and the Caribbean. In order to develop a fair value offer for the assets, Elliott needed to know asset condition, environmental liabilities and the market in which the asset operated. This included understanding the strength of the existing power purchase agreements, the historical and anticipated continuity of fuel supply to the asset, any issues related to the existing use of a "dirty" type of fuel supply, potential plant enhancements that would improve output, trends in individual generator asset output, where the generator fitted into the economic dispatch profile by country, the impact a large power generation assets coming online would have on the competitiveness of an acquired asset, any significant regulatory risks, and where the opportunity existed for a fuel supply conversion. Serving as responsible officer and project manager, Jacobs performed a technical, organizational, environmental, and power market assessment. In addition, we provided assumptions for Elliott's cash flow spreadsheet and develop a Dispatch/Market Analysis Model.

Conduct Operational Risk Management Assessments (2013 to present)

Enbridge Pipeline Inc.

Enbridge wanted to determine ongoing conformance with project management systems and to identify current good practices and improvement opportunities to achieve industry leadership in pipeline construction. Serving as project manager, Jacobs is conducting a number of Operational Risk Management Assessments for both pipelines and major facility construction. Areas of pipeline assessment include:

- Ground Disturbance Standard review, implementation, and field awareness
- Quality Management Systems
- Training and competency of field inspection
- Project and field leadership
- Training and competency of construction contractors
- Public safety

While areas of pump station assessment include structural, concrete, mechanical, instrumentation and controls, SCADA, communications, welding and utilities.

Investigation into the Performance of Connecticut's Electric Distribution Companies and Gas Companies in Restoring Service Following Storm Sandy (2013)***Connecticut Public Utilities Regulatory Authority***

Serving as responsible officer, Jacobs provided technical expertise to Connecticut Public Utilities Regulatory Authority's (PURA's) staff in areas pertaining to electric distribution company and gas company preparation for and action in response to significant outages that occurred as a result to Hurricane Sandy. The affected utilities were The Connecticut Light and Power Company, The United Illuminating Company, Connecticut Natural Gas Corporation, The Southern Connecticut Gas Company and Yankee Gas Services Company. In conducting our assessment, we reviewed, as appropriate, for each utility:

- Customer Communications - communication activities with key stakeholders, media relations, the Town Liaison Program, communication technologies employed, activities of the customer call center and storm debriefs and customer surveys
- Emergency Planning and Organization - consistency with Internal Emergency Preparedness and Response Plan, storm monitoring, preparations, and external assistance
- Damage Assessment - timing, linkage with outage management system and planned use of technology
- Restoration - outage restoration management, critical facilities, joint poll coordination, pre-staging and crew assignments and estimated time to restore

In addition, we assessed each utility's performance in compliance with Order No. 1 of the Decision dated November 1, 2012, in Docket No. 12-06-09, PURA Establishment of Industry Performance Standards for Electric and Gas Companies. Our assessment, which became part of PURA's decision, was unanimously accepted by all five utilities.

Assessment of Safety Policies and Emergency Response Procedures (2013)***NiSource***

In response to a gas related incident, NiSource sought an independent review of its safety policies and emergency response procedures. Included in the projects scope of work was a review of the pertinent policies, processes and procedures; identification of opportunities for improvement; and development of roadmap for how these opportunities should be prioritized for implementation. Serving as project manager, we conducted over 40 interviews, reviewed 10 incidents, and visited four state headquarters and two training facilities. Our analysis involved assessing policies, practices and procedures in the categories of emergency response, facility damage prevention, and leak management and leak investigation. In addition, by identifying several subcategories within these areas, we were able to develop numerous opportunities for improvement based on our industry knowledge and experience. Then by making these acknowledged opportunities, recommendations, we were able to develop an overall implementation roadmap by identifying activities the utility already had underway, activities the utility had planned for the future and the activities where use of an outside consultant would be beneficial.

Transmission Requirements and Growth Strategy (2012 to present)

Central Alberta Rural Electric Association

Serving as responsible officer, Jacobs' initial assignment for the Central Alberta Rural Electric Association (CAREA) was to analyze numerous aspects of their business plan as they move forward in their natural growth progression. In support of this objective, we completed the following:

- Operational Capabilities Report - to support CAREA's legal right to serve all new customers within its defined service territory.
- Transmission Report - to support having transmission costs allocated directly to CAREA for existing transmission lines.
- Load Settlement Report - determine the feasibility of taking over the existing lines owned by Fortis-AB coming directly from the transmission point of delivery into CAREA's service territory.

In addition, we are currently working on two other assignments:

- Independent Operating Agreement for Fortis.
- Fortis-AB Rate Case Phase 2 Assistance – for CAREA merged with North Parkland and in combination with South Alta.

Responding to the Requirements of Public Act No. 12-148, An Act Enhancing Emergency Preparedness and Response (2012) Connecticut Public Utilities Regulatory Authority

In the aftermath of Tropical Storm Irene and the October 2011 Snow Storm, Connecticut recognized the need to enhance emergency preparedness and response. Through Public Act No. 12-148, the state sought to review of electric and gas company emergency preparation and service restoration practices, infrastructure adequacy, identify optimum tree trimming, review infrastructure hardening levels, develop enhanced communications and establish electric and gas company performance standards for emergency preparation and service restoration. The purpose of the standards were to insure that electric and gas utilities are prepared for emergencies and disasters in order to minimize damage and inconvenience to the public which may occur as a result of electric and gas system failures, major outages, or hazards posed by damage to electric and gas distribution facilities. Acting as project manager, Jacobs facilitated an interactive process with five utilities, Rate Council and Commission Staff to establish standards for an Emergency Event, which is defined as electric service interruptions involving 10% or more of an EDC's or 1% of an GDC's total number of customers who are out for a period of 48

consecutive hours or more. These standards will facilitate PURA investigations into the reasonableness of the utility's response to future emergencies and major outages.

Technical Analysis of the New Jersey Natural Gas Company's Safety Acceleration Facility Enhancement Program (2012) New Jersey Division of Rate Counsel

New Jersey Natural Gas Company (NJNG) proposed to undertake a five-year \$204 million capital investment program for the replacement of existing cast iron and unprotected steel distribution mains and services; and achieve cost recovery through the submission of annual rate adjustment filings.

Working as project manager, Jacobs perform the following tasks:

- Reviewed and critiqued the engineering issues related to filing, including a savings from a reduction in operations and maintenance expenses as well as construction costs by employing a coordinated and systematic approach to infrastructure replacement.
- Determined if the accelerated infrastructure replacement approach was needed; and if it was consistent with past practices and procedures to replace aging infrastructure.
- Determined if the proposed cost reporting of infrastructure replacement project is consistent with achieving transparency and industry leading practices.
- Developed and recommend a performance standard component and measures for success.

Assessment of Pacific Gas & Electric Co. Pipeline Safety Enhancement Plan (2011-2012) California Public Utilities Commission

In response to a CPUC order, PG&E submitted a Pipeline Safety Enhancement Plan (PSEP). The PSEP is a multiphase, multiyear, multibillion-dollar program that is in addition to PG&E's existing transmission pipeline maintenance and integrity management programs. Jacobs was asked by the CPUC to review the PSEP, supporting work papers and testimony filed by PG&E, as well as interveners TURN and DAR. The scope of Jacobs assessment included the decision tree pipeline segment selection process, prioritization for pressure testing, use of remote control valves and automatic shutoff valves, pipeline records integration program, implementation plan and program management approach, and the overall reasonableness of the PSEP's cost. As a result of Jacobs investigation questions were raised with regard to sufficiency of explanatory information for inclusion of segments in certain projects, pipe diameter increases, potential cost savings and allocations. In total, 23 recommendations were made either relating to PG&E's PSEP and work papers or intervenor testimony.

Management Audit of Public Service Electric and Gas Company (2010-2011) State of New Jersey, Board of Public Utilities

Jacobs Consultancy was asked to participate in an independent management audit of Public Service Electric and Gas Company (PSE&G) mandated by The State of New Jersey's Board of Public Utilities (BPU). Serving as Jacobs' project manager, the technical and management practices of PSE&G were assessed in the areas of electric transmission and distribution, gas transmission and distribution, gas procurement and supply and contractor performance. Balancing our analysis against industry best practices in each of the above focus areas, we developed 14 recommendations for improvement. Recommendations included engaging the BPU to better define their role in demand side management, employing Monte-Carlo Simulation or similar techniques to better communicate the gas demand drivers and forecast uncertainty and conducting an in-depth study to explore the benefits of accelerating the cast-iron replacement program.

Energy Reliability Consulting in Connection with the Exelon - Constellation Energy Merger (2011) Maryland Public Service Commission

Analyzed the potential impacts on Baltimore Gas and Electric (BGE) in connection with the Exelon and Constellation Energy Merger; my role was to assist the Maryland Public Service Commission's (MDPSC's) Staff in determining if the transaction was in the public interest by assessing how it could affect the reliability, adequacy and safety of electric and gas service in the State of Maryland. Serving as the MDPSC's expert electric and gas witness, I testified in the following areas:

- Overall electric reliability and the cost to achieve targeted reliability performance goals.
- Effectiveness of the vegetation management program and other maintenance and inspection programs.
- Adequacy of funding for capital asset replacement and operations & maintenance needs.
- Need for contemplated cast-iron replacement program and to re-examine service replacement policy.
- Assessment of customer satisfaction surveys.
- Review of supplier diversity attainment relative to goals.

Specific support activities include analysis of pre-filed materials, participate in discovery, provide expert analysis, provide expert testimony, develop cross examination, assist in brief preparation, and support settlement discussions.

Innovation Workshops and Deployment (2011- 2012)

Scotia Gas Networks PLC

In order to prepare for the upcoming price control period, which runs from 2013 to 2021, Scotia Gas Networks (SGN) desired to drive innovation in the management of its gas transmission and distribution system. Utilizing the Innovation Funding Incentive (IFI) scheme, gas networks in the United Kingdom are encouraged to invest in innovative ideas and technologies and recover significant amounts of related costs.

To maximize the value from its innovation efforts, Jacobs was requested to facilitate to innovation workshops for SGN. Conducting one workshop in Scotland and one in the south, SGN staff formulated ideas and strategies for innovation, prioritization and implementation. Serving as project manager, Jacobs' efforts included:

- Presentation of innovative technologies and processes previously presented.
- Presentation of additional technologies and processes that are being used elsewhere.
- Facilitated group discussion for additional input.
- Facilitated group discussion on benefits, potential ranking, and implementation barriers.

Outputs from the workshops included identification of numerous innovative technologies ranging from use of the entire Vac-Ex/Coring/Small Hole System to a coordinated asset replacement process. Jacobs provided oversight and analysis supporting the SGN innovation deployment process.

Critical Assessment Study of Project Execution of Major Gas Pipeline Project (2011)

Spectra Energy

Performed a Critical Assessment Study of project execution for the New Jersey-New York Pipeline Expansion Project. Client had already completed the FERC filing and was proceeding with the filing of environmental and non-environmental permits, right-of-way acquisition, completion of detailed design drawings, preparation of material orders and bid packages; and had also performed a number of Monte

Carlo analyses covering both risk and schedule aspects of the Project. As project manager coordinated a review the risk mitigation areas already recognized, and identified additional issues that may arise, which could impede permitting and construction of the Project. In total, 13-risk mitigation areas and strategies already recognized were expanded, six additional risk mitigation issues were identified, and four additional project management tools were suggested.

Report of the Independent Review Panel, San Bruno Explosion (2010-2011)
California Public Utilities Commission

On September 9, 2010, a portion of a 30-inch diameter natural gas transmission system suddenly ruptured resulting in the loss of eight lives in total destruction of 38 homes. In response to the incident the California Public Utilities Commission (CPUC) formed an Independent Review Panel (Panel) of experts. Included in the Panel's scope of work was to gain an understanding for the underlying reasons for the incident, delve into the complexities of how pipeline integrity management and regulatory oversight operate and to offer recommendations for actions which the operator and regulators could consider to reduce the likelihood of future incidents. Jacobs Consultancy was retained by the Panel to gather and review facts and suggest recommendations for the improvement and safe management of Pacific Gas & Electric's (PG&E's) natural gas transmission lines. Serving as project manager, over 100 document requests were submitted and almost 30 interviews were conducted. The wide-ranging investigation address such items as worker safety versus system safety, data management, threat identification, the spirit of regulatory compliance, organizational effectiveness, resource allocation, quality assurance, and the strategic integrity plan. As a result of the Panel's investigation multiple weaknesses in PG&E's management and oversight, as well as the CPUC's resources and organizational focus were identified.

Management Audit of Fitchburg Gas and Light Company d/b/a Unitil (2010-2011)
Massachusetts Department of Public Utilities

Jacobs Consultancy was asked to conduct an independent management audit of Fitchburg Gas and Electric Light Company (FG&E) d/b/a by the Massachusetts Department of Public Utilities (DPU). Serving as engagement director and project manager, the management practices of both FG&E and Unitil were assessed in the areas of strategic planning, staffing and workforce management, management and control, customer and public relations and emergency preparedness and response planning. Balancing our analysis against industry best practices in each of the above focus areas, we developed 16 recommendations for improvement.

Comprehensive Review of Asset Management Practices (2010)
Scotia Gas Networks PLC

Jacobs Consultancy was asked to undertake a review of Scotia Gas Networks asset management practices with respect to low-pressure holders, high-pressure storage sites, offtake/entry points, transmission reducing stations and pressure reducing stations. Served as project manager for the eight-month long United Kingdom company study. The objectives of the review were to provide assurance the company was compliant with regulatory requirements and its current standards and policies; evaluate the measures and KPIs in use for effectiveness and consistency; and compare against external companies in North America to help identify best practices or leading industry practices. In carrying out the assessment, several key themes emerged.

- Availability and accuracy of asset data limits a complete asset management approach to maintenance.

- Policies and standards represent a wealth of experience and present opportunities for reduced maintenance or associated capital design cost.
- Enhanced structured approach to asset upgrade, replacement or disposal could provide long-term value.

In total, Jacobs provided 15 recommendations to support enhanced asset management practices.

Operations and Energy Reliability Consulting in Connection with the merger of First Energy Corp. and Allegheny Energy, Inc. (2010) Maryland Public Service Commission

Analyzed from a reliability and operations perspective the problem areas, deficiencies, and merits of the proposed acquisition of Allegheny Energy (AYE) by First Energy Corp. (FE). Combined, the companies provide 24,000 MW of electricity to over 6.2 million customers in the nation's largest investor-owned electric system. My role was to serve as the Maryland Public Service Commission's expert electric witness testifying as to the potential impact on AYE's Potomac Edison reliability and safety in a post-merger environment in the following areas:

- Energy services and conditions of operation
- Employee impacts
- Capital and maintenance plan and budgets
- Service reliability
- Transmission reliability

Specific support activities include analysis of pre-filed materials, participate in discovery, provide expert analysis, provide expert testimony, develop cross-examination, and developed merger conditions.

Investigation of the Service Response and Communications of The Connecticut Light and Power Company and The United Illuminating Company following the Outages from the Severe Weather (2010) Connecticut Department of Public Utility Control

The Connecticut Department of Public Utility Control (DPUC) was seeking technical electric reliability expertise pertaining to Connecticut Light and Power Company (CL&P) and United Illuminating (UI) action and response to a significant severe weather power outage. The scope of this assignment entailed: analysis of pre-filed testimony, preparation of discovery requests, auditing CL&P's and UI's procedures, examination of the evidence, cross-examination at public hearings and providing the DPUC with a report containing conclusions, findings and recommendations to be used in drafting its decision. Serving as project manager, Jacobs conducted its investigation in seven focus areas: Emergency Planning, Preparedness, Restoration Performance, Mutual Assistance, Post-storm Activities, Best Practices and Other. Based on our investigation and analysis, we concluded CL&P and UI did many things well in their response to the March severe rain and windstorm. However, there were also a number of concerns or areas in need of improvement identified. In total Jacobs Consultancy provided 10 CL&P and 5 UI recommendations, all of which were accepted by the DPUC and the companies.

Develop an Economic Model and Provide Testimony for Rockford Eclipse Valve Replacement (2009-2010) South Jersey Gas Company

Developed an economic model for estimating the cost of replacing approximately 70,000 Rockford Eclipse (RE) valves, currently in South Jersey's distribution system. Developed a process for South Jersey Gas to use in accomplishing the \$15 million RE Valve Removal Plan effectively and efficiently by making every effort to incorporate RE valve replacements in combination with planned and unplanned operations and maintenance work activities. Advanced how actual costs would be accumulated and tracked against the RE valve replacement estimate developed to assure that all RE placement costs are tracked, and that only RE replacement costs are tracked. Served as an expert witness presenting testimony for the RE valve replacement in South Jersey Gas Company's 2010 base rate case. Testimony resulted in establishing an activity-based tracker for annual cost recovery throughout the multiyear replacement program.

Review of Mandated Gas Safety Activities - Puget Sound Energy (2008-2009)

Washington Utilities and Transportation Commission

Served as Jacobs' project manager for the Washington Utilities and Transportation Commission (UTC) mandated gas safety audit of Puget Sound Energy (PSE). The focused review covered an in-depth assessment of various aspects PSE's gas operations, including:

- Programs, structures and incentives that are in-place to maintain a "culture of safety and compliance" for PSE and its contractors.
- Appropriateness and effectiveness of training provided to or required of its employees and contractor personnel for compliance with standards and procedures.
- Contracts with Service Providers are structured to ensure that gas facilities are installed, repaired or replaced properly, safely and cost-effectively.
- Methods employed to track and document work for compliance.
- Effectiveness of practices related to 49 CFR 192.613 Continued Surveillance.
- Adequacy of resources provided to the Gas Safety Compliance Program effectively monitor mandated safety activities and programs for compliance.

Over 100 employees were interviewed and in excess of 200 documents were reviewed. Our assessment resulted in 61 distinct recommendations for improvement, which PSE in collaboration with UTC has developed a plan to implement.

Energy Reliability Consulting in Connection with the Electricité de France Purchase of Constellation Energy Group's Nuclear Holdings (2009) Maryland Public Service Commission

Analyzed the potential impacts on Baltimore Gas and Electric (BGE) in connection with Electricité de France's purchase of half of Constellation Energy Group's Nuclear Holdings. My role was to assist the Commission's Staff in determining if the transaction was in the public interest by assessing how it could affect the reliability, adequacy and safety of electric and gas service in the State of Maryland. Serving as the MDPSC's expert electric and gas witness, I testified in the following areas:

- Overall electric reliability performance
- Effectiveness of the vegetation management program and other maintenance and inspection programs
- Adequacy of funding for capital asset replacement and operations & maintenance needs
- Need for contemplated cast-iron replacement program
- Need to re-examine service replacement policy
- Assessment of customer satisfaction surveys

Specific support activities include analysis of pre-filed materials, participate in discovery, provide expert analysis, provide expert testimony, develop cross examination, assist in brief preparation, and support settlement discussions.

Workforce Study Analysis of Illinois Electric Utilities (2008)

Illinois Commerce Commission

The Illinois Commerce Commission retained Jacobs Consultancy to conduct a workforce study analysis of the five major electric utilities located in Illinois. The utilities involved included:

- Commonwealth Edison (ComEd)
- MidAmerican Energy Company (MEC)
- Central Illinois Light Company (AmerenCILCO)
- Illinois Power Company (AmerenIP)
- Central Illinois Public Service Company (AmerenCIPS)

Served as project manager for the comprehensive nine month long study; 120 interviews were conducted and over 600 documents were reviewed. The intent of the analysis was to determine the adequacy of in-house staffing in each job classification or job title critical to maintaining quality reliability and restoring service in each utility's service territory. The investigation also included an assessment of asset management practices, use of technology, operational practices, system maintenance and condition, call center, safety and training. To assess workforce adequacy in each of these areas, we examined ratios of staffing levels, use of contractors, overtime, work order backlog, system reliability performance, and customer satisfaction. We then balanced our analysis with each individual's utilities outsourcing philosophy. In addition to developing final reports for each utility, five public hearings were attended.

Technical Evaluation of New Connecticut Peaking Generation Units (2008)

Connecticut Department of Public Utility Commission

Coordinated a technical evaluation and review of 11 proposals to build 500 MW of new peaking generation units in the state of Connecticut. Our work supported a confidential prime contractor who was responsible for the overall evaluation of the proposed projects; and ultimately the Connecticut Department of Public Utility Control who was responsible for the final decision. Specific items reviewed included: land site costs, insurance, capital costs, operating costs, starting capacities, type of fuel, proximity and availability of electric and gas connections, inclusion of Nox controls, heat rate, permit schedule, and other critical path items.

Management Review of the Gas Pipeline Project Management and Delivery Process (2007-2008)

Spectra Energy

Performed a four-month long management evaluation of the company's project management and project delivery process, from conception to through closeout. Drill down reviews was conducted of selected projects and activities. Identified issues that could be addressed immediately, as well as other critical issues requiring more in-depth consulting support. Findings were presented to senior management as well as the company's board of directors. Key recommendations were made in the following areas: strategy, project development process, project estimates, project execution, culture, and supporting IT systems. In addition to the management evaluation, consulting support was provided for establishing the business development and quality processes as well as instituting enhanced approaches to project control and forecasting.

Management Audit of Yankee Gas Services (2007-2008)

Connecticut Department of Public Utility Commission

Served as Jacobs' project manager for the management audit of Yankee Gas Services Company. The diagnostic review covered all functions of Yankee including: a review of the Company's organization structure, strategic and corporate planning, gas supply, system design and planning, system operation and maintenance, asset management, accounting and tax, budget management and control, wage and salary policies, employee benefits, labor relations, process management, all aspects of customer services including meter reading, external relations and all support services provided by its parent company

Northeast Utilities. Special areas of focus during the audit were affiliate transactions and Yankee's commitment to load growth.

Organization Assessment and Work Force Analysis (2006-2007)

City of Atlanta, Department of Water Management

Served as Jacobs' project manager, conducting an Organization Assessment and Work Force Analysis of City of Atlanta DWM, Safety and Security Division. The Division is responsible for securing approximately 57 water management related facilities and 1400 DWM employees. The analysis covered strategic direction, DWM expectations, ongoing operations, workforce management practices, determination of areas of strength, as well as areas of potential improvement. Work consists of reviewing DWM and Division documents and conducting structured interviews with Division executives and designated stakeholders. Benchmarking was utilized to help expand horizons and to identify gaps. In addition, a workload analysis was conducted to quantify the effort associated with key services and functions.

Independent Technical Due Diligence Review of Electric and Natural Gas Assets (2006)

TAQA, Global Energy Company

TAQA, a global energy company majority owned by the Abu Dhabi Government, employed Jacobs Consultancy to review power generation, electric distribution and gas transmission assets. These 35 assets were located in 12 countries on four continents and were valued at more than \$3.7 billion. As a potential purchaser of these assets, our client was interested in:

- Assessing the physical condition of the assets
- Reviewing conformance to environmental regulations
- Analyzing the adequacy of historical and estimated future capital and operations and maintenance budgets
- Assessing planned improvements and asset growth potential and constraints

Our approach was conducted in two phases: first, performing a diagnostic technical evaluation and second, a concentrated technical review of six power generation assets. My role was to serve as the overall project manager coordinating efforts of over 25 staff from our Manchester, Glasgow, Amsterdam, Houston and Raleigh offices.

Develop a Distribution Integrity Management Program (2006-2007)

Delmarva Power

Having developed an integrity management plan for DOT transmission pipeline and recognizing that some form of distribution integrity management was on the regulator's horizon, Delmarva Power elected to develop a Distribution Integrity Management Program in advance of the Rules enactment. As project manager, my initial role was to determine how each transmission integrity management element might apply to distribution pipe. Then a program was written reflecting Delmarva's operating practices, the seven elements identified in the PHMSA, Phase 1 Report and the program management plans from ASME Code for Managing Integrity of Gas Pipelines. Delmarva Power's Distribution Integrity Management Program was presented at the 2007 AGA Operating Conference.

Energy Reliability Consulting in Connection with the Exelon-PSEG Proposed Merger (2005-2006)

New Jersey Board of Public Utilities

Jacobs Consultancy completed 14-month engagement analyzing the problem areas, deficiencies, and merits of the proposed acquisition of PSEG by Exelon, with specific emphasis on how the proposed merger may affect New Jersey ratepayers. My role was to serve as overall project manager assisting the Board's analysis of how the merger may or may not affect the reliability of electric and gas service and

pipeline safety in the State of New Jersey. In addition, I served as the NJBPU's expert electric witness testifying as to the systems reliability and safety both now and in a post-merger environment in the following areas:

- Capability of the electric system to provide reliable distribution service
- Capital improvement planning process
- Reliability improvement programs
- Orderly restoration of electric service
- Distribution organization structures
- Adequacy to capital and operation and maintenance budgets
- Crisis management and critical facilities security programs

Specific support activities include analysis of pre-filed materials, participate in discovery, provide expert analysis, provide expert testimony, develop cross-examination, assist in brief preparation, developed merger conditions and support settlement discussions.

Vegetation Management Program Audit of Pacific Gas & Electric (2003-2006)

California Public Utilities Commission

Jacobs Consultancy recently completed a multi-year independent quality assurance audit to ensure that PG&E's Tree Trimming and Vegetation Management Programs comply with the orders, rules and regulations of the California Public Utilities Commission and with applicable tree-clearance standards. My role is project coordinator of the financial aspects of the project. The budget for the VM Program is \$140 million per year, which is the largest of any US company. Specifically, the quality assurance and audit is concerned with PG&E establishing various forward-looking programs and activities that promote vegetation management practices, public safety, and ensure compliance with statutory and regulatory requirements, including, but not limited to vegetation control performance, customer refusals, vegetation control management and recorded vegetation control costs.

Develop and Audit Transmission Integrity Management Programs (2004-2007)

Various Utility Clients

Worked as project manager for several utility clients developing their gas Transmission Pipeline Integrity Management Program. Established the initial program framework, which was then expanded into a comprehensive program. Task assignments included conducting a gap analysis, developing approaches to specific integrity management elements, collaborative teambuilding, and extensive knowledge transfer to client utilities. In addition, several other utility clients requested audits of in-house developed Transmission Integrity Management Programs. Major areas of weakness encountered in existing programs included: program was not reflective of current operating practices, management aspects of program were not fully developed or minimized, poor documentation and minimal quality assurance practices.

Focused Audit of Street Lighting Assets (2004)

Department of Public Utility Control

Served as Jacobs' project manager for a focused audit of Connecticut Light & Power Company's physical street lighting inventory; and accounting controls and records for the Connecticut Department of Utility Control. In attempting to establish the fair market value for these assets, the DPUC was concerned that

the street lighting assets reflect a systematic over assignment to the street lighting rate base. This audit involved:

- CL&P's street lighting assets consist of over 163,000 streetlights in 142 towns with a reported net plant value of \$20.4 million.
- Actual plant value of streetlights assets, which can be affected by accounting practices, unit cost allocations, incorrect asset records, and incorrect recording of expenses as capital.
- Employed a random sampling methodology to ensure appropriate sample size to meet the desired error term and confidence interval.

Management Audit of Connecticut Light and Power (2003)

Connecticut Department of Public Utility Commission

Served as Jacobs' project manager and lead electric analyst conducting a complete diagnostic review the major functions of Connecticut Light and Power (CL&P). The scope of the audit included: organization and management, financial systems and controls, marketing, engineering and operations, information technology, customer-service operations, and relationships with affiliate companies.

- Determined the broad base practices and policies in place and evaluated their appropriateness and consistent implementation throughout the organization.
- Reviewed the present practices and procedures in place and made 64 recommendations for modification or change to improve overall efficiency and effectiveness.
- Assessment of CL&P, whose revenues exceed \$2.5 billion per year, included conducting 65 interviews, reviewing 200 documents and benchmarking to comparable companies.

Audit of Capital Budget Expenditures of Pacific Gas & Electric Company (2002)

California Public Utilities Commission

The State of California required that a Capital Budget Audit be conducted for Pacific Gas and Electric Company. The audit was to cover all electric and gas distribution construction expenditures in the year 1999. The Construction Expenditure Budget consisted of over 10,000 projects with aggregate value exceeding \$800 million. While with Stone & Webster Consultants, was lead consultant for the review of electric projects. Significant challenges included: arriving at an approach that would be statistically valid and highlighting how the expenditures contributed to the reliability, integrity and growth of the distribution systems. The project planning process, engineering specifications, and construction work quality were examined and facilities inspected against company policies and procedures, and industry practices. This project was initiated and completed in 2002.

Independent Assessment of Operations and Processes (2001)

Imperial Irrigation District of California

The Imperial Irrigation District of California is a consumer-owned utility, which provides electricity and irrigation water to the Imperial Valley, located in the lower southeast portion of California. While with Stone & Webster, I lead the review of the Districts' electric distribution operations and processes; analysis of electric reliability trends and outage causes; budget review; staffing levels to meet the IID mission; staffing qualifications to perform the duties assigned to them by the district; and utilization of the district physical resources.

Provide Litigation Support (2001)

International Utility

Third party litigation support was provided for a major international gas utility. Assignments included: follow-up and implementation of safety audits, analysis of plastic joint pipe failures and a review of cast iron and ductile-iron asset replacement approaches and surveillance techniques. Genesis for litigation support was client's overall experience with various types of asset materials, several gas explosion incidents and regulatory concerns.

Industry Assignments:

Operations

- Responsible for the installation, operations and maintenance of the gas distribution system. Duties included:

Formation and administration of the strategic operating plan, including a responsive multifunctional organizational structure, efficient manpower planning, regulatory compliance programs, optimal supply and distribution methods, formation and implementation of distribution technology initiatives, and annual capital and expense budgets. Provided innovative and proactive solutions to operational and customer service challenges, managed over 400 employees and 16 locations including engineering, operations, customer service, call center, meter repair facility and training and development. Maintained effective external communications with legislative, regulatory, and industry leaders. Led the formation of a coalition of energy companies to influence statewide Department of Highway construction practices resulting in improved planning, design, scheduling, and reimbursement. Managed an operating budget for labor, materials, and services. Directed negotiations of five labor contracts establishing a five-year agreement, while achieving significant cost reductions. Increased pipe installations with no increase in employees, reduced inventory through supply chain management techniques and reduced meter reading costs due to employee innovation, improved processes and use of new technologies.

Engineering

- Managed the planning, budgeting, design, measurement and engineering support services. Duties included:

Coordinated the preparation, presentation and expenditures of the annual capital and O&M budgets. Oversaw the development of an innovative and highly functional automated mapping and facilities management system, which included Stoner distribution system analysis. Managed the regulatory compliance program including corrosion control. Sponsored teams for process re-engineering and use of new technologies. Developed and negotiated equipment servicing, performance contracting and new product development agreements. Oversaw the development and implementation of construction standards, asset management methodologies, engineering procedures and emergency manuals.

Quality Management/Process Improvement

- Designed implemented and promoted quality activities. Duties included:

Developed and implemented a culture change effort involving over 2,500 employees who advanced their empowerment, coaching and leadership skills. Facilitated employee teams in achieving enhanced levels of customer satisfaction, continuous improvement, employee involvement, and data based decision

processes. Established a process orientation by coordinating a corporate wide assessment, which define processes, established performance measures, analyze benchmark comparisons, and identify gaps, which highlighted a significant cost reduction opportunities. Managed an internal Baldrige assessment, which supported strong customer commitment and continuous improvement. Led a team charged with reviewing stranded electric utility assets and recommending a corporate strategy.

Technical Support and Regional Performance

- Developed a technology and performance focus to improve performance, reduce costs and improve customer service. Duties included:

Initiated and developed a comprehensive information system strategy that established cost/benefits methodology and priorities for mission critical information needs. Developed a joint venture to market a bar code activated electric and gas meter system. Employed technology to improve performance, reduce costs and strengthen customer service relationships. Managed the Public Utility Commission mandated audit. Coordinated the development of a work management system for the Electric and Gas Technical Maintenance Group, which resulted in supporting data based decisions and a reduction in staffing.

Marketing and Business Development

- Coordinated marketing, business development and customer service activities. Duties included:

Coordinated the development of the marketing strategic plan with the operating departments. Recommended corporate marketing resource allocations to insure new business profitability and the creation of revenue. Increased customer satisfaction through improved customer focus in appliance part delivery systems. Supervised the development of a financial model that analyzed the profitability of new business resulting in a reduction in new business expenditures. Managed the business development initiatives process, including idea generation, marketplace evaluation and company positioning. Established customer service policies and procedures and coordinated appliance repair activities. Responsible for the planning, development and implementation of the automated customer dispatch system. Supervised the creation of an industrial customer model to support sales engineers in the gas conversion market. Established a corporate strategy for dealing with the National Coalition Against Unfair Utility Practices.

Publications and Presentations:

- San Bruno Lessons and the Need for Pipeline Modernization, presented to the American Gas Association Operations Conference, 2012.
- Lessons Learned and Industry Implications from San Bruno - Independent Review Panel Report, presented to the INGGA (Interstate Natural Gas Association of America) Foundation Annual Meeting, 2011.
- Report of the Independent Review Panel - Lessons Learned from the San Bruno Incident, presented to the Society of Gas Operators, 2011.
- Review of Recent Regulatory Inquiries on Emergency Preparedness and Service Restoration, presented at the Fifth Annual Summit on Emergency Preparedness and Service Restoration for Utilities, 2010.

- Building a Distribution Pipeline Integrity Management Program, presented at the American Gas Association Operating Conference, 2007.
- Got DIMP? (Distribution Pipeline Integrity Management), presented to the Society of Gas Operators, 2005.
- Utility Tree and Vegetation Management (UVM): An Introduction and Description of Successful Programs, presented at the National Association of Regulatory Utility Commissioners Summer Meeting, 2004.
- Vegetation Management-Improved Approach, presented at the Western Energy Institute Annual Conference, 2004.
- Pipeline Integrity Management Challenges, presented to the Society of Gas Operators, 2003.
- Pipeline Integrity Management – Enhanced Safety, presented to National Safety Council Annual Conference, 2002.
- Innovative Coil Pipe Trailer, paper presented by others at the American Gas Association Operating Conference, 2000.
- The Professional Engineers License, presented to West Virginia University, Institute of Technology, 1999.
- Results Achieved Using Coil Pipe, presented at the Southern Gas Association Annual Conference, 1999.
- Quality Management Experiences, presented to West Virginia University, Institute of Technology, 1998.
- Automated Mapping & Facilities Management Applications, presented at the Geospatial Information & Technology Association Conference, 1997.
- Reengineering - Increase Customer Satisfaction and Cut Costs, presented at the Management Forum Series Conference, sponsored by Scott, Madden & Associates, 1995.
- TQM and Work Management, presented at the North East Gas Council Quarterly Meeting, 1995.

Designated Expert Witness:

- Exelon and Constellation Energy merger (Maryland Public Service Commission), 2011
- First Energy Corp. and Allegheny Energy, Inc. merger (Maryland Public Service Commission), 2010
- Rockford Eclipse valve replacement model (South Jersey Gas Company), 2010
- Electricité de France purchase of Constellation Energy Group's Nuclear Holdings (Maryland Public Service Commission), 2009
- Exelon and PSEG merger (New Jersey Public Utilities Commission), 2006
- Ductile iron pipe failure (Larkhall, Scotland), 2002

Employment History:

Jacobs Consultancy Inc.

2002 – Present

Director

Group Manager

Stone & Webster Consultants

2000 – 2002

Associate Director

Mountaineer Gas Company

1996 – 2000

Vice President of Operations and Engineering

Public Service Electric & Gas Company

1968 – 1996

Manager of Quality Management

Manager of Technical Support

Manager of Regional Performance

Manager of Marketing and Business Development

Manager of Manpower & Cost Control

District Manager & Field Engineer

EXHIBIT- JCI 02

ORIGINAL	
N.H.P.U.C. Case No.	DE 11-250
Exhibit No.	14-2
Witness	ET. DiPalm C. Larry Dalton
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Name: C. LARRY DALTON, P.E.

Title: Senior Power Engineer

Education: B.S, 1968, Mechanical Engineering, Clemson University, Clemson, South Carolina
Graduate Studies: Business Law, University of Alaska, 1970-1971

Registration: Registered Professional Engineer, North Carolina, South Carolina,

Career Synopsis:

Larry has 47 years of engineering design and management experience. His expertise includes boiler design, cogeneration feasibility studies and design, and steam turbine generators specification and design. He began his career as a college student working summers and part-time, progressing to project and staff engineering, Project Manager, and Department and Design Manager in Jacobs' Greenville, South Carolina office, during which time he spent three years as an officer in the U.S. Navy's Civil Engineer Corps. In 1983, he transferred to Portland, Oregon to help establish the office and, in 1989, transferred to the Raleigh, North Carolina office. In May 2011, Mr. Dalton transferred back to the Greenville, South Carolina office. He has a strong background with large industrial power and utilities projects, negotiating contracts with municipal suppliers, obtaining permits, selecting engineers and contractors.

Selected Consulting Assignments:

- Power Project Engineer, NewPage Corporation, Biron and Wisconsin Rapids, Wisconsin, Duluth, Minnesota, Rumford, Maine, Luke, Maryland, Escanaba, Michigan, and Wickliffe, Kentucky. Prepared reports and estimates for compliance with Industrial Boiler MACT, Commercial and Industrial Solid Waste Incinerator, and National Ambient Air Quality Standards. Also considered fuel-switching opportunities, mostly switching from solid fuels to natural gas. Fuels being burned included coal, biomass, sludge, tire derived fuel, railroad cross ties, paper waste, and oil. There were 15 boilers involved, including traveling grate, spreader stokers, pulverized fired, tangential fired, and wall fired units.
- Power Project Engineer, Domtar, Plymouth, North Carolina. Prepared report and estimate for the installation of natural gas supply and equipment for burning gas in the mill. The facilities that were considered for conversion to gas were a chemical recovery boiler, two bark fired power boilers and lime kiln.
- Power Project Engineer, SAPPI, Skowhegan, Maine. Prepared report and estimate for the installation of natural gas supply and equipment for burning gas in the mill. The facilities that were considered for conversion to gas were two bark fired power boilers and limekiln. A second study of more detail was subsequently prepared for installation of gas burners on one of the bark-fired boilers.

- Power Project Engineer, DSM Chemicals North America, Augusta, Georgia. Led estimate for the installation of 2-20 MW and 2-40 MW Combustion Turbines and Heat Recovery Steam Generators for the production of plant use power and steam.
- Power Project Engineer, Confidential Client, South East U.S. Prepared estimate followed by detailed design for several upgrades to two existing chemical recovery boilers. Upgrades included combustion air systems, sweet water condensers, I.D. fan mechanical drive turbines, boiler feed water pumps, and precipitators, and boiler pressure parts replacements.
- Power Project Engineer, Domtar, Espanola, Ontario. Prepared report and estimate for installation of a wet scrubber and new I.D. fan on an existing bark fired boiler.
- Project Manager, Wheelabrator, North Andover, Saugus, and Millbury, Massachusetts. Study, estimate, and design for the installation of belt presses for the removal of entrained ash from the plant drain systems.
- Project Engineer, Confidential Client, Saudi Arabia. Jacobs is the Owner's Engineer for installation of six or seven new oil fired power generation units in an industrial city in Saudi Arabia. Coordinating the review of design documentation for Units 5&6 that are being designed by the turnkey contractor, participated in preparation in the Request for Proposals and construction estimate for Units 7-10, and participating in evaluating the turnkey proposals. The units are 250 MW each with steam conditions of 2,400 psig, 1050°/1050° F.
- Power Staff Engineer, Covanta, Dublin, Ireland. Design of an 1850 tons/day waste-to-energy plant in Dublin, Ireland, which processes the municipal garbage from the greater Dublin area. Jacobs is the EPCM contractor for the project in the Manchester, UK and Dublin, IR offices. Responsible for overseeing the design of the plant that is located on the River Liffey in downtown Dublin. Steam conditions are 865 psig, 830° F.
- Staff Engineer, Wheelabrator, Hilo, Hawaii. Assisted in the development of a 250 ton/day waste-to-energy to process the municipal wastes for the island of Hawaii. This plant concept is to construct the majority of the plant as modules outside of Hawaii and ship the modules to the site. This is an effort to overcome lack of construction resources in Hawaii. Steam conditions for this unit are 900 psig, 830° F.
- Lead Power Engineer, Petro Canada Oil Sands, Inc. Ft. McMurray, Alberta. Design of a new steam and power plant for a grassroots oil sands extraction project. Tasks include preparing specifications, evaluating bids, and assisting with purchase of four (4), 1,200,000 #/hr., 1,250 psig, 925° F. natural and process off-gas fired, field erected, modular boilers, two (2) 60 MW steam turbine generators, and balance of plant equipment. Tasks also included preparation of process flow diagrams, P&IDs, and general arrangements for the plant.
- Chief Engineer / Technical Representative, Progress Energy Alliance, Combined Cycle Power Plants, Raleigh, North Carolina. Combined cycle power plants were located in Rowan and Richmond counties in North Carolina and Effingham County in Georgia. Selecting, designing, and constructing water supplies for plants. These efforts include determining water availability, negotiating contracts

with municipal suppliers, obtaining permits, selecting engineers and contractors, choosing routes and equipment, and monitoring the projects through construction and startup.

- Chief Engineer, Confidential Power Client. Jacobs provided due diligence services for a potential purchaser of power generation assets. Investigation included facilities in North and South America and the Caribbean. Visited five (5) sites in North America.
- Chief Engineer, Confidential Client, Boiler Retrofit Control Project, Mid-Atlantic United States. Evaluated the full range of SO₂ and NO_x retrofit control technologies for two existing boilers. Project goal was to meet NO_x SIP MACT and future mercury requirements. Factored estimates were developed for each option and detailed estimates for the two preferred options.
- Department Manager, Jacobs Engineering, Raleigh, North Carolina and Portland, Oregon. Department Manager to recruit, train, and supervise mechanical personnel. Provided support to the division business development effort by meeting with clients, defining project scopes, and presenting the design capabilities. Reviewed and approved the design budget and schedule. Assigned design personnel to the project team, monitored their progress, and provided support to ensure the project was finished with quality, on time, and within budget.
- Project Manager, Progress Energy, Multiple Plant Alliance, Raleigh, North Carolina. Managed all projects under our Alliance to provide engineering studies, scoping estimates, analyses, design, detailed engineering, and field engineering services to Progress Energy's North and South Carolina plants, including Asheville, Blewett, Cape Fear, Darlington County, Lee, Mayo, Richmond, Robinson, Roxboro, Rowan, Sutton, Tillery, Wayne County and Weatherspoon, as well as Washington County, Effingham County, and Monroe plants in Georgia. Successfully managed more than 160 projects under this alliance agreement.
- Project Manager, Factory Mutual Engineering, Inc., Cogeneration Plant Reconstruction, McAdoo, Pennsylvania. Provided oversight engineering for reconstructing a circulating fluidized bed cogeneration plant following a turbine generator fire.
- Project Manager, Progress Energy, Dry Fly Ash System Upgrade, Raleigh, North Carolina. Prepared report and estimate for upgrade and modification of dry fly ash system serving four (4) pulverized coal fired units.
- Project Manager, Confidential Client, Ash and Sludge Burning Systems. Evaluated and estimated preparation for ash and sludge burning systems for circulating fluidized bed boiler.
- Project Manager, International Paper Company, Recovery Boiler Emergency Drain Controls, Georgetown, South Carolina. Prepared estimate for moving recovery boiler emergency drain controls from existing DCS to stand alone PLC based system.
- Project Manager, Weyerhaeuser, Plymouth, North Carolina. Prepared report and estimates, followed by design for installation of condensate stripper and replacement of recovery boiler dissolving tank vent stack scrubbers.

- Project / Staff Engineer, Progress Energy, Multiple Low NO_x Burner Replacements, Raleigh, North Carolina. Provided design assistance for low NO_x burner replacements at Roxboro (350 and 670 MW units), Mayo (700 MW unit), and Cape Fear (2-200 MW units) North Carolina plants and the Robinson (200 MW unit) South Carolina plant. Also provided design oversight for the replacement on a 670 MW unit at Roxboro for the installation of new pulverizers, primary air fans, feeders, and coal piping.
- Project / Staff Engineer, Progress Energy, Coal Fired Boiler Upgrades, Roxboro, North Carolina. Designed replacement precipitator, ductwork, and expansion joints; and modified fly ash system for pulverized coal fired boiler at the plant.
- Project / Staff Engineer, Tappan Power Corporation, 6,000,000-lb. BLS/D Recovery Boiler Design, Savannah, Georgia and Plymouth, North Carolina. Designed a 6,000,000-lb. BLS/D recovery boiler for Union Camp Corporation, with particular emphasis on combustion air and flue gas ductwork design. Also designed the replacement economizer section on a 1,500-TPD recovery boiler.
- Project / Staff Engineer, Weyerhaeuser, Sludge Dewatering System, Plymouth, North Carolina. Performed evaluation for burning dewatered sludge in bark and coal fired power boilers. This was part of design of sludge dewatering system. Evaluated effects of sludge constituents on operation of pneumatic fly ash system.
- Project / Staff Engineer, Birwelco-Montenay, Dade County Resources Recovery Facility, Miami, Florida. Prepared estimate and design of expansion and retrofit to Dade County Resources Recovery Facility, an existing garbage and trash burning facility. Designed well water, demineralized water, bottom and fly ash systems, spray dryers, and fabric filters.
- Project / Staff Engineer, Burroughs Wellcome Co., 4 MW Gas Turbine Combined Cycle Installation, Greenville, North Carolina. Developed design of a 4 MW gas turbine combined cycle installation.
- Project / Staff Engineer, Lincoln and McBain, Wood Fired Cogeneration Units, Michigan and Northumberland, Pennsylvania. Provided operational and performance testing support for wood fired cogeneration units. Project included on-site observation and heat balance work.
- Project / Staff Engineer, International Paper, Chemical Recovery Boiler, Savannah, Georgia. Developed design for replacement of precipitator, ductwork, ID fan, and stack for chemical recovery boiler.
- Project Manager, International Paper, Conventional Recovery Boiler Conversion, Savannah, Georgia. Prepared study and estimate for converting a 1350 TPD conventional recovery boiler to low odor and increasing liquor burning capacity. Study included modernizing controls and emergency drain system.
- Lead Mechanical Engineer, University of North Carolina, Cogeneration Plant, Chapel Hill, North Carolina. Cogeneration facility which consists of two atmospheric circulating fluidized bed boilers (producing up to 500,000 pounds of steam per hour), a single steam-driven turbo-generator rated at 28 MW (generates one-third of campus electric requirements), and a back-up gas and oil fired boiler. The two CFB boilers use bituminous coal as the primary fuel, with natural gas and fuel oil as auxiliary

fuels. The back-up boiler is reserved for emergencies and peaking. Steam is generated at a high pressure (1,300 psig) to drive the turbo-generator, and then is extracted through dual variable pressure extraction points for end use on campus. Lower pressure steam resulting from this process is used for space/water heating and driving 11,110 tons of steam absorption chillers for space cooling, while slightly higher-pressure steam is used for process loads, such as sterilizing medical equipment.

- Project Manager, Boise Cascade Corporation, Brown Stock Washing and Screening System, St. Helens, Oregon. Provided management and on-site supervision for design, installation, and start-up of brown stock washing and screening system with Bailey NET 90 controls.
- Project / Staff Engineer, Boise Cascade Corporation, 250,000-lbs/hour Gas-Fired Power Boiler Conversion, International Falls, Minnesota. Responsible for preparing the estimate and designing the conversion of a 250,000-lbs/hour gas-fired power boiler to burn bark and sludge on a water-cooled, vibrating grate. Project also included designing a new 250,000-lbs/hour power boiler and preliminary design for a 54 MW turbine generator.
- Staff Engineer, Company Lawsuit, Portland, Oregon. Served as expert witness on lawsuit against client and our company involving personnel injury in a maintenance situation in paper mill. Actions were as a result of employee and coworkers breaking a flange on a pressurized caustic line, resulting in the employee losing an eye. Involved in discovery and deposition stages and then suit was settled out of court.
- Project Manager, Boise Cascade Corporation, DeRidder, Louisiana. Managed project for design and installation of two package boilers and secondary fibers plant.
- Project / Staff Engineer, International Paper Company, Mill Reconfiguration, Georgetown, South Carolina. Developed design and coordination for mill reconfiguration, including mass and heat balances for different mill production scenarios, rebuilding existing recovery boilers, and installing two (2) new bark and pulverized coal fired power boilers, auxiliary systems, and two (2) new turbine generators.
- Project / Staff Engineer, Nova Scotia Forests Industries, New Bark and Oil Fired Power Boiler, Port Hawkesbury, Nova Scotia. Prepared estimate and specification and provided purchasing assistance for new bark and oil fired power boiler.
- Staff Engineer, Company Lawsuit, Greenville, South Carolina. Served as expert witness for competitor engineering firm in lawsuit involving personnel injury. Actions were by an employee who was burned by hot ash when he opened a hopper on a precipitator. Participated in discovery and deposition phases and then lawsuit was settled out of court.
- Project / Staff Engineer, Potlatch Corporation, Power Boilers and Turbine Generators, Lewiston, Idaho. Prepared design and installation of new wood, oil, and gas fired power boiler and two turbine generators. Installation was first 100% wood-fired electrostatic precipitator and a combination pneumatic and hydraulic ash handling system.

EXHIBIT- JCI 03

ORIGINAL	
N.M.P.U.C. Case No.	DE 11-250
Exhibit No.	16-3
Witness	Frank T. D. Palma C. Larry Dalton
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Name: WILLIAM M. WILLIAMS JR.

Title: Group Manager

Education: Saint Leo College, BA, Business Administration
Saint Leo University, Graduate level Business courses

Certifications: FEMA- NIMS, ICS

Career Synopsis:

Mr. Williams is an experienced executive with a strong background in operations, team building, process improvements and performance monitoring. He is heavily experienced in project management, materials management, budgeting, corporate strategic planning, information systems planning, maintenance management, property records, organization and staffing assessments in the utility industries. Career focus on leadership positions in operations, logistics, materials management, changes management, and total quality.

Selected Consulting Assignments:

- Participating in a review of Enbridge pipelines 79, 6B and Flanagan South construction operational risk management practices and procedures. The work effort included a comprehensive review of documents, site visits and interviews with staff
- Participated in an asset acquisition due diligence review for an asset management company interested in acquiring power generation assets in Central America. The work effort included a comprehensive review of documents, site visits to four power plants, interviews with local seller staff, developing and employing a model to simulate market conditions for projections of future asset viability and economic benefits.
- Participated in providing technical expertise to Connecticut Public Utilities Regulatory Authority's (PURA's) staff in areas pertaining to electric distribution company and gas company preparation for and action in response to significant outages that occurred as a result to Hurricane Sandy.
- Participated in an emergency response standards review for the Connecticut Public Utility Regulatory Authority. The review focuses on preparation and plans, restoration activities, including mutual assistance and communications to assist stakeholders. A comparison of standards employed by other regulatory jurisdictions is under review.
- Participated in a review of Soctia Gas Network business plans submitted for Ofgen's RIIO-GD1. The review included the areas of outputs, efficient expenditure, uncertainty and risk and financial costs.
- Participated in a review of the Sam Bruno pipeline explosion for PG&E on behalf of the California Public Utilities Commission, with a focus on adequacy of PG&E's Gas Emergency Plan and execution during the event in accordance with the plan.
- Participating in a Central Alberta Rural Electric Association review of operational capacity and providing specialized analysis of transmission cost allocation and feasibility of becoming a load

- Project / Staff Engineer, Weyerhaeuser Company, Power Boilers and Turbine Generators, Plymouth, North Carolina. Prepared design and installation of new wood and oil fired power boiler and two turbine generators. Installation included pneumatic ash handling system and two 40-50 MW extraction/back pressure turbine generators.

Employment History:

Jacobs

1966 – date

Chief Engineer, Power and Utilities

Mechanical Department Manager

Project Manager

Project and Staff Engineer

serving agency in the Province, development of a new independent operating agreement with Fortis and assistance during the Fortis Phase 2 rate filing.

- Participating in a review of Public Service New Hampshire Flue Gas Desulphurization installation that includes a due diligence report on the completed portion and on-going monitoring of the project.
- Participated as a lead consultant in a study for the City of Ocala to evaluate the city electric department's operational efficiency and effectiveness, to evaluate the city's full requirements contract with FMPA, and to assess quantitative and qualitative aspects for the city to remain in the electric utility business or consider selling.
- Participated in a focused management audit of Fitchburg Gas and Electric Company, a unit of Unitil. The audit covers Strategic Planning, Staffing & Workforce Management, Management & Control, Customer & Public Relations, and Emergency Preparedness & Response Planning.
- Participated in a storm response audit of Connecticut Light and Power Company and United Illuminating preparation and response to a major winter storm in March 2010.
- Participating in the development of energy assurance planning documents, procedures and table-top exercises for the states of North Dakota and Idaho. This assignment includes development of critical asset information, identification and assessment of vulnerabilities and development of mitigation methods for energy supply system disruptions.
- Participated as a lead consultant for an engagement to provide an independent review and comments on a series of reports prepared by PacifiCorp in response to a winter storm outage that affected up to 190,000 customers over an 8 day period. The assignment included a comprehensive analysis of the report with focus on conclusions and recommendations and the level of completeness and conformance with the terms of reference. We prepared professional opinions regarding the conclusions and recommendations contained in the report, and offered additional conclusions and recommendations with supporting rationale, analysis, and/or industry comparisons as appropriate. We were subsequently retained to review PacifiCorp's implementation progress for the 18 recommendations in our original report.
- Participated in a study led by Jacobs Consultancy to determine the workforce adequacy of the five Illinois investor owned utilities for the Illinois Commerce Commission. This effort included a review of work practices, labor resources both internal and external, work backlog, workforce management and construction and maintenance practices.
- Participated as a lead in a distribution plant evaluation for Central Maine Power on behalf of the Maine Public Utilities Commission. This effort included a review of reliability performance, system design and planning, vegetation management and a physical condition assessment of the distribution system.
- Project Manager of a gap analysis and benchmarking project involving plant operations at ALCOA's Rockdale, Texas. The results help to determine areas for improvement in operations and improve the plant competitiveness.
- Project Coordinator in the NJBPU service reliability focused management audits of the four New Jersey-based electric utilities. To determine the effectiveness of their response and communications during a major outage.

- Project Manager on the Bahamas Telecommunications Corporation organization and staffing study. Developed staffing requirements and organization structure, which reduced staff by 40 % and saving \$62 million a year.
- Project Manager in a study of internal practice management systems for Stone & Webster Engineering Corporation

Industry Assignments:

- ***Operations Management***
 - Responsible for daily power generation operation during manager absence and acted as intermediary between Division staff of 250 personnel and upper management.
 - Supervised a staff of 29 maintenance and outage planning, administrative and warehousing personnel, including four supervisory personnel for an electric production division.
 - Supervised a staff of 61 plant materials managers, administrative, production control and purchasing personnel in 7 states for a major glass manufacturer.
 - Facilitated and developed the strategic planning process for a municipal utility department.
 - Implemented best practice change management methodologies.
 - Directed the review and rewriting of department wide policies and procedures.
 - Developed performance indicators and management tracking system for glass and utility industry.
 - Directed training department for craft and operations personnel.
- ***Reliability, Management Audits and Operational Assessments***
 - Participated in a review of Questar Gas Company's gas gathering and processing contracts on behalf of the Utah Division of Public Utilities. This study included arms-length determination of relationships, costs, pricing and performance over the past five years with a particular focus on cost of service rate spike experienced in 2007.
 - Participated as a lead in an audit and analysis of distribution line extension costs and their derivation for Central Maine Power on behalf of the Maine Public Utilities Commission.
 - Participated in a due diligence review of the proposed Exelon-PSE&G merger on behalf of the New Jersey Board of Public Utilities. This assignment covered a thorough review of the customer service functional area, including the call center, customer service centers, the customer information system, street lighting, customer billing and complaint resolution.
 - Provided litigation support for PacifiCorp for a federal district court case and a Wyoming Public Utilities Commission filing relative to claimed losses due to outages suffered over a period of five years.
 - Project Manager on multiple projects for JEA that resulted in approximately \$2.25 million yearly saving, which included the following:
 - Multi-phased cost analysis and work process improvement project involving Customer Service areas.

- Facilitating the implementation of process improvement for JEA and Duval County Tax Collector in areas of operations, facilities design, call center staffing and design, and training.
 - Multi-phased work process improvement project involving staffing assessment of the Jacksonville Water and Sewer Department pre-merger.
 - Cost benefits analysis project of the merger between the electric and water and sewer departments.
 - Multi-phased work process improvements and staffing assessment and reassignment project involving the support staff.
 - Project Manager in charge of a multi-phased Cost Analysis and Work Process Improvements project involving JEA, the Jacksonville Public Utilities Department and Duval County Tax Collector's Office.
 - Responsible for performing benchmarking study of various utilities including Transmission Pipeline Australia and Entergy Gulf States.
 - Consultant responsible for developing Table of Organization and Equipment as part of a fleet assessment for National Grid.
 - Participated in a major service quality assessment for Entergy Gulf States in the area of distribution. This included field inventory and inspection of over 8,000 distribution poles and ancillary pole mounted equipment, computer modeling to suggest potential reliability improvements and their costs and a review of capital, operations and maintenance budgets, methods and procedures.
- ***Maintenance and Materials Management***
 - Project Manager on a base line cost analysis project of a large southeastern utility materials management process. Recommended process improvements that resulted in a \$1.5 million yearly saving and a onetime saving of \$2.3 million.
 - Managed all warehousing and inventory operations, responsible for overseeing the physical facility redesign and rearrangement planning, and executing the organizational modification at an operating municipal power plant.
 - Managed a team of consultants and professional consulting engineers in establishing a comprehensive outage planning and work force management/productivity measurement and improvement program at an operating municipal power plant.
 - Consultant responsible for conducting materials management portions of focused management and operations audits for Chattanooga Gas Company, U.S. Virgin Islands PSC, and Nevada Power Company.
 - Provided logistical support for the preparation of 80 uniform plant maintenance procedures and associated, detailed standard time estimates.
 - Managed staff of plant maintenance planner for outage efforts of an operating municipal power plant reducing outage time from seven weeks to 3 and average saving \$1.3 million a year.

- Provided leadership and project management during the design of the maintenance and materials management system needed for computerization support of the plant's work force management program.
 - Responsible for integration of the material management and productions control department into a single business unit with a yearly saving of \$300,000.
 - Lead the formation of "RAPID" parts delivery program for 216 participating utilities. Responsible for electronic data gathering, cataloging, and information integrity, which allowed utilities to lower inventories by 15%.
- **Organization/Feasibility Studies**
 - Consultant involved in developing staffing requirements for new gas companies at the Abu Dhabi Natural Gas Distribution Company in the Emirate of Abu Dhabi and Chilquinta Gas Distribution Company in Santiago, Chile.
 - **Budgeting**
 - Developed a 10-year forecast of O&M and capital budgets and administered annual budget of over \$74 million using business analysis of budget versus productivity.
 - Set and monitored performance indicators based on financial data.

Employment History:

<u>Jacobs Consultancy Inc.</u>	2010 – Present
<i>Group Manager</i>	
<u>Williams Consulting, Inc.</u>	2000 – 2010
<i>Principal & Consultant</i>	
<u>Stone & Webster Management Consultants, Inc.</u>	
<i>Senior Consultant</i>	1999 – 2000
<i>Consultant</i>	1995 – 1999
<u>City of Lakeland, Electric and Water Department</u>	1984 – 1994
<i>Assistant Plant Manager</i>	
<u>Thatcher Glass Manufacturing Company</u>	1976 – 1984
<i>Corporate Materials Manager</i>	
<u>Plant City Steel Corporation</u>	1971 – 1976
<i>Production Control Manager</i>	

EXHIBIT JCI 04 – Comparison of Cost Estimates for Clean Air Project, URS versus Sargent & Lundy

ORIGINAL	
N.H.P.U.C. Case No.	DE 11-250
Exhibit No.	16-4
Witness	Frank J. DiPalma
	Harry Dalton
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Item	PSNH/URS Item Description	PSNH/URS June 2008 Estimate	PSNH/S&L 2006 Estimate	PSNH/S&L 2005 Estimate	Discussion of Differences
1	Program Manager	39.3	18.1	145.0	The S&L 2005 conceptual estimate was an inclusive number including the 4 major islands, program management, balance of plant, etc. with no specific defined scope. During 2006 S&L continued to refine their conceptual estimate while the 2008 URS estimate was based on complete detailed scope of work.
2	Flue Gas Desulfurization Island	100.0	75.0	included in 1	At the time of S&L 2005 or 2006 estimate no specific mercury guarantees was available from vendors. The 2008 URS estimate included guarantees and increased redundancy for tankage. This included increasing the size of the scrubber vessel to allow more contact time to help achieve the mercury reduction guarantees.
3	Chimney Island	13.1	13.1	included in 1	
4	Waste Water Treatment Island	15.0	11.0	included in 1	At the time of S&L 2005 or 2006 estimate no specific mercury guarantees was available from vendors. The 2008 URS estimate included guarantees and increased redundancy of two complete trains to ensure compliancy with the discharge limits established by the NHDES and the USEPA for NPDES requirements.
5	Materials Handling Island	44.8	21.8	included in 1	The S&L estimates were based on assumption from previously installed scrubbers and didn't account for the uniqueness of the area or winter conditions. The S&L estimate assumed a 14,000 sq. ft. gypsum storage building was needed but after detail engineering the actual building was 26,600 sq. ft. The S&L estimates assumed hooded conveyors, car unloader was bottom dump, basic hopper arrangement and did not included an emergency silo fill bucket elevator or receiving hopper. The URS designed the material handling system to take into account the winter

					conditions and estimated the system with enclosed conveyor galleries, rotary dump for car unloading, silo discharge was rotary plow discharger and included the emergency silo fill bucket elevator or receiving hopper.
6	URS Engineered Equipment	26.1	9.5	included in 1	S&L estimated that MK-1 and MK-2 would share a single duct to the scrubber, URS keeping in the mind the aspects of having to balancing an unequal flow into the same duct channel designed separate ducts including associated equipment such as insulation, dampers, and expansion joints.
7	URS Balance of Plant	61.0	38.3	included in 1	The S&L estimate included no infrastructure improvements and assumed that service water and quench water pumps could be installed in existing pump house. The URS estimate included infrastructure improvements such as a new laydown area, 700 car parking area, guardhouse, truck scale, truck wash building and equipment, and plant entrance modifications. The estimate also included a new service water pump house.
8	URS Escalation	23.0	0.0	45.0	
9	URS Growth and Contingency	19.1	11.6	included in 8	Reflects contingency associated with URS work scope.
10	Electrical power Supply	14.9	6.3	included in 1	Refer to Response 7.
11	New Yellow Building	1.5	0.0	0.0	Not in S&L scope. New meeting and training center.
12	E-Warehouse	1.0	0.0	0.0	Not in S&L scope. New warehouse to store the following items: <ul style="list-style-type: none"> • Inventory from the South yard buildings to be demolished for scrubber construction • Scrubber inventory • Temporary scrubber inventory during construction

13	NU Labor	6.7	35.2	18.0	
14	NU Costs	15.4	included in 13	included in 13	The S&L estimate did not include either insurance or outside consultants, which are included in the URS estimate.
15	NU Costs (Miscellaneous)	4.1	included in 13	included in 13	Lab Equipment, Trailers, Limestone & Gypsum for Testing, Permitting, Demo & Relocations, Site Security, Construction Power Substation, Air Modeling, Final Clean Up.
16	NU Indirect Costs	5.5	included in 13	included in 13	
17	AFUDC	56.5	included in 13	12.0	
18	Contingency	10.0	10.0	30.0	Reflects contingency associated with Owner's costs.
	TOTAL	457.0	250.0	250.0	

ORIGINAL

N.H.P.U.C. Case No. DE 11-250

Exhibit No. 16-5

Witness Frank + D. Palm
C. Harry Dalton

DO NOT REMOVE FROM FILE

EXHIBIT JCI 05 - Clean Air Project Scope Changes

	Item-Additions	Reason	Cost (\$M)
1	Limestone Truck Unloading	Flexibility to obtain delivery and cost competitiveness	4.0
2	Truck Scales	Reduces cost of fees from third party scalers	0.3
3	Corrosion Protection of FGD Vessel - Potential Adjustment Protection System (PAPS)	Technical issue discovered by the industry post initial engineering design - corrosion protection with A2205 alloy	1.9
4	Acoustical Study changes including - Gypsum Building Expansion, Booster Fan Enclosure, and other acoustical treatment installations	Town of Bow - new requirements	5.6
5	EMARS (enhanced mercury and arsenic system)	DES - water division - new permitting requirement	3.5
6	Secondary Waste Water Treatment (SWWT) - including first effect, second effect, acid pump injection system	EPA's decision to include this new, highly treated FGD discharge in the lengthy MK Station NPDES renewal process	32.6
7	Soda Ash softening process	Necessary Pretreatment to the SWWTS	3.8
8	Service Water Pumphouse Relocation	Town of Bow - permitting constraints	3.2
Item-Deletion			
1	New rail unloading for limestone	More cost effective to modify existing coal car unloader system	-12.2