**BEFORE THE**

**GEORGIA PUBLIC SERVICE COMMISSION**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **IN THE MATTER OF GEORGIA POWER COMPANY’S TWENTY-SIXTH SEMI-ANNUAL VOGTLE CONSTRUCTION MONITORING REPORT** | | | **DOCKET NO. 29849** | | |
|  | **DIRECT TESTIMONY** | |  |
|  | **AND EXHIBITS** | |  |
|  | **OF** | |  |
|  | **STEVEN D. ROETGER**  **WILLIAM R. JACOBS, JR., PhD.** | |  |

**ON BEHALF OF THE**

**GEORGIA PUBLIC SERVICE COMMISSION**

**PUBLIC INTEREST ADVOCACY STAFF**

**JUNE 17, 2021**

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## I. INTRODUCTION

**Q. PLEASE STATE YOUR NAMES, TITLES AND BUSINESS ADDRESSES.**

**A**. My name is Steven D. Roetger. I am the lead analyst for the Georgia Public Service Commission (“Commission”) Staff Public Interest Advocacy Team for the Vogtle Construction Monitoring Docket 29849. My business address is 244 Washington Street, S.W., Atlanta, Georgia, 30334.My name is William R. Jacobs, Jr., Ph.D. I am an executive consultant with GDS Associates, Inc. My business address is 1850 Parkway Place, Suite 800, Marietta, Georgia, 30067.

**Q. MR. ROETGER, PLEASE SUMMARIZE YOUR EDUCATIONAL BACKGROUND AND EXPERIENCE.**

**A.** I hold a Bachelor of Business Administration degree from Georgia State University. I have been employed by the Georgia Public Service Commission since September of 2008, primarily in the capacity as the Staff team leader for monitoring the Plant Vogtle Unit 3 and 4 Project under Docket 29849. Also, I was a member of the Public Interest Advocacy Staff team for the Plant Vogtle Unit 3 and 4 Certification (Docket 27800), and a Commission Advisory Staff team member for various other proceedings. Prior to joining the Commission, I held various positions in either an accounting or finance capacity for firms in different industries. My resume is included in Exhibit STF-SDR-1.

**Q. DR. JACOBS, PLEASE SUMMARIZE YOUR EDUCATIONAL BACKGROUND AND EXPERIENCE.**

**A.** I received a Bachelor of Mechanical Engineering in 1968, a Master of Science in Nuclear Engineering in 1969 and a Ph.D. in Nuclear Engineering in 1971, all from the Georgia Institute of Technology. I am a registered Professional Engineer and a member of the American Nuclear Society. I have more than forty years of experience in the electric power industry including more than twelve years of nuclear power plant construction and start-up experience. I have participated in the construction and start-up of seven nuclear power plants in this country and overseas in management positions including start-up manager and site manager. As a loaned employee to the Institute of Nuclear Power Operations (“INPO”), I participated in the Construction Project Evaluation Program, performed operating plant evaluations and assisted in development of the Outage Management Evaluation Program. Since joining GDS Associates, Inc. in 1986, I have participated in rate case and litigation support activities related to power plant construction, operation and decommissioning. I have evaluated nuclear power plant outages at numerous nuclear plants throughout the United States. I served on the management committee during construction of Plum Point Unit 1, a 650 Megawatts Electric (“MWe”) coal fired power plant. As a member of the management committee, I assisted in providing oversight of the Engineering, Procurement and Construction (“EPC”) contractor for this Project. I have assisted the Georgia Public Service Commission as the Independent Construction Monitor in providing oversight of the Vogtle 3 and 4 Project since August 2009. My resume is included in Exhibit STF-WRJ-1.

**Q. WHOM ARE YOU REPRESENTING IN THIS PROCEEDING?**

**A.** We are representing the Commission’s Public Interest Advocacy Staff (“Staff”) Team in this matter.

**Q. MR. ROETGER, WHAT IS YOUR INVOLVEMENT WITH THE VOGTLE 3 AND 4 PROJECT?**

**A.** Since Docket No. 27800, I have been directly involved in the oversight of the Plant Vogtle Unit 3 and 4 Project (“Project”) as lead analyst of the Staff Team. I have closely monitored the Project with Dr. Jacobs since certification. Among other oversight, along with Dr. Jacobs, I monitor the Project areas that either have realized schedule delays or show a risk of potentially experiencing delay or increased Project cost. I have testified in the Eighth through the Twenty-Fifth Semi-Annual Vogtle Construction Monitoring (“VCM”) proceedings.

**Q. DR. JACOBS, WHAT IS YOUR INVOLVEMENT WITH THE VOGTLE 3 AND 4 PROJECT?**

**A.** I am the Commission’s Independent Construction Monitor (“CM”) for the Project. My duties are to assist the Staff Team in its regulatory oversight of all aspects of the Project and to keep the Commission informed of significant Project issues or changes in the Project forecast Cost and Schedule as they occur. In addition, I keep the Commission informed of significant challenges to the Project that could impact the Project forecast Cost and/or Schedule. I have presented testimony in the Plant Vogtle Unit 3 and 4 Certification (Docket 27800) and the First through the Twenty-Fifth Semi-Annual VCM proceedings describing the construction monitoring activities, the status of the Project and any concerns or significant issues.

**Q. WHAT IS YOUR ASSIGNMENT IN THIS PROCEEDING?**

**A.** Our assignment is to present the results of the Staff’s oversight from certification of the Project to the present with emphasis on the time period covered by the Twenty-Sixth Semi-Annual VCM Report (“26 VCM”), July 1, 2021 to December 31, 2021. In this testimony, we present our analysis of the current status of the Project and discuss at a high level the status of the most recent Schedule and Cost forecast provided by the Company and identify risks and areas of concern for the Project. Details of the schedule and cost analyses are provided in the testimony of Mr. Donald N. Grace.

**Q**. **PLEASE DESCRIBE THE CONSTRUCTION MONITORING PROGRAM THAT THE STAFF TEAM HAS IMPLEMENTED TO MONITOR THE CONSTRUCTION OF THE VOGTLE 3 AND 4 PROJECT.**

**A.** As described in prior VCM testimonies, the Staff Team continues to actively monitor the Project. Monitoring activities include monthly meetings between Staff and Company personnel to discuss Project status. Since COVID-19 has diminished, the Staff Team has begun regular site visits again. Staff continues to be active in all major site related meetings such as the Monthly Project Review (“MPR”) meeting. We review the Company’s Weekly Metrics reports, Monthly Status Reports including addenda, and submit data requests to the Company for additional information. The Team has continued its review of the Company’s process for handling Project invoices from WEC[[1]](#footnote-1) and Bechtel[[2]](#footnote-2), and other Company contractors. This includes review of the Project cost control procedures and sampling of processed invoices. Please refer to the Shemetha Q. Jones testimony for further details on the cost review Staff performs. Other examples of activities conducted by the Staff Vogtle Construction Monitoring Team include:

* Review of Monthly status reports issued by Bechtel and Westinghouse;
* Review of the Company’s Semi-Annual VCM Reports and testimony;
* Preparation of discovery requests for additional information as needed following review of the monthly status reports, semi-annual construction monitoring reports or meetings with the Company;
* Monitoring via teleconference the site Plan of the Day and Work-To-Go meetings;
* Monitoring of Change Control Board meetings and decisions;
* Attendance via teleconference in bi-weekly SNC Management Update calls;
* Attendance in monthly meetings with the Company to review the Project Management Board presentation;
* Participation in Nuclear Regulatory Commission (“NRC”) public meetings in person and via conference call as appropriate;
* Review of public correspondence between the Company and the NRC;
* Review of correspondence between the Contractor and the Company;
* Review of trade articles and journals related to new nuclear power plant development;

In addition, as described in our testimony in the Twenty-First VCM, the Vogtle Project monitoring activities by Staff and the Construction Monitor have been augmented by the addition of the Vogtle Monitoring Group (“VMG”) personnel. VMG activities include a full-time experienced construction monitor stationed at the Vogtle site and detailed schedule and cost analyses as presented in Mr. Don N. Grace’s testimony.

**Q. WHAT TIME PERIOD BEYOND DECEMBER 31, 2021 DOES YOUR TESTIMONY COVER AND WHY?**

**A.** The results of our monitoring includes the January through May 2022 time period. Staff covers the most recent months for which it has accurate data in order to keep the Commission apprised of the status of the Project in as close to real time as possible.

**Q. HAS STAFF’S STANDARD FOR EVALUATING THE PERFORMANCE OF SNC AND GEORGIA POWER COMPANY CHANGED AS A RESULT OF COVID-19?**

**A.** No. Under all circumstances Staff uses the reasonableness and prudency standards as dictated by statute.

**Q. HAS STAFF LOOKED AT THE COSTS AND SCHEDULE IMPACTS OF COVID-19?**

**A.** Now that COVID-19 has been present on the Project for nearly 20 months, Staff is able to factor into its analyses and conclusions assumptions regarding the impacts of the virus.

## II. UNIT THREE STATUS

**Q. PLEASE DESCRIBE UNIT 3 SCHEDULE PERFORMANCE DURING THE VCM 26 PERIOD AND THROUGH MAY 2022.**

A. The Unit 3 schedule continues to be extended at a rate of nearly one month of schedule slippage per calendar month of work on the Unit. First time quality issues such as, but not limited to, resolution of the IEEE 384 cable separation requirements and completion of many thousands of open Inspection Reports, along with completion of required plant systems and testing have resulted in continued delays of Unit 3 Fuel Load and COD. At the end of September 2021, the mid point of the VCM 26 period, the Company extended the Risk Adjusted Schedule Unit 3 and Unit 4 COD dates, that had been established only one month earlier in July 2021, by 3 months to September 2022 for Unit 3 and June 2023 for Unit 4[[3]](#footnote-3). At the end of the fourth quarter in December 2021, the Company again extended the Unit 3 COD date by another 3-6 months, projecting a Risk Adjusted Schedules (“RAS”) of a possible range for Fuel Load dates of August 2022 to October 2022 and a range of COD dates from December 2022 to March 2023. Unit 4’s RAS was also extended as explained below.

**Q. PLEASE BRIEFLY DESCRIBE THE SITE WORKING PLAN COMPARED TO THE RISK ADJUSTED SCHEDULE.**

A. The Site Working Plan (“SWP”) is the schedule used by Southern Nuclear Company (“SNC”) to manage construction activities at the site. This schedule is based on assumed rates of production that are rarely, if ever, achieved and on overly optimistic results from the numerous performance improvement initiatives at the site. The SWP contains no margin or contingency and assumes that the majority of activities will be perfectly executed, which, in fact, never happens. As such, the SWP is never achieved, and therefore Major Milestone completion dates are *often adjusted forward*. In prior testimonies we have described in detail the negative impacts on the Project of using an unachievable schedule to manage the Project.

The current RAS[[4]](#footnote-4) incorporates more realistic activity durations in the Project schedule which are based on current production rates, the amount of work required to achieve Project milestones and the known risks that could potentially impact the Project schedule. The RAS typically projects Project milestones such as Fuel Load and COD several months later than the SWP. The RAS has also been revised periodically when it no longer reflects current progress, or lack thereof, on the Project. The revision of the RAS occurred during December 2021. Public disclosures made by the Company and Co-Owners regarding the Project schedule are generally based on the RAS.

**Q. PLEASE COMPARE THE VCM 25 DATES TO THE VCM 26 DATES FOR THE MAJOR MILESTONES OF FUEL LOAD AND COD FOR UNIT 3 AS SHOWN IN THE VCM REPORTS.**

A. The dates for Fuel Load and COD from Table 1-A of the Company’s Twenty-fifth and Twenty-sixth Vogtle Construction Monitoring Reports are shown in Table 1 below. Additional detail is provided in Mr. Grace’s testimony.

Table 1 – Comparison of VCM 25 and VCM 26 Unit 3 Milestone Dates

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Unit 3 Milestone | VCM 25  Site Work Plan | VCM 26  Site Work Plan | Months Delay SWP | VCM 25  Risk Adjusted View | VCM 26  Risk Adjusted View | Months Delay  Risk Adjusted View |
| Fuel Load | 11/2021 | 4/2022 | 5 | 2/2022 | 8/2022 to 10/2022 | 6 to 8 |
| COD | 3/2022 | 9/2022 | 6 | 6/2022 | 12/2022 to 3/2023 | 6 to 9 |

We note that in the six months between the Company’s reports in VCM 25 and VCM 26 Fuel Load has slipped 5 months based on the SWP and 6 to 8 months based on the RAS, and COD has slipped 6 months based on the SWP and 6 to 9 months based on the RAS. This demonstrates that during the 26th VCM period the Unit 3 schedule has continued to slip month per month. It should be noted that during the 26th VCM period the Site was spending on average over $200 million per month. This does not include Owners’ Costs which have to be expended as well.

**Q. WHAT WAS YOUR VIEW REGARDING ADDITIONAL UNIT 3 SCHEDULE DELAYS IN YOUR TESTIMONY IN VCM 25?**

A. In our VCM 25 testimony we stated that it was our opinion that the then current Risk Adjusted Schedule Unit 3 COD of September 2022 is more reasonable than prior schedules issued by the Company. However, we stated that the Risk Adjusted Schedule COD of September 2022 faced significant challenges and that a more probable forecast for Unit 3 COD would be between December 2022 and February 2023. As seen in Table 1 above, this forecast aligns well with the Company’s current RAS except that the Company’s RAS includes an additional one month of delay out to Unit 3 COD in March 2023.

**Q. WHAT IS THE CURRENT CRITICAL PATH TO FUEL LOAD FOR UNIT 3 AT THE TIME OF WRITING THIS TESTIMONY?**

A. The scope of work needed to achieve Fuel Load based on the information presented at the Monthly Project Review meeting held on May 17, 2022 includes:

* Complete all ITAAC and submit ITAAC complete letter to the NRC;
* Receive the 103(g) authorization to load fuel from the NRC;
* Complete and close 11,573 Inspection Records;
* Complete 5,145 Work Packages;
* Complete 638 Engineering Service Requests with outstanding engineering work;
* Complete turnover of 2 systems from Construction to the Initial Test Program Group (ITP);
* Complete 735 component tests;
* Complete 39 pre-operational tests;
* Complete 22 Area turnovers.
* Complete transition of 41 systems to Operations.

**Q. WHAT IS YOUR OPINION OF THE CURRENT UNIT 3 RISK ADJUSTED SCHEDULE?**

A. Staff believes that the Company should be able to achieve Unit 3 COD by February 2023 as shown in the current RAS. The February 2023 date provides a 3.5-month margin to the current SWP of COD on November 15, 2022 per the schedule presented at the May 17, 2022 Monthly Project Review Meeting. However, Staff notes that the February 2023 COD is not entirely without risk. Staff’s areas of concern include the Company’s plan to complete a significant amount of work after Fuel Load when the plant will be subject to the Technical Specifications, which are the operating rules for a nuclear power plant. In addition to completion of required surveillance tests and other activities to prepare the plant for operation, based on the May 2022 MPR the remaining construction and testing activities includes:

* Completion of 1,387 Inspection Records;
* Completion of 1,145 Work Packages;
* Completion of 146 Corrective Action Program items;
* Completion of 274 Component Tests;
* Completion of 29 Pre-operational tests

An additional concern is the fact that many of the systems and components have yet to be tested on the secondary plant, the steam and generating side of the plant, which is a design that has yet to be operated at power. While the primary (nuclear) side of the plant is essentially identical to the four units in China that are operating well, the secondary plant is a unique design that has never been subject to the pressure and temperature conditions experienced when the plant is in operation at power. There is a strong likelihood that equipment and design issues will be identified during the initial operation of this equipment.

## III. INSPECTION RECORD BACKLOG

**Q. IN YOUR TESTIMONY ABOVE YOU STATE THAT 11,573 INSPECTION RECORDS ARE REQUIRED TO BE CLOSED BEFORE FUEL LOAD.**

A. Correct.

**Q. PLEASE EXPLAIN THE PURPOSE OF AN INSPECTION RECORD AND DISCUSS THE MAGNITUDE OF OPEN INSPECTION RECORDS NEEDING CLOSURE PRIOR TO FUEL LOAD.**

A. An Inspection Record (“IR”) is essentially a data sheet contained within a work package upon which data required to support the completion of the work package is recorded. The requirements of the IR are determined during development of the work package. All IRs within a work package must be closed before the associated work package can be closed. Closure of IRs and the associated work packages has been one of the critical paths to Fuel Load.

**Q. WHEN AND HOW WAS THE ISSUE OF INCOMPLETE IRs IDENTIFIED AND WHAT WAS THE NUMBER OF INCOMPLETE IRs WHEN THE ISSUE WAS DISCOVERED?**

A. As described in the Company’s response to Data Request STF-225-2 the incomplete or insufficient IRs were primarily associated with electrical work packages related to room turnovers. The magnitude of uncompleted IRs related to room turnovers was not discovered until the fourth quarter of 2021 when SNC realized that Bechtel had not completed these IRs in the room turnover scope in real time. That is, they were not completed as the work was being done and were intentionally left to be completed at a later date, i.e. left for room turnovers. As of mid-December 2021, approximately 26,000 electrical IRs required for Fuel Load were not completed.[[5]](#footnote-5)

**Q. HAS THE COMPANY CONDUCTED A ROOT CAUSE OR CAUSAL ANALYSIS TO DETERMINE HOW THE PROJECT FOUND 26,000 INCOMPLETE ELECTRICAL IRs IN LATE 2021 WHICH AT THAT TIME WAS ONLY THREE MONTHS FROM THE SWP FUEL LOAD DATE OF MID-MARCH?**

A. We have asked the Company if a Root Cause Analysis or Causal Analysis has been conducted to identify the reason(s) for this huge IR backlog and to prevent a similar situation on Unit 4. The response was that Company personnel were not aware of any formal Root Cause or Causal analysis of the IR backlog. The most relevant response came during a Monthly Project Review meeting when, in response to a question regarding the cause of this backlog, senior SNC Project management stated “Someone didn’t do their job.” However, it was ‘determined that the definition of inspection lacked sufficient clarity for consistent execution[[6]](#footnote-6)’.

**Q. IS THE STATEMENT THAT “SOMEONE DIDN’T DO THEIR JOB” AN ADEQUATE RESPONSE TO THE FAILURE TO COMPLETE 26,000 IRs?**

A. No, it is not an adequate response. This backlog of IRs had a significant impact on the Project including delay of room turnovers, delay of completion of all ITAAC and, ultimately, delay of Fuel Load. In addition, the extensive effort needed to close these IRs delayed the transfer of critical personnel from Unit 3 to Unit 4, which has resulted in delays to Unit 4. We believe that a formal Root Cause Analysis should have been conducted.

**Q. WHAT IS STAFF’S OPINION REGARDING HOW AND WHEN INSPECTION RECORDS ARE TO BE CLOSED?**

A. It is common sense to close an IR as the work is performed. An IR is required in the work package to confirm that the work has been performed such that it meets the applicable requirements and codes in that work package. For example, the specifications for a significant length of seismic cable tray required that the bolts be torqued to a set value. Because that inspection did not occur to verify the correct torque value was being used in parallel with the work, and no inspection record existed to verify the torque value, each bolt had to be loosened, and then retightened to the specific torque value. During this second iteration of the same work, the torque value was witnessed and confirmed and the torque wrench was conformed to be in calibration. This IR could then be closed.

## IV. UNIT 4 STATUS

**Q. PLEASE PROVIDE AN UPDATE ON THE STATUS OF UNIT 4 SCHEDULE.**

A. As with Unit 3, the Unit 4 Major Milestones continue to slip with its Risk Adjusted Schedule (“RAS”) COD now forecast to be December 2023.[[7]](#footnote-7) This represents an additional 6-month schedule extension from the prior RAS COD of June 2023 presented in the November 2021 Monthly Project Review meeting just prior to our filing of testimony in VCM 25.

**Q. WHAT IS YOUR ASSESSMENT OF THE COMPANY’S CURRENT UNIT 4 RISK ADJUSTED SCHEDULE COD OF DECEMBER 2023?**

A. The Company should be able to achieve the Unit 4 Risk Adjusted COD of December 2023 if the Company successfully implements the Lessons Learned from Unit 3 and follows good construction practices including:

* Manage the Project using schedules that, while aggressive, are reasonable and achievable;
* Emphasis on first time quality;
* Ensure that all required codes and standards such as IEEE 384 are correctly implemented to avoid costly rework;
* Implementing a “sign-as-you-go” procedure to avoid the large backlog of incomplete IRs and work packages experienced on Unit 3;
* Stay in the bulk construction mode in electrical construction until a high percentage of electrical installation is complete;
* Minimize use of the Partial Release for Test (“PRT”) process;
* Do not push work forward past a scheduled milestone to accomplish a given milestone at the expense of future milestones. For example, Unit 3 Fuel Load is currently forecast one year after completion of HFT due to the amount of work remaining to be completed after HFT and the discovery of major quality issues;

**Q. PLEASE BRIEFLY DESCRIBE THE RISKS THAT COULD FURTHER DELAY UNIT 4 COD BEYOND DECEMBER 2023.**

A. While we believe the Company should be able to achieve Unit 4 COD by December 2023, there are many risks or management decisions that could delay Unit 4 COD if they materialize. These risks include:

* Continued delays to Unit 3 which would delay the transfer of craft and field non-manual personnel from Unit 3 to Unit 4 as planned;
* The Company does not effectively implement Unit 3 lessons learned;
* The Company is unable to improve electrical productivity as necessary to meet the December 2023 COD RAS;
* The Company abandons bulk installation too early to meet near term milestones;
* The Company continues to utilize unachievable schedules;
* The Company fails to address potential attrition of experienced craft;
* Quality lapses continue to persist;
* Late or emergent procurement items with long-lead times are identified;
* Engineering cannot improve the speed of resolution of Engineering Service Requests for Unit 4.

## V. PROJECT COST UPDATE

**Q. PLEASE PROVIDE A BRIEF UPDATE ON THE FORECAST COST OF THE VOGTLE 3 AND 4 PROJECT DURING THE VCM 26 PERIOD.**

A. The Project cost forecast is discussed in detail in the testimony of Mr. Don Grace. Through the VCM 26 period ending December 31, 2021, GPC incurred $584 million of capital expenditures. The Total Construction & Capital Cost forecast increased by $714 million from $10.565 billion in VCM 25 to $11.280 billion as shown in Table 1.1 of the Company’s Twenty-Sixth Semi-Annual Vogtle Construction Monitoring Report.

**Q. WHAT DROVE THIS INCREASE IN FORECAST COST DURING VCM 26?**

A. The factors that we discussed in our testimony in VCM 25 continue to drive the cost increases incurred and forecast for the Project. These factors include:

* Continued schedule slippage of both Unit 3 and Unit 4 (hotel load);
* Costs to complete remediation work that resulted from poor initial quality and failure to perform electrical construction of cables and supports in accordance with specifications;
* Continued low construction productivity and failure to achieve earned hours and the assumed CPI;
* Additional support required to test and turnover systems to ITP and Operations;
* Further unexpected delay in achieving Unit 3 Fuel Load and COD;
* Inadequate/late identification of emerging risks which limits the effectiveness of mitigation efforts.

**Q. WHAT IS YOUR OPINION OF THE COMPANY’S CURRENT COST ESTIMATE AT COMPLETION OF THE PROJECT?**

A. We believe the Company will continue to incur costs driven by additional remediation on Unit 3, continued schedule slippages of both Units beyond the Site Working Plan forecasts, continued low productivity, additional support personnel and field non-manual personnel needed to improve first time quality and prolonged staffing at higher levels than anticipated. However, given the 83% cost contingency announced by the Company in February 2022, we believe that the Company should be able to complete the Project at the February 2022 reprojection Total Capital Net of Parental Guarantee and Test Fuel of $20.518 billion based on Unit 3 COD in March 2023 and Unit 4 COD in December 2023.[[8]](#footnote-8) Achieving this Total Capital cost requires that the lessons learned on Unit 3 are successfully implemented on Unit 4, commissioning of the secondary plant proceeds reasonably smoothly and there are no failures of major equipment that leads to a lengthy outage prior to COD. These and other factors are discussed in detail in Mr. Grace’s testimony in which he concludes that SNC should be expected to achieve a Total Project Cost / Estimate at Completion of less than $20.5 billion.

**Q. DOES THIS CONCLUDE YOUR TESTIMONY?**

A**.** Yes.

EXHIBIT STF-SDR-1

Resume Of

Steven D. Roetger

**Steven D. Roetger**

244 Washington Street, S.W.

Atlanta, GA 30334

**Professional Experience**

**Georgia Public Service Commission Atlanta, Georgia 2008-Present**

**Analyst** Primary responsibilities include monitoring the Vogtle expansion of Units 3 and 4, attending site visits on a regular basis, participate with the Commission and Company interface, and assist in the preparation of testimony.

Key achievements

Manage the Vogtle Construction monitoring process including engineering, procurement, and construction; economic analysis of the value of the Project; and financial accounting review for the Project’s costs.

Write and review direct pre-filed testimony of the status of the Project for a semi-annual hearings.

**BCD Travel Atlanta, Georgia 2007-2008**

**Finance Manager** Primary responsibilities were to manage financial analysts, generate and review variance analyses, analyze departmental financials, and facilitate the coordination between our group and various internal departments.

Key achievements

Elevated team's performance to improve consistency, accuracy, and timeliness of service

Identified client missed revenue opportunities and communicated to Operations for recapture and/or inclusion with future invoicing

Key Requirements

Train, motivate, and develop 3 financial analysts to achieve an outstanding level of service and performance

Direct work flow to maintain efficiency and productivity without compromising standards

Analyze departmental financials to maximize profitability by reviewing contracts, perform variance analyzes, and ensure complete transaction billing

Review complex contracts and interpret for finance reconciliation and billing procedures

Prepare client budgets and forecasts

**Marine Bank of Florida Marathon, Florida2003-2005**

**Accounting Operations Manager/Bank Officer** Primary responsibilities were to manage the Bank's Accounting Department and, as directed by the COO, Deposit Operations' functions.

Key achievements

Identified high-risk, time sensitive accounts for dedicated review to significantly reduce financial risk to the Bank

In partnership with the CFO reduced audit management exceptions from 13 to zero year over year

Launched new wire department procedures to decrease response time, increase capacity, and improve customer service without increasing staff

In partnership with the COO implemented the Bank's new ACH operations to enhance existing customer relations, attract new business, and respond in a timely manner to ACH adjustments/returns

Key Requirements

Comprehensive G/L management including reconciliations, adjusting entries, and monthly/annual close

Manage and review the activities of 3 accounting and 2 deposit operations personnel responsible for accounts payable, wires, ACH operations, VISA check card operations, branch settlements, electronic funds transfers, and check clearing.

Establish and refine departmental policies and procedures to improve accuracy and timeliness of reporting, facilitate employee transition, and meet audit requirements

Oversaw Federal Reserve, FHLB, and IBB correspondent accounts

Supported the CFO to meet external audit requirements

Oversaw the Bank's daily cash position to minimize overnight net interest expense

Support branch operations by assisting branch managers maintain acceptable internal controls, provide training on Bank reporting procedures, and process exceptions

**B. Terfloth &Co. USA) Inc.** Atlanta, Georgia 1998-2000

**Accounting Manager** Primary responsibilities were to manage the Branch's Accounting Department with an emphasis on controlling expenses and manage the yearly audit process.

Key achievements

Re-established accurate and timely monthly reporting to the Corporate Office

Developed a cash flow forecasting model to assess the Branch's financing needs and negotiated under the President's supervision a working capital credit line to meet those needs

Key requirements

Comprehensive G/L management including reconciliations, adjusting entries, and monthly/annual close

Manage the annual audit process

Accounts payable and accounts receivable

Payroll and annual bonus calculations

**Bridgetown Grill Restaurants Inc.** Atlanta, Georgia1996-1997

**Interim Controller** Primary responsibilities were to re-establish a reliable Accounting process and once established facilitate the transition to a new Controller.

Key achievements

Established internal controls to better manage purchases, inventories, and reduce cash variances

Developed Accounting procedures for Unit Managers and trained the management staff on those procedures

Assisted the Owner in evaluating an outside purchase offer

Key requirements

Comprehensive G/L management including reconciliations, adjusting entries, and monthly close procedures

Coordinate the annual audit process

Manage accounts payable and payroll processing

Manage credit card transaction procedures to reduce charge backs

**Turner Broadcasting System Inc.** Atlanta, Georgia 1991-1996

**Staff Accountant** Primary responsibility was to support the Managers with accurate and timely completion of assigned tasks.

Key achievements

Partnered with Management to streamline the procedure for The Statement of Cash Flows

Corrected the EPS calculation

Streamlined governmental reporting and incorporated detailed procedures for each report

Provided a Companywide vacation and sick time accrual analysis

Key requirements

Worked, as part of a team, on the Consolidated Financial Statements of TBS, Inc.

Develop various footnotes to the Financial Statements

Provide analysis of accounts for actual to budget and actual to rolling12 month forecast variances

Provide analysis of, and recommendations for, lease capitalizations

Coordinate with 72 Operating Unit Controllers for the content and timely receipt of Unit financial data

Prepare debt covenant calculations for 4 issues and provide forecasts with sensitivity analysis

Prepare all U.S. Department of Commerce and U.S. Treasury Department statistical reports

**Software**

*PeopleSoft/nVision* reporting, *Kirchman/Bankway* and *IPS Sendero* banking software, *MSA* accounting software, *Excel, Outtask,* and *Word*

**Education**

BBA Georgia State University in Finance with an equivalent in Accounting

Completed 70 percent of course work toward an MBA in Finance from Georgia State University

EXHIBIT STF- WRJ-1

Resume Of

William R. Jacobs, Ph.D.

**EDUCATION**: Ph.D., Nuclear Engineering, Georgia Tech 1971

MS, Nuclear Engineering, Georgia Tech 1969

BS, Mechanical Engineering, Georgia Tech 1968

**ENGINEERING REGISTRATION**: Registered Professional Engineer

**PROFESSIONAL MEMBERSHIP:** American Nuclear Society

**EXPERIENCE**:

Dr. Jacobs has over thirty-five years of experience in a wide range of activities in the electric power generation industry. He has extensive experience in the construction, startup and operation of nuclear power plants. While at the Institute of Nuclear Power Operation (INPO), Dr. Jacobs assisted in development of INPO’s outage management evaluation group. He has provided expert testimony related to nuclear plant operation and outages in Texas, Louisiana, South Carolina, Florida, Wisconsin, Indiana, Georgia and Arizona. He currently provides nuclear plant operational monitoring services for GDS clients. Dr. Jacobs was a witness in nuclear plant certification hearings in Georgia for the Plant Vogtle 3 and 4 project on behalf of the Georgia Public Service Commission and in South Carolina for the V.C. Summer 2 and 3 projects on behalf of the South Carolina Office of Regulatory Staff. His areas of expertise include evaluation of reactor technology, EPC contracting, risk management and mitigation, project cost and schedule. He is assisting the Florida Office of Public Counsel in monitoring the development of four new nuclear units in the State of Florida, Levy County Units 1 and 2 and Turkey Point Units 6 and 7. He also evaluated extended power uprates on five nuclear units for the Florida Office of Public Counsel. He has been selected by the Georgia Public Service Commission as the Independent Construction Monitor for Georgia Power Company’s new AP1000 nuclear power plants, Plant Vogtle Units 3 and 4. He has assisted the Georgia Public Service Commission staff in development of energy policy issues related to supply-side resources and in evaluation of applications for certification of power generation projects and assists the staff in monitoring the construction of these projects. He has also assisted in providing regulatory oversight related to an electric utility’s evaluation of responses to an RFP for a supply-side resource and subsequent negotiations with short-listed bidders. He has provided technical litigation support and expert testimony support in several complex law suits involving power generation facilities. He monitors power plant operations for GDS clients and has provided testimony on power plant operations and decommissioning in several jurisdictions. Dr. Jacobs represents a GDS client on the management committee of a large coal-fired power plant currently under construction. Dr. Jacobs has provided testimony before the Georgia Public Service Commission, the Public Utility Commission of Texas, the North Carolina Utilities Commission, the South Carolina Public Service Commission, the Iowa State Utilities Board, the Louisiana Public Service Commission, the Florida Public Service Commission, the Indiana Regulatory Commission, the Wisconsin Public Service Commission, the Arizona Corporation Commission and the FERC.

A list of Dr. Jacobs’ testimony is available upon request.

1986-Present GDS Associates, Inc.

As Executive Consultant, Dr. Jacobs assists clients in evaluation of management and technical issues related to power plant construction, operation and design. He has evaluated and testified on combustion turbine projects in certification hearings and has assisted the Georgia PSC in monitoring the construction of the combustion turbine projects. Dr. Jacobs has evaluated nuclear plant operations and provided testimony in the areas of nuclear plant operation, construction prudence and decommissioning in nine states. He has provided litigation support in complex law suits concerning the construction of nuclear power facilities. Dr. Jacobs is the Georgia PSC’s Independent Construction Monitor for the Plant Vogtle 3 and 4 nuclear project.

1985-1986 Institute of Nuclear Power Operations (INPO)

Dr. Jacobs performed evaluations of operating nuclear power plants and nuclear power plant construction projects. He developed INPO Performance Objectives and Criteria for the INPO Outage Management Department. Dr. Jacobs performed Outage Management Evaluations at the following nuclear power plants:

 Connecticut Yankee - Connecticut Yankee Atomic Power Co.

 Callaway Unit I - Union Electric Co.

 Surry Unit I - Virginia Power Co.

 Ft. Calhoun - Omaha Public Power District

 Beaver Valley Unit 1 - Duquesne Light Co.

During these outage evaluations, he provided recommendations to senior utility management on techniques to improve outage performance and outage management effectiveness.

1979-1985 Westinghouse Electric Corporation

As site manager at Philippine Nuclear Power Plant Unit No. 1, a 655 MWe PWR located in Bataan, Philippines, Dr. Jacobs was responsible for all site activities during completion phase of the project. He had overall management responsibility for startup, site engineering, and plant completion departments. He managed workforce of approximately 50 expatriates and 1700 subcontractor personnel. Dr. Jacobs provided day-to-day direction of all site activities to ensure establishment of correct work priorities, prompt resolution of technical problems and on schedule plant completion.

Prior to being site manager, Dr. Jacobs was startup manager responsible for all startup activities including test procedure preparation, test performance and review and acceptance of test results. He established the system turnover program, resulting in a timely turnover of systems for startup testing.

As startup manager at the KRSKO Nuclear Power Plant, a 632 MWE PWR near Krsko, Yugoslavia, Dr. Jacobs' duties included development and review of startup test procedures, planning and coordination of all startup test activities, evaluation of test results and customer assistance with regulatory questions. He had overall responsibility for all startup testing from Hot Functional Testing through full power operation.

1973 - 1979 NUS Corporation

As Startup and Operations and Maintenance Advisor to Korea Electric Company during startup and commercial operation of Ko-Ri Unit 1, a 595 MWE PWR near Pusan, South Korea, Dr. Jacobs advised KECO on all phases of startup testing and plant operations and maintenance through the first year of commercial operation. He assisted in establishment of administrative procedures for plant operation.

As Shift Test Director at Crystal River Unit 3, an 825 MWE PWR, Dr. Jacobs directed and performed many systems and integrated plant tests during startup of Crystal River Unit 3. He acted as data analysis engineer and shift test director during core loading, low power physics testing and power escalation program.

As Startup engineer at Kewaunee Nuclear Power Plant and Beaver Valley, Unit 1, Dr. Jacobs developed and performed preoperational tests and surveillance test procedures.

1971 - 1973 Southern Nuclear Engineering, Inc.

Dr. Jacobs performed engineering studies including analysis of the emergency core cooling system for an early PWR, analysis of pressure drop through a redesigned reactor core support structure and developed a computer model to determine tritium build up throughout the operating life of a large PWR.

**SIGNIFICANT CONSULTING ASSIGNMENTS**:

Georgia Public Service Commission – Selected as the Independent Construction Monitor to assist the GPSC staff in monitoring all aspects of the design, licensing and construction of Plant Vogtle Units 3 and 4, two AP1000 nuclear power plants.

Georgia Public Service Commission – Assisted the Georgia Public Service Commission Staff and provided testimony related to the evaluation of Georgia Power Company’s request for certification to construct two AP1000 nuclear power plants at the Plant Vogtle site.

South Carolina Office of Regulatory Staff – Assisted the South Carolina Office of Regulatory Staff in evaluation of South Carolina Electric and Gas’ request for certification of two AP1000 nuclear power plants at the V.C. Summer site.

Florida Office of Public Counsel – Assists the Florida Office of Public Counsel in monitoring the development of four new nuclear power plants and extended power uprates on five nuclear units in Florida including providing testimony on the prudence of expenditures.

East Texas Electric Cooperative – Represented ETEC on the management committee of the Plum Point Unit 1 a 650 Mw coal-fired plant under construction in Osceola, Arkansas and represents ETEC on the management committee of the Harrison County Power Project, a 525 Mw combined cycle power plant located near Marshall, Texas.

Arizona Corporation Commission – Evaluated operation of the Palo Verde Nuclear Generating Station during the year 2005. Included evaluation of 11 outages and providing written and oral testimony before the Arizona Corporation Commission.

Citizens Utility Board of Wisconsin – Evaluated Spring 2005 outage at the Kewaunee Nuclear Power Plant and provided direct and surrebuttal testimony before the Wisconsin Public Service Commission.

Georgia Public Service Commission - Assisted the Georgia PSC staff in evaluation of Integrated Resource Plans presented by two investor owned utilities. Review included analysis of purchase power agreements, analysis of supply-side resource mix and review of a proposed green power program.

State of Hawaii, Department of Business, Economic Development and Tourism – Assisted the State of Hawaii in development and analysis of a Renewable Portfolio Standard to increase the amount of renewable energy resources developed to meet growing electricity demand. Presented the results of this work in testimony before the State of Hawaii, House of Representatives.

Georgia Public Service Commission - Assisted the Georgia PSC staff in providing oversight to the bid evaluation process concerning an electric utility’s evaluation of responses to a Request for Proposals for supply-side resources. Projects evaluated include simple cycle combustion turbine projects, combined cycle combustion turbine projects and co-generation projects.

Millstone 3 Nuclear Plant Non-operating Owners – Evaluated the lengthy outage at Millstone 3 and provided analysis of outage schedule and cost on behalf of the non-operating owners of Millstone 3. Direct testimony provided an analysis of additional post-outage O&M costs that would result due to the outage. Rebuttal testimony dealt with analysis of the outage schedule.

H.C. Price Company – Evaluated project management of the Healy Clean Coal Project on behalf of the General Contractor, H.C. Price Company. The Healy Clean Coal Project is a 50 megawatt coal burning power plant funded in part by the DOE to demonstrate advanced clean coal technologies. This project involved analysis of the project schedule and evaluation of the impact of the owner’s project management performance on costs incurred by our client.

Steel Dynamics, Inc. – Evaluated a lengthy outage at the D.C. Cook nuclear plant and presented testimony to the Indiana Utility Regulatory Commission in a fuel factor adjustment case Docket No. 38702-FAC40-S1.

Florida Office of Public Counsel - Evaluated lengthy outage at Crystal River Unit 3 Nuclear Plant. Submitted expert testimony to the Florida Public Service Commission in Docket No. 970261-EI.

United States Trade and Development Agency - Assisted the government of the Republic of Mauritius in development of a Request for Proposal for a 30 MW power plant to be built on a Build, Own, Operate (BOO) basis and assisted in evaluation of Bids.

Louisiana Public Service Commission Staff - Evaluated management and operation of the River Bend Nuclear Plant. Submitted expert testimony before the LPSC in Docket No. U-19904.

U.S. Department of Justice - Provided expert testimony concerning the in-service date of the Harris Nuclear Plant on behalf of the Department of Justice U.S. District Court.

City of Houston - Conducted evaluation of a lengthy NRC required shutdown of the South Texas Project Nuclear Generating Station.

Georgia Public Service Commission Staff - Evaluated and provided testimony on Georgia Power Company's application for certification of the Intercession City Combustion Turbine Project - Docket No. 4895-U.

Seminole Electric Cooperative, Inc. - Evaluated and provided testimony on nuclear decommissioning and fossil plant dismantlement costs - FERC Docket Nos. ER93-465-000, et al.

Georgia Public Service Commission Staff - Evaluated and prepared testimony on application for certification of the Robins Combustion Turbine Project by Georgia Power Company - Docket No. 4311-U.

North Carolina Electric Membership Corporation - Conducted a detailed evaluation of Duke Power Company's plans and cost estimate for replacement of the Catawba Unit 1 Steam Generators.

Georgia Public Service Commission Staff - Evaluated and prepared testimony on application for certification of the McIntosh Combustion Turbine Project by Georgia Power Company and Savannah Electric Power Company - Docket No. 4133-U and 4136-U.

New Jersey Rate Counsel - Review of Public Service Electric & Gas Company nuclear and fossil capital additions in PSE&G general rate case.

Corn Belt Electric Cooperative/Central Iowa Power Electric Cooperative - Directs an operational monitoring program of the Duane Arnold Energy Center (565 Mwe BWR) on behalf of the non-operating owners.

Cities of Calvert and Kosse - Evaluated and submitted testimony of outages of the River Bend Nuclear Station - PUCT Docket No. 10894.

Iowa Office of Consumer Advocate - Evaluated and submitted testimony on the estimated decommissioning costs for the Cooper Nuclear Station - IUB Docket No. RPU-92-2.

Georgia Public Service Commission/Hicks, Maloof & Campbell - Prepared testimony related to Vogtle and Hatch plant decommissioning costs in 1991 Georgia Power rate case - Docket No. 4007-U.

City of El Paso - Testified before the Public Utility Commission of Texas regarding Palo Verde Unit 3 construction prudence - Docket No. 9945.

City of Houston - Testified before Texas Public Utility Commission regarding South Texas Project nuclear plant outages - Docket No. 9850.

NUCOR Steel Company - Evaluated and submitted testimony on outages of Carolina Power and Light nuclear power facilities - SCPSC Docket No. 90-4-E.

Georgia Public Service Commission/Hicks, Maloof & Campbell - Assisted Georgia Public Service Commission staff and attorneys in many aspects of Georgia Power Company's 1989 rate case including nuclear operation and maintenance costs, nuclear performance incentive plan for Georgia and provided expert testimony on construction prudence of Vogtle Unit 2 and decommissioning costs of Vogtle and Hatch nuclear units - Docket No. 3840-U.

Swidler & Berlin/Niagara Mohawk - Provided technical litigation support to Swidler & Berlin in law suit concerning construction mismanagement of the Nine Mile 2 Nuclear Plant.

Long Island Lighting Company/Shea & Gould - Assisted in preparation of expert testimony on nuclear plant construction.

North Carolina Electric Membership Corporation - Prepared testimony concerning prudence of construction of Carolina Power & Light Company's Shearon Harris Station - NCUC Docket No. E-2, Sub537.

City of Austin, Texas - Prepared estimates of the final cost and schedule of the South Texas Project in support of litigation.

Tex-La Electric Cooperative/Brazos Electric Cooperative - Participated in performance of a construction and operational monitoring program for minority owners of Comanche Peak Nuclear Station.

Tex-La Electric Cooperative/Brazos Electric Cooperative/Texas Municipal Power Authority (Attorneys - Burchette & Associates, Spiegel & McDiarmid, and Fulbright & Jaworski) - Assisted GDS personnel as consulting experts and litigation managers in all aspects of the lawsuit brought by Texas Utilities against the minority owners of Comanche Peak Nuclear Station.

1. Westinghouse provides the engineering, design, and applicable analyses for the Design Certification Document (“DCD”). [↑](#footnote-ref-1)
2. Bechtel is the construction contractor. [↑](#footnote-ref-2)
3. Reference October 2021 VPMB page 11. [↑](#footnote-ref-3)
4. Unit 3 COD March 2023 and Unit 4 COD December 2023 per May 2022 MPR. [↑](#footnote-ref-4)
5. May 2022 Monthly Project Review Presentation, Slide 19 [↑](#footnote-ref-5)
6. STF-231-8-h [↑](#footnote-ref-6)
7. Monthly Project Review Meeting dated May 2022, +6-month Risk Adjusted Schedule [↑](#footnote-ref-7)
8. Vogtle Project Management Board presentation, May 2022, Slide 19. [↑](#footnote-ref-8)