ELECTRONICALLY FILED - 2018 September 24 9:06 PM - SCPSC - Docket # 2017-370-E - Page 1 of 73

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Richard L. Miller

Manager of Operations
Assessment Team Leader

Technical Qualifications

Senior Reactor Operator's License No 20411

Education

Executive Management Certificate, Vanderbilt University

B.S., Mechanical Engineering, North Carolina State University

Membership

Member, American Nuclear Society Board, Operations and Power Division

Member, American Nuclear Society

Dick Miller is a degreed mechanical engineer with over 38 years of nuclear engineering, construction, and project management experience. Currently he is the Operations Manager for Nuclear Power, responsible for the successful execution of Bechtel's nuclear power projects worldwide, as well as leading a senior executive team performing an assessment of the status of the V.C. Summer Units 2 & 3 new builds. He has unparalleled experience as a project manager, overseeing numerous highly successful Steam Generator and Reactor Pressure Vessel Replacement (SGR/RPVHR) projects, including the world record for shortest duration at Comanche Peak Unit 1 and the Ginna SGR, which was the first to use the "through-the-dome" methodology. He is an enthusiastic, committed leader who focuses on providing executive oversight, technical guidance for the successful planning and implementation of projects, and close collaboration between clients and Bechtel to ensure project success. Prior to joining Bechtel, Dick worked for a southeast electric utility at one of the company's nuclear power plants, holding a senior reactor operator's license and managing the utility's maintenance department. Since joining Bechtel, Dick has spent the majority of his career on field assignments across the United States, managing or directing over 20 major modification projects at nuclear power facilities.

Manager of Operations, Nuclear Power

2014–Present: Mr. Miller is responsible for all nuclear projects and services worldwide, as well as the development of new opportunities both domestic and foreign, including the completion of Watts Bar Unit 2 and the Davis-Besse SGR and Wolf Creek Pipe Replacement projects, as well as the commencement of the Beaver Valley Unit 2 SGR. Currently, he is leading a senior executive team performing an assessment study of the status, challenges, and opportunities of the new build AP1000 units at V.C. Summer for the owner.

Senior Project Director, Nuclear Power, Bechtel Power Corporation

2011–2014: Mr. Miller was responsible for the successful implementation of nuclear power projects, including the NextEra EPUs, as well as proposal development and client communications. He also managed Bechtel's efforts related to the Fukushima incident, including staffing and sponsorship of Bechtel employees on the Fukushima Industry Support Team in Tokyo and representation of Bechtel in Tokyo during business development efforts. In addition, he oversaw the Crystal River Unit 3 Containment Repair Project, including management of the Phase 1 engineering and development effort and EPC contract negotiations.

Senior Project Director/Project Manager, SONGS SGR, Bechtel Power Corp.

2010–2011: Mr. Miller was responsible for the successful completion of the SONGS Unit 3 turn-sum SGR which was completed within budget and ahead of schedule.

Senior Project Director, Nuclear Power, Bechtel Power Corp.

2007–2010: Mr. Miller was responsible for proposal development activities and contract negotiations for numerous SGR, RPVHR, and EPU projects. Significantly, he oversaw the negotiation and implementation of the NextEra Fleet EPU Project, a major multi-billion dollar effort to perform EPUs on six units (Point Beach 1 & 2, St. Lucie 1 & 2, and Turkey Point 3 & 4). This project earned the Business Development Project of the Year Award for the entire Bechtel Corporation.

Senior Project Manager, Beaver Valley Unit 1 SGR/RPVHR and Comanche Peak Unit 1 SGR, Bechtel Power Corp.

2004–2007: Mr. Miller was responsible for the successful completion of the SGR/RPVHR project for FirstEnergy's Beaver Valley Unit 1. This project was named runner up for Pennwell's Project of the Year at

ELECTRONICALLY FILED - 2018 September 24 9:06 PM - SCPSC - Docket # 2017-370-E - Page 2 of 73

CONFIDENTIAL, ATTORNEY-CLIENT PRIVILEGED
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the Power Generation Conference. As PM for Comanche Peak Unit 1, he led the team that set the world record for shortest schedule of a SGR, and this project was named runner-up for Bechtel's Project of the Year.

Senior Project Manager, Davis-Besse, North Anna, and Surry RPV/NRs, Bechtel Power Corp.

2002–2003: Mr. Miller was responsible for the successful execution of head replacement projects at North Anna Units 1 and 2, Surry Units 1 and 2, and Davis-Besse.

Operations Manager, Nuclear Power, Bechtel Power Corp.

2000–2002: Mr. Miller was responsible for the major modification operations of Bechtel's nuclear power business line, and he oversaw the successful completion of the Kewaunee and South Texas Project Unit 2 SGRs. In addition, during this time he took over as Project Manager to complete the D.C. Cook SGR. He was also responsible for the completion of the commercial closeout of the Arkansas Nuclear One Unit 1 SGR.

Manager of Decommissioning, Bechtel Power Corp.

1998–2000: Mr. Miller was responsible for the decontamination and decommissioning business line activities, including Connecticut Yankee and SONGS 1 Large Component Removal.

Project Manager, Tihange Unit 3 SGR

1997–1998: Mr. Miller was responsible, as a self-employed project management consultant, for the management of the Tihange SGR in Belgium.

Project Manager, LaSalle Modifications, Bechtel Power Corp.

1996–1997: Mr. Miller was responsible for the management and installation of modifications at the LaSalle nuclear plant.

Project Manager, Ginna SGR, Bechtel Power Corp.

1993–1996: Mr. Miller was responsible for the management and implementation of the lump sum EPC contract for Ginna's SGR. Additionally, he served as Proposal Manager for several lump sum SGR and major modification proposals.

Project Manager, North Anna Unit 1 SGR, Bechtel Power Corp.

1990–1993: Mr. Miller was responsible for the management and implementation of the lump sum EPC contract for North Anna 1's SGR.

Deputy Project Manager, Indian Point Unit 3 SGR, Bechtel Power Corp. and Manager, Bechtel-KWU Alliance

1988–1990: Mr. Miller assisted the implementation of the Indian Point 3 SGR, as well as prepared proposals and managed awarded conceptual studies for other SGRs and major modifications. Additionally, he was responsible for the Bechtel-KWU Alliance activities.

Senior Reactor Operator/Maintenance Supervisor/Principal Engineer, H.B. Robinson Nuclear Power Plant

1979–1988: Mr. Miller served as Principal Engineer at H.B. Robinson, during which time a SGR was performed, as well as serving as Outage Manager for refueling outages and Maintenance Supervisor for mechanical maintenance. Additionally, he received his Senior Reactor Operator License and authored the Outage Management Manual, the nuclear industry's first, which received an INPO Good Practice award.

Field Service Engineer, Westinghouse Electric Corp.

1977–1979: Mr. Miller was responsible for the erection and inspection of equipment at numerous nuclear power plants under construction.

U.S. Marine Corps, E-5

1971–1973: Mr. Miller received an honorable discharge in 1973.

ELECTRONICALLY FILED - 2018 September 24 9:06 PM - SCPSC - Docket # 2017-370-E - Page 3 of 73

CONFIDENTIAL, ATTORNEY-CLIENT PRIVILEGED
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pursuant to S.C. Const. Art. IV, sec. 17, and S.C. Code Ann. 1-3-10

Carl W. Rau

Executive Sponsor

Education

- AA, Civil Engineering, Penn State University
- Certificate, Business Management, California Coast University

Over his 44 year Bechtel career, Carl has served various business lines and corporate functions in project management and executive leadership roles. He is a true leader with unmatched mega-project construction experience that ranges from nuclear power plants to industrial facilities. He also brings an international perspective from his roles overseeing projects around the globe, as well as a thorough understanding of the commercial aspects of large project development and execution. Additionally, he has a broad knowledge of effective and proven processes and procedures, along with a unique ability to motivate those around him.

Manager, Special Projects, Bechtel

2012–2015: Mr. Rau served in an executive position leading specialized projects and studies in support of Bechtel's Nuclear, Security, and Environmental and Infrastructure global business units.

President, Nuclear Power

2008–2012: Mr. Rau led the Nuclear Power business line, managing all of Bechtel's global nuclear power activities, including project development, execution, and services. During his tenure, he oversaw numerous project awards and successful executions which significantly grew the nuclear power portfolio, including extended power uprates on six units, steam generator replacements, Watts Bar Unit 2 completion engineering services at multiple plants, and permitting, licensing, and design for advanced reactor projects.

Manager of EPC Functions, Bechtel Group

2006–2008: Mr. Rau was responsible for all the functional departments of the Bechtel group of companies ensuring that all world-wide projects and corporate functions were appropriately staffed and processes / procedures were followed.

Executive Vice President – London Operations for Oil, Gas & Chemicals (OG&C)

2005–2006: In this capacity, Mr. Rau oversaw OG&C's London office and Center of Excellence, which was responsible for executing, deploying personnel, and providing technical support for the OG&C global business unit's operations in Europe, Africa, the Middle East, and Asia.

President, Bechtel Infrastructure Corporation (BINFRA)

2004–2005: As BINFRA President, Mr. Rau was responsible for planning, executing, and managing civil infrastructure projects in North and South America, supporting both public and private sector customers.

Executive Vice President, Bechtel Systems & Infrastructure, Inc. (ESII)

2003–2004: Mr. Rau was responsible for the oversight of Bechtel's U.S. Government business, primarily with the Department of Energy and the Department of Defense, specializing in large, complex projects in the areas of defense, space, energy, national security, and the environment.

Manager of Central Functions, Bechtel Group

2002–2003: Mr. Rau was responsible for all the functional departments of the Bechtel group of companies ensuring that all world-wide projects and corporate functions were appropriately staffed and processes / procedures were followed.

ELECTRONICALLY FILED - 2018 September 24 9:06 PM - SCPSC - Docket # 2017-370-E - Page 4 of 73

CONFIDENTIAL, ATTORNEY-CLIENT PRIVILEGED
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pursuant to S.C. Const. Art. IV, sec. 17, and S.C. Code Ann. 1-3-10

Frederick Execution Unit Manager, Bechtel Power and RSII

2000–2002: Mr. Rau was responsible for all personnel at the Frederick, Maryland Execution Unit office and Center of Excellence, which was responsible for winning and executing work for both the power and government services business units. In 2000, he was elected Senior Vice President.

Corporate Manager of Construction and President of Bechtel Construction Operations Incorporated (BCOI)

1999–2000: Mr. Rau was responsible for all construction personnel world-wide in the Bechtel group of companies, as well as construction execution through BCOI.

Manager of Operations, Europe, Africa, and Middle East

1998–1999: In this capacity, Mr. Rau ensured the effective execution of all Bechtel projects underway in Europe, Africa, and the Middle East, as well as providing support for Bechtel businesses and business development efforts.

Project Director, Dabhol Power Station Project

1999–1999: During his tenure as Manager of Operations, Mr. Rau served as the Project Director for the Bechtel/GE consortium that performed EPCS services for this 2,240 MW combined cycle power project in India (at the time the largest foreign investment in India).

Project Director, Jamnagar Refinery Project

1997–1998: Mr. Rau led the effort to design, build, and commission this massive refinery complex (the largest in the world), which covers 7,500 acres and consists of manufacturing and allied facilities, utilities, off-sites, port facilities, and housing for 2,500 employees. In 1998, he was elected a Principal Vice President.

Manager of Power Operations, Europe, Africa, and Middle East

1996–1997: Mr. Rau ensured the effective execution of all Bechtel power projects underway in Europe, Africa, and the Middle East, as well as providing support for Bechtel businesses and business development efforts.

Executive Assistant to the Presidents, Bechtel Power

1994–1996: Mr. Rau supported the President of Bechtel Power to ensure the effective execution of projects handling both technical and commercial issues, as well as business development efforts, and customer engagement.

Manager of Power Operations, South Korea

1993–1994: Mr. Rau ensured the effective execution of all Bechtel power projects underway in South Korea as well as providing support for Bechtel businesses and business development efforts.

Project Manager, Comanche Peak 1 & 2 Completion Project

1989–1993: Mr. Rau began as the Project Completion Manager of Comanche Peak 1 nuclear power station which Bechtel took over from the previous contractor who had failed to complete the project. He was then seconded to the utility owner's organization and was responsible for planning and executing the Unit 2 completion. He successfully led both units to completion, as well as serving as an expert witness for Unit 2 rate case on behalf of the utility.

Mechanical Discipline Manager/Project Completion Manager, Vogtle Nuclear Generating Station

1985–1989: Mr. Rau was responsible for all mechanical work, including management of contractors. This included responsibility for piping, reactor internals, insulation, turbine erection, and fire protection system installation. He supervised a Georgia Power mechanical discipline organization of 2,000 non-manual employees and functioned as Bechtel's senior construction representative responsible for 100+ constructor engineers in all disciplines.

Various Field Roles, Nuclear Power Projects

1971–1985: Mr. Rau served in a variety of nuclear power plant construction field roles for Bechtel, including:

- System Completion Manager/Lead Piping Superintendent/Drywell CRD Area Superintendent/HVAC Coordinator — Hope Creek Generating Station
- Lead Piping Superintendent/Piping Superintendent/Assistant Project Field Engineer/Startup Superintendent/ Lead Piping/Mechanical Engineer/Area III Lead Piping Engineer — Susquehanna Steam Electric Station
- Civil Field Engineer — Calvert Cliffs Nuclear Power Plant

Construction Engineer, U.S. Steel Corporation

1968–1971: Mr. Rau served as the survey crew party chief responsible for all field control and construction surveys, as well as a field engineer responsible for all aspects of construction at the coking facility.

ELECTRONICALLY FILED - 2018 September 24 9:06 PM - SCPSC - Docket # 2017-370-E - Page 5 of 73

CONFIDENTIAL, ATTORNEY-CLIENT PRIVILEGED
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Ronald L. Beck

Project Manager

(Engineering and Construction)

Ron Beck has spent his entire career in the nuclear power industry. He has a strong civil engineering background and many years of design engineering and field experience, with a solid foundation in the details of work planning and execution. He was project manager for three steam generator replacement (SGR) projects, assistant project manager for one SGR project, and shift outage manager for two reactor vessel head replacement (RVHR) projects. His background also includes civil design work on Grand Gulf, South Texas Project, and Watts Bar. He is a highly dedicated leader with strong technical skills, effective management capabilities, and the ability to motivate teams to successful outcomes.

Technical Qualifications

- Over 43 years of nuclear experience, including 17 in design engineering and licensing, 18 on SGR and RVHR projects, and 5 in next generation nuclear (EPR, SMR) project management
- Registered Professional Engineer in Maryland (retired), inactive in Mississippi, South Carolina, Tennessee, Texas, and Virginia
- Member of ASCE, ASME
- Author of several published technical papers (available on request)

Education

- ME, Civil Engineering, Virginia Polytechnic Institute (Structural Engineering Major)
- BS, Civil Engineering, Virginia Polytechnic Institute
- Bechtel Certification, Project Manager Level II

Project Manager, Generation mPower Small Modular Reactor

2011–Present: For the Generation mPower (GmP) small modular reactor (SMR) project, Mr. Beck has been responsible for all aspects of Bechtel's scope and project execution and for interface with Generation mPower LLC and Babcock & Wilcox (B&W), as well as potential customers, Industry Advisory Council members, management committee members, and regulatory agencies. His responsibilities include overall management of 230+ professionals, including engineering, licensing, project cost and schedule, procurements and contract functions.

Project Engineering Manager, Generation mPower Small Modular Reactor

2010: For the GmP project, Mr. Beck managed the Bechtel engineering team and the integration of Bechtel's scope with B&W's Nuclear Island scope.

Project Manager, Various Commercial Nuclear Projects

2010: Mr. Beck participated in a due diligence assessment as project manager, civil/structural reviewer, construction reviewer, and overall report preparer. The report outlined the results of the assessment regarding investing in a specific new generation nuclear technology.

2008–2010: Mr. Beck was the responsible project manager for the Bell Bend US EPR nuclear power plant project. He supported AREVA's preparation of responses to the NRC's requests for additional information in conjunction with the design certification process, managed an optimization study, participated in construction schedule development, worked with customer on updating the site utilities plot plan for its Combined License application, and oversaw the development of budgets, schedules, and reports.

2008: Mr. Beck oversaw the development of the long range strategic plan for the SONGS SGR project. The work involved developing the pre-outage schedule encompassing Bechtel's work from 2008 through 2010 and the Cycle 15 and Cycle 16 (SGR) outage schedules for Bechtel's work and integrating these schedules into the client's online and outage work schedules.

2007: For the Palo Verde Nuclear Generating Station Unit 1 SGR project, Mr. Beck managed all aspects of removing and relocating the V651 valve in the reactor coolant system ASME Class 1 shutdown cooling line to support long-term plant operability and reliability.

2006–2007: As plan coordinator for the SONGS SGR project, Mr. Beck managed the development and submittal to the client of 50-plus management, engineering, and construction plans and 30-plus specific contract deliverables describing the methods and approaches Bechtel would employ to execute its SGR work scope. He also supported the project manager on project commercial and technical issues.

2005: For the Palo Verde Unit 3 SGR project, Mr. Beck managed the installation of a vortex elimination plate in the reactor coolant system ASME Class 1 shutdown cooling line. The plate was later removed as a result of system testing.

ELECTRONICALLY FILED - 2018 September 24 9:06 PM - SCPSC - Docket # 2017-370-E - Page 6 of 73

CONFIDENTIAL, ATTORNEY-CLIENT PRIVILEGED
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pursuant to S.C. Const. Art. IV, sec. 17, and S.C. Code Ann. 1-3-10

2004–2005: Mr. Beck managed or supported proposals for the Turkey Point Units 3 and 4 and St. Lucie Units 1 and 2 RVHR projects, the Crystal River Unit 3 SGR project, the Bruce A Units 1, 2, 3, and 4 SGR projects, the Diablo Canyon Units 1 and 2 SGR projects, the SONGS Units 3 and 4 SGR projects, the SONGS Units 2 and 3 and Palo Verde Units 1, 2, and 3 RVHR studies, and the Palisades RVHR project.

Shift Outage Manager, Surry Unit 1 Reactor Pressure Vessel Head Replacement (RPVHR)

2003: For the Surry Power Station Units 1 and 2 RPVHR project, Mr. Beck interfaced with client, subcontractor, and Bechtel personnel to develop the schedule; attended client/Bechtel plan-of-the-day meetings; interfaced with client and Bechtel personnel on day-to-day operations, including action item meetings and task reviews; and managed Bechtel's day shift containment work during each unit's replacement outages.

Project Manager, Various Steam Generator and Reactor Pressure Vessel Head Replacements

2002: Mr. Beck managed several SGR project proposals, an RPVHR project study for two nuclear units, and an independent third party SGR project cost estimate study review for a nuclear utility.

1996–2001: For the South Texas Unit 1 (1996–2000) and Shearon Harris (2000–2001) SGR projects, Mr. Beck had the same duties as for the V.C. Summer SGR project.

1995–1996: Mr. Beck developed generic SGR project core team operations and was a member of the team that developed a Bechtel/Westinghouse teaming agreement for SGR projects. He also developed competitively bid SGR projects and sole-source negotiated SGR awards, including the first South Texas Unit 1 SGR, involving the Bechtel/Westinghouse agreement.

1992–1994: For the V.C. Summer SGR project, Mr. Beck directed all aspects of engineering, construction, procurement, quality assurance, fixed price cos, and schedule management and subcontractor interface, coordinated interfaces with the client and interfaced with Bechtel senior management, global and regional industry unit and execution unit management, and home office functional departments. During the SGR outage, Mr. Beck oversaw all aspects of the on-site construction activities and managed the development of the Bechtel portion of the outage schedule.

1991–1992: For the ASCO Units 1 and 2 SGR project, Mr. Beck managed photogrammetry and interference walkdowns, the redesign of the biological shield wall, preparation of the technical specification, and technical evaluation of replacement steam generator fabrication proposals. He also managed SGR studies for St. Lucie Unit 1 and for Mitsubishi Heavy Industries, Ltd. in Japan.

Assistant Project Manager, Palisades Steam Generator Replacement Project

1989–1991: For the Palisades SGR project, Mr. Beck provided management overview of the engineering team and management support to the cost and schedule supervisor for schedule and budget control. He assisted in coordinating Bechtel's client interface on licensing and other high priority issues and coordinated the development of the SGR outage schedule with the SGR project team (management, engineering, construction, procurement, subcontractors, and client). As night shift outage coordinator during the replacement outage, he coordinated Bechtel's night shift construction activities with the client and the client's contractors. During job closeout, he assisted the project manager and field services manager with closeout activities, including engineering as-built package completion, contract compliance closeout, outage work activity completion, and licensing and quality assurance review closeout.

Project Engineering Manager, Watts Bar Unit 1

1987–1989: Mr. Beck was the Project Engineering Manager for the Hanger and Analysis Update Program for Watts Bar Nuclear Station Unit 1. In this capacity, he oversaw all design activities associated with the update of the Watts Bar pipe stress analyses and pipe support designs, using a site walkdown team and design teams located in Oak Ridge, TN; Gaithersburg, MD; Houston, TX and San Francisco, CA.

Project Engineer, South Texas Project Completion

1986–1987: For the South Texas Units 1 and 2 project, Mr. Beck supported the civil structural, pipe stress and pipe support, architectural, and plant design layout discipline design activities. He directly interfaced with the client in completing engineering design, licensing, and engineering assurance activities associated with these disciplines. He also assisted in managing the contractual and legal aspects of the project's main cooling reservoir, coordinated interfaces with the project's constructor and client and Bechtel management, and directed the coordination of engineering activities associated with Unit 1 hot functional testing, including development of engineering hot functional test procedures for thermal and vibration monitoring.

Design Engineer/Group Leader/Engineering Supervisor, Grand Gulf Units 1 & 2

1972–1985: Initially, Mr. Beck developed various preliminary design studies subsequently used for input to the PSAR and to project cost and final design studies. He reviewed cooling tower structural design calculations, wrote and administered a subcontract for cooling tower foundation piling installation, and wrote piping technical specifications. Later he supported various site engineering tasks and completion of final ultimate heat sink basin structural designs and assisted in managing group design activities. Subsequently he led the design activities associated with the reactor containment building (RCB) and site and managed a specialized task force performing dynamic loading analysis of the BWR Mark III RCB. He supervised development of the FSAR sections associated with the RCB and other Seismic Category I site facilities. He participated in regulatory hearings with the NRC and the Advisory Committee on Reactor Safeguards in conjunction with the RCB dynamic analyses and assisting in supervising civil structural design activities. Ultimately, he was responsible for all civil/structural engineering design activities associated with Unit 2.

ELECTRONICALLY FILED - 2018 September 24 9:06 PM - SCPSC - Docket # 2017-370-E - Page 7 of 73

CONFIDENTIAL, ATTORNEY-CLIENT PRIVILEGED
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BECHTEL

NUCLEAR, SECURITY & ENVIRONMENTAL

Jonathon D. Burstein

Project Controls Manager

Education

M.S., Construction Management, Virginia Tech University

B.S., Civil Engineering, Virginia Tech University

Jonathon Burstein has over 11 years of cost engineering, planning, and scheduling experience, primarily on nuclear projects throughout the United States. He is well-versed in all aspects of project cost management, including budgeting, monitoring, and controlling cost. He has also developed and maintained project outage construction schedules and monitored critical path. Currently, he is responsible for managing project controls for the Beaver Valley Unit 2 Steam Generator Replacement (SGR) Project and prior to that, he spent 5 years on the Watts Bar 2 Completion Project.

Project Controls Manager, Beaver Valley Unit 2 Steam Generator Replacement Project

2013–Present: Mr. Burstein manages the project control team to monitor and control cost and schedule for the project, and as part of the project management team to help the Project Manager make informed decisions. Mr. Burstein developed the project controls plan and established tools for successful project execution. He also facilitated cross-training of cost and schedule personnel to further develop their skills. The team is currently managing cost and schedule for the engineering effort, with construction planning and support for Unit 2 outages.

2015: While managing project controls for Beaver Valley, Mr. Burstein also provided planning and cost support to new proposals for nuclear work, steam generator replacement projects, and combined cycle projects. Additionally, he provided planning support to a front-end assessment study for new nuclear construction work.

Construction Cost Supervisor, Watts Bar Unit 2 Completion Project

2012–2013: Mr. Burstein supervised a group of up to 6 employees to manage construction costs. Group responsibilities included: daily craft hours monitoring, weekly QURR reporting and analysis, oversight of quantity reporting database, budget maintenance, trend initiation, and various interfaces with the construction organization. He also continued to perform the financial responsibilities listed below, such as PFSR, CWA's and project budget monitoring.

Cost Engineer – Financial/Craft, Watts Bar Unit 2 Completion Project

2010–2012: Mr. Burstein monitored the overall financial status of project, generated quarterly contract work authorizations (CWAs) for project funding and quarterly project financial status reports (PFSRs) for management, monitored actual expenditures against the project budget and forecast, and initiated construction trends as identified by cost tools. He generated monthly project reports for functional support to Frederick (project status reports, staffing, and gross margin) and provided other functional support as requested. He also supported craft cost controls as described below.

Cost Engineer – Craft, Watts Bar Unit 2 Completion Project

2008–2010: Mr. Burstein maintained labor cost codes and monitored labor charges in eTrack, maintained budgets and incorporated new work order estimates in ePC Works (a tool for budgeting, monitoring, and controlling all aspects of cost for major Bechtel projects), and performed craft labor analysis. In addition, he generated weekly quantity unit rate report (QURR) and other reports as required, created quantity reporting database so that the field engineer could enter weekly quantities, and trained others in use of these systems.

Area Scheduler, Watts Bar Unit 2 Completion Project

2006–2008: Mr. Burstein developed field engineering walkdown schedules and tracking tools and developed and maintained detailed construction schedules. He also acted as interim lead construction scheduler for a period of 2 months.

ELECTRONICALLY FILED - 2018 September 24 9:06 PM - SCPSC - Docket # 2017-370-E - Page 8 of 73

CONFIDENTIAL, ATTORNEY-CLIENT PRIVILEGED
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Field Planner, Palo Verde Unit 3 Steam Generator Replacement Project

2007–2007: Mr. Burstein developed and maintained project outage construction schedules as the lead planner on day shift. He prepared daily reports for project status, manpower tracking, jobhour earnings, and critical path analysis and trained new planners on SGR scope, planning, and reporting.

Field Planner, Comanche Peak Steam Generator/Reactor Head Replacement Project

2006–2006: Mr. Burstein developed and maintained project outage construction schedules. Work included coordinating steam generator replacement project work activities, preparing daily reports for project status, manpower tracking, jobhour earnings, and critical path analysis, and he cross-trained with the Cost group on craft staffing, subcontracts, and work breakdown structure (WBS) tracking.

Field Planner, Palo Verde Unit 3 N-1 Outage

2006–2006: Mr. Burstein maintained project outage construction schedules as the backshift planner and assisted in schedule development for the Unit 1 valve modification.

Planner, Comanche Peak Steam Generator/Reactor Head Replacement Project

2006–2006: Mr. Burstein maintained project engineering schedule and developed project pre-outage construction schedule, prepared weekly status reports and monthly engineering progress and performance report (EPPR), assisted various projects with schedule maintenance, and worked part time with AREVA New Gen to develop engineering schedules.

Field Planner, Palo Verde Unit 1 Steam Generator Replacement Project

2005–2005: Mr. Burstein participated in vertical slice reviews for schedule development. Maintained project outage construction schedules and monitored critical path.

Planner, Central Planning Group

2005–2005: In this assignment, Mr. Burstein assembled proposal schedules and updated various project schedules as needed.

Intern, Miami International Airport Expansion

2004–2004: Mr. Burstein set up and maintained database for tracking and reporting work orders and created project cost and scheduling reports for project management.

ELECTRONICALLY FILED - 2018 September 24 9:06 PM - SCPSC - Docket # 2017-370-E - Page 9 of 73

CONFIDENTIAL, ATTORNEY-CLIENT PRIVILEGED
Provided to Governor Henry McMaster as directed by him
pursuant to S.C. Const. Art. IV, sec. 17, and S.C. Code Ann. 1-3-10

Robert A. Exton

Procurement & Contracts Operations Manager

Technical Qualifications

Member, Original Lifetime Certified Purchasing Manager, Institute for Supply Management

Bechtel Certification–Procurement Manager

Education

B.S., Business Administration with Emphasis in General Management, Humboldt State University

A.S., Forestry Science, North Dakota State University

Bob Exton, Procurement & Contracts Operations Manager for Nuclear Power, has 37 years of procurement experience working on nuclear, fossil, and telecommunications projects, with over half of that time in the nuclear power generation arena. He has held positions of increasing responsibility in various procurement managerial positions, including material management, purchasing and contracts formation, management, and commercial leadership.

Procurement & Contracts Operations Manager, Nuclear Power

2008–Present: In his current role, Mr. Exton is responsible for managing and monitoring procurement and contracts operations for all commercial nuclear projects. His main focus the past year has been the functional oversight of ongoing nuclear projects and proposal efforts, drawing upon past experience, lessons learned, and the Six Sigma philosophy. Additional focus has been on process improvement and procedures directly associated with commercial nuclear activity.

Program Procurement Manager and Deputy Program Procurement Manager, Cingular Wireless Project and the AWS Project

2002–2008: Mr. Exton was responsible for the procurement operations of these telecommunication projects focusing on Materials Management. He was also responsible for the integration of the AWS project to the Cingular system and for ongoing procurement operations in support of the nationwide build program. This build program included eight markets with a staff of twenty, including material coordinators and a purchasing group.

Proposal Manager, Power Multi-Project Acquisition Group (MPAG)

2000–2002: Mr. Exton was involved with all proposal efforts for power projects and was the primary representative on project development teams ensuring that Procurement supported the development schedule.

MPAG Commercial Lead, Balance of Plant and Electrical

2000–2000: Mr. Exton was responsible for managing and coordinating the buying activities in support of the power projects executed from the Power center of excellence.

Project Procurement Manager, Aleppo, Quezon, and Debbel Projects/Nuclear Operations

1991–2000: Mr. Exton was responsible for developing, negotiating, and administering purchase orders and subcontracts for three fossil power projects in the Middle East and Asia. On the Aleppo Project, Mr. Exton was responsible for final equipment buyouts, expediting, inspection, traffic and logistics and shipment of remaining equipment and services.

Additionally, was involved in the development of new power plant construction projects.

In his Nuclear Operations role, Mr. Exton was responsible for coordinating procurement activities associated with North Anna Unit 1 SGR, V.C. Summer SGR, and FURNAS project and for the issuance and administration of major lump sum subcontracts.

Senior Contracts/Purchasing Supervisor Specialist, Palisades Steam Generator Replacement

1989–1991: Mr. Exton was responsible for negotiating and issuing major lump sum subcontracts and purchase orders.

ELECTRONICALLY FILED - 2018 September 24 9:06 PM - SCPSC - Docket # 2017-370-E - Page 10 of 73

CONFIDENTIAL, ATTORNEY-CLIENT PRIVILEGED
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pursuant to S.C. Const. Art. IV, sec. 17, and S.C. Code Ann. 1-3-10

Robert A. Exton

Contracts/Purchases Supervisor Specialist, Limerick Nuclear Project

1987–1989: Mr. Exton was responsible for coordinating purchasing activities, administering assigned blanket orders, and supervising closeout of home office contracts and field purchase orders.

Contracts/Purchases Supervisor/Specialist Buyer/Spare Parts Supervisor/Warehouse Receiving Supervisor, Palo Verde Nuclear Project

1978–1987: Mr. Exton was responsible for assisting in forecast planning, conducting training on procedures and reporting progress to the client and engineering.

ELECTRONICALLY FILED - 2018 September 24 9:06 PM - SCPSC - Docket # 2017-370-E - Page 11 of 73

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NUCLEAR, SECURITY & ENVIRONMENTAL

Jason S. Moore

Project Controls Manager

Jason Moore has 17 years of project controls experience in the power generation construction industry, with well-rounded expertise in planning, construction, cost, estimating/proposal development, and subcontracts for both nuclear and fossil power plants. For the past 6 years, he has had positions of increasing responsibility on large-scale nuclear power projects, culminating in his current role as Project Controls Manager for Bechtel's on-going engineering services work at Southern Nuclear's three operating nuclear facilities in Georgia and Alabama.

Education

- B.S. Business Management & Finance, Salisbury State University

Project Controls Manager, Southern Nuclear Engineering Services Project

2013–Present: Currently, Mr. Moore is responsible for all cost- and schedule-related functions, initiating and implementing project controls tools and programs, and providing technical direction to project controls personnel on this project that provides engineering services to Southern's three operating nuclear plants (Farley, Hatch, and Vogtle).

Project Controls Manager, Wolf Creek Essential Service Water Buried Pipe Replacement Project

2011–2013: Mr. Moore was responsible for all cost- and schedule-related functions, initiating and implementing project controls tools and programs, and providing technical direction to project controls personnel on this project that replaced over 30,000 lineal feet of underground and underwater piping that was deteriorating at the Wolf Creek Nuclear Plant. He provided day-to-day supervision to project controls personnel and interfaced with all functional groups to ensure compliance with execution strategy and objectives. He also provided status information and related analysis to the project manager, project controls operations manager, and project team, as well as interfacing with customers, contractors, and other outside personnel. Additionally, Mr. Moore led specialized studies and provided other specialized support to project and functional management, as required.

Shift Outage Manager/Assistant Project Controls Manager, Turkey Point 3 & 4 Extended Power Uprate Project

2009–2011: While assigned to the Turkey Point EPU project, Mr. Moore held a number of positions of increasing responsibility including:

- Shift Outage Manager—responsible for managing the "team room" for a 43 day outage with a peak shift headcount of 300, reviewing, modifying and driving the project schedule through the nuclear outage, interfacing daily with the plant management team, removing obstacles, and finding quick solutions to daily challenges and issues.
- Assistant Project Controls Manager—responsible for decisions and financial reviews, developing senior management presentation material on multiple occasions for client reviews, chairing multiple client review sessions ranging from trends to Level 3 vertical reviews, personnel management of project staffing decisions, and employee development, attaining more balanced perspective between the cost and schedule functions, and actively participating in financial development and reviews.
- Planning and Scheduling Supervisor—responsible for providing direct supervision to eight employees serving as one of the leads driving the U3R25 outage including analysis-based redirection, major recovery planning, and "team room" staffing, developing unique tools to simplify a complex planning project that is now used at all customer project sites.
- Project Planner—Field and Engineering, responsible for presenting the Project Controls status at the Monthly Progress Report to customer senior management, and scheduling lead for all aspects of

ELECTRONICALLY FILED - 2018 September 24 9:06 PM - SCPSC - Docket # 2017-370-E - Page 12 of 73

CONFIDENTIAL, ATTORNEY-CLIENT PRIVILEGED
Provided to Governor Henry McMaster as directed by him
pursuant to S.C. Const. Art. IV, sec. 17, and S.C. Code Ann. 1-3-10

schedule development including engineering, construction, procurement, subcontracts, startup, and customer schedule integration.

- Project Estimator—responsible for developing a plan to provide an estimate to customer for all the EPU projects along with all the templates required to complete the task in a short duration, conducting onsite working sessions/presentations at each of the customer's project sites, in which Level 1.5 schedules with associated resources were developed, with the results serving as the basis for all the EPU estimates. Mr. Moore presented the estimate to Bechtel customer senior management.

Project Planner, Midwest Generation Powerton Environmental Program Project

2008–2009: Mr. Moore's responsibilities included scheduling lead for all aspects of schedule development including engineering, construction, procurement, startup, client, and OEM partner schedule integration on this project to install an air quality control system on a dual unit coal-fired power plant. He worked directly with project management, client management, and OEM management developing all levels of schedule (Level I, II, III, IV), implementing the use of Primavera 6.0 on the project.

Project Planner, Siemens Air Quality Control System Retrofit Project

2008: Mr. Moore provided direction and training to the onsite planning staff on this 2,200 MW coal plant, facilitating communication between the Bechtel and Client organizations through interactive white-boarding schedule development sessions. He led the planning effort of the main transformer installation and its related outage, discovering and fixing issues as they arose. He also developed a new tracking report to be used by Bechtel and Client management that tracked real-time data in association with bulk piping installation.

Project Planner, Sutherland Project

2007–2008: Mr. Moore supported the development of the initial estimate and schedule for this proposed power project, developing a level II schedule and supporting documentation to successfully convey project schedule viability, and presenting the overall plan to the project team and leading discussions on its future development including risks and challenges.

Engineering Planner/Lead Planner, Oak Creek Expansion (Elm Road) Project

2004–2007: As Lead Planner on Elm Road, a 1,300 MW two-unit EPC new build coal-fired power plant, Mr. Moore was responsible for coordinating and issuing the critical action items and chaining the CAI meeting. He provided technical direction to the lead engineering planner and supported field personnel. He also led a number of special studies and "what if" analyses, as directed by the Project Director. He participated in the rebaselining of the construction schedule, developed multiple detailed schedule tracking tools to better define project goals, provided important analysis regarding the timing of cable deliveries to take advantage of the future reduction in the market price of copper, and developed the first startup level 3 detailed schedule.

As Engineering Planner, Mr. Moore was responsible for maintaining the Level I, Level II, and Level III schedules, creating and maintaining bulk commodity curves for Engineering releases and the project short-term work plan, analyzing entire schedule network to avoid potential issues with project deliveries, leading procurement activities to ensure timely delivery of materials by establishing delivery dates for material requisition, reviewing cost estimates and trends for schedule impacts, and developing and maintaining the Engineering Progress & Performance Report and the Engineering dashboard.

Engineering Planner, Mountain View Combined Cycle Gas Turbine Project

2003–2004: Mr. Moore's responsibilities included developing and maintaining the Level I, Level II, and Level III schedules, bulk commodity curves for engineering releases, and the project short-term work plan. He was also responsible for analyzing the entire schedule network to avoid potential issues with project deliveries, leading procurement activities to ensure timely delivery of materials by establishing delivery dates for material requisition, reviewing cost estimates and trends for schedule impacts, and communicating the overall project schedule to the project and client management.

Proposal Planner, Bechtel Power Project Controls Central Function

2000–2003: Mr. Moore worked with business development managers and construction managers to assist in development of strategic positions of new proposals. He was responsible for developing the milestone summary schedules for management reviews during the proposal phase, developing Level II project schedules, developing and maintaining Level III P3 schedules, developing bulk curves and manpower curves, producing development schedules for pre-NTP phase and proposal phase, and maintaining comparison data for new proposals. Proposals ranged in value from $300 million to $3 Billion.

Indirect Estimator, Bechtel Power Estimating

1998–2000: Mr. Moore was responsible for developing craft wage rates, supporting the development of manual distributable costs, developing home office costs, tracking metrics for proposal costs and services estimates, gathering data for quantity and jobhour comparisons, supporting the preparation of proposal review packages, developing proposal cashflows and proposal profitability summaries, and preparing proposal pricing sheets.

ELECTRONICALLY FILED - 2018 September 24 9:06 PM - SCPSC - Docket # 2017-370-E - Page 13 of 73

CONFIDENTIAL, ATTORNEY-CLIENT PRIVILEGED
Provided to Governor Henry McMaster as directed by him
pursuant to S.C. Const. Art. IV, sec. 17, and S.C. Code Ann. 1-3-10

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Robert E. Pedigo

Project Startup Manager

Technical Qualifications

Registered Professional Engineer, Pennsylvania (Electrical) and Illinois (inactive)

Six Sigma Black Belt

Education

B.S., Electrical Engineering, Pennsylvania State University

Bob Pedigo is a seasoned Startup Manager with 39 years of increasing responsibilities both on projects and in functional management. He is a Bechtel Startup Subject Matter Expert, and his expertise includes plant startup and startup planning of systems and facilities, plant maintenance and reliability (nuclear, petrochemical, and industrial), procedure development, and multi-discipline organization coordination. In addition, he is a Six Sigma Black Belt who has successfully developed and implemented several startup process improvements.

Deputy Manager of Startup, Bechtel Oil, Gas & Chemicals (OG&C)

2014–Present: Mr. Pedigo is responsible for startup functional oversight of the OG&C global business unit projects in development and execution around the world.

Chief Startup Engineer, Bechtel OG&C

2013–2014: Mr. Pedigo was responsible for overseeing startup at multiple Liquefied Natural Gas (LNG) projects from the Houston OG&C headquarters.

Chief Startup Engineer, Bechtel Corporation

2011–2013: Mr. Pedigo was responsible for the continued development and revision of Bechtel's corporate Startup Procedures (content and configuration management) and the management of the corporate Startup Engineer Certification program and oversight of corporate startup records and archives. In addition, he served as a Startup Subject Matter Experts for several nuclear power and LNG projects.

Project Startup Manager, mPower Small Modular Reactor (SMR) and Calvert Cliffs Unit 3

2008–2011: On the mPower SMR project, Mr. Pedigo oversaw design input, program development, and early project planning during the development of the SMR design and execution planning. On Calvert Cliffs 3, he performed design input, program development, and early project planning for the US-EPR nuclear power reactor design that was proposed for the Calvert Cliffs site.

Assistant Manager of Startup, Bechtel OG&C

2004–2008: Mr. Pedigo assisted in startup functional oversight of OG&C projects in development and execution.

Six Sigma Black Belt, Bechtel Corporation

2003–2004: As one of the Six Sigma Black Belts, Mr. Pedigo successfully developed, completed, and implemented two Process Improvement Projects (PIPs), that improved Bechtel's process and procedures for Steam Line Cleaning and Chemical Cleaning. He also conducted Six Sigma awareness training and program audits throughout the company.

Project Support Supervisor, Bechtel Corporation

2000–2003: Mr. Pedigo's responsibilities included project development support (proposal estimating, schedule development, and execution philosophy input), project execution support, and startup execution philosophy research and development for projects mainly in the Power and Government Services sectors.

Lead Startup Engineer, River Protection Project

1999–2000: Mr. Pedigo's responsibilities included development of the startup portion of project estimate and schedule, development of commissioning strategy and startup program, development of test section of the

ELECTRONICALLY FILED - 2018 September 24 9:06 PM - SCPSC - Docket # 2017-370-E - Page 14 of 73

CONFIDENTIAL, ATTORNEY-CLIENT PRIVILEGED
Provided to Governor Henry McMaster as directed by him
pursuant to S.C. Const. Art. IV, sec. 17, and S.C. Code Ann. 1-3-10

Preliminary Safety Analysis Report, and provision of input to design for startup, maintenance, and operations on this Department of Energy nuclear waste vitrification project in eastern Washington.

Site Manager, BP Amoco and Koch Refinery Projects

1997–1999: Mr. Pedigo had overall responsibilities for capital projects, maintenance support, and turnarounds at BP Amoco's Pasadena, TX plant. For the Koch Refinery, he had responsibility for 300 direct hire craft and 35 non-manual staff, with scopes of work including maintenance, turnarounds, and capital projects under $10 million.

Project Startup Engineer, Koch Refinery and Hoechst Celanese Projects

1994–1997: Mr. Pedigo's responsibilities included Koch/Bechtel Alliance development, Koch Corporate maintenance program reengineering, KRC-CC maintenance program development (east and west plants), plant reliability program development, maintenance technology development, and maintenance resource redeployment. On the Hoechst project, his duties included client maintenance organization restructuring, plant reliability program improvement, process and equipment improvements, and plant preventive / predictive maintenance program development.

Project Engineer, Dresden and Quad Cities Nuclear Power Plant Maintenance & Modification

1991–1994: Mr. Pedigo's responsibilities included oversight of the resident engineering group, client interfaces, building a resident team, and facilitating execution of work, as well as project planning, maintenance group restructuring, and site procurement process evaluations.

Project Startup Engineer, Susquehanna Steam Electric Station

1987–1991: Mr. Pedigo served as site manager for all Bechtel activities at Susquehanna, including interfaces for operating plant services and coordinating support with multiple Bechtel offices. Additionally, he performed in a seconded role to PP&L as a mechanical maintenance planner. His responsibilities included generating work plans for work authorization documents using PP&L mainframe, knowledge of ASME Code (including NS-2 forms, code repair forms and code retest and inspection requirements), familiarity with plant technical specifications, preparation of weld travelers, jobhour estimating, ALARA radiation blocking, personnel safety blocking, materials and parts, operating plant impacts, special tooling and techniques.

Senior Startup Engineer, Susquehanna Steam Electric Station

1982–1987: Mr. Pedigo was ACR/PGCC group supervisor, responsible for special projects, design change package implementation, Regulatory Guide 1.97 changes, and human factors engineering. Additionally, as supervisor of the procedure-writing group, he was responsible for technical specification compliance review documents and local panel alarm response procedures. Later on in the project, he was responsible for project coordination and startup of an additional standby emergency diesel generator, as well as schedule development, project scoping, design compliance, and operability review.

Startup Engineer, Susquehanna Steam Electric Station

1980–1982: Mr. Pedigo was responsible for the startup worklist (open items tracking), as well as the startup of the standby diesel generator and 24 and 125 V DC systems. He assisted in the Unit 1 integrated leakage rate test and preliminary work for vessel nuclear instrumentation.

Field Engineer, Comanche Peak Nuclear Generating Station

1975–1980: Mr. Pedigo was responsible for generating turnover packages, system scoping, and system walkdowns, generating and verifying construction punchlist completion, conducting weekly construction turnover progress meetings, and presenting system turnover to client.

Field Engineer, Susquehanna Steam Electric Station

1976–1978: Mr. Pedigo was responsible for the electrical and instrumentation portion of the primary containment structural integrity test, civil support in the reactor building and control structure, and raceway and equipment installation for the control structure, containment, and reactor buildings, including the advanced control room/power generation control complex (ACR/PGCC).

ELECTRONICALLY FILED - 2018 September 24 9:06 PM - SCPSC - Docket # 2017-370-E - Page 15 of 73

CONFIDENTIAL, ATTORNEY-CLIENT PRIVILEGED
Provided to Governor Henry McMaster as directed by him
pursuant to S.C. Const. Art. IV, sec. 17, and S.C. Code Ann. 1-3-10

Jerry B. Pettis

Project Administrator

Education

- B.S. Business Administration
  Lander University

Military Service

- U.S. Army 1968-1971
- South Carolina Army National Guard 1972-1979

Jerry Pettis is a seasoned, results-oriented professional with 26 years of experience within contractor organizations supporting Department of Energy nuclear facilities and the National Nuclear Security Administration. He has proven leadership capabilities in interpreting and executing requirements, reducing costs, maximizing team productivity, and developing innovative tools. He has successfully managed teams responsible for a variety of administrative functions to include prime contract requirements, records administration, document control, publications, training, and related budgetary processes. He has returned to Bechtel employ after several years of retirement.

Document Services Manager, Depleted Uranium Hexafluoride (DUF6) Project, B&W Conversion Services

2011–2013: Mr. Pettis managed the document and records functions for the DUF6 conversion plants in Paducah, Kentucky and Piketon, Ohio, as well as the executive office functions located in Lexington, Kentucky. His responsibilities included managing all project records, document control and procedures functions. He ensured that Department of Energy (DOE) documents and records were created, maintained, captured, and protected per published requirements.

Manager, TA-21 Project Services and Infrastructure, Los Alamos National Laboratory, Bechtel National

2009–2011: Mr. Pettis managed administrative and facility services for a $212 million American Recovery and Reinvestment Act of 2009 (ARRA) environmental restoration and decontamination and decommissioning project. His responsibilities included ensuring that the stringent reporting requirements required by ARRA were met, managing all project records, document control, and procedures functions, project training development, implementation and tracking, development and implementation of a robust internal and external communications and outreach program, facility utilization and staff assignment activities, project issues tracking and resolution, and project security.

Requirements Manager, Prime Contract Management Office, Lawrence Livermore National Laboratory, Bechtel National

2007–2009: Mr. Pettis managed complex activities for the laboratory's prime contract, which include ensuring that organizational objectives involving the performance evaluation process, program direction, cost allowability, and other aspects of prime contract management are met. He also was the institutional interface between the company and external agencies for the evaluation and interpretation of regulations and directives for applicability to the prime contract, coordinating with National Nuclear Security Agency's Livermore Site Office in making changes to the list of DOE orders, policies, notices, and standards included in Appendix G of the prime contract. Additionally, he ensured that responsible managers assess the cost and schedule impacts of any proposed addition of requirements to the contract and coordinating assessment outcomes with the Livermore Site Office.

Document Control Group Leader, Information Resources Management Division, Los Alamos National Laboratory, Bechtel National

2006–2007: Mr. Pettis managed complex activities for institutional level document control activities by establishing an institutional, customer focused, centralized document control program for the laboratory, integrating numerous disparate document control processes and systems into an integrated program. He established minimum training and performance expectations for laboratory document control staff to ensure consistent document control capability and that the appropriate laboratory documents were retained and up-to-date versions were available to all users in a timely fashion. He also supported the Information Resources Management Division Leader in developing and monitoring the division budget.

ELECTRONICALLY FILED - 2018 September 24 9:06 PM - SCPSC - Docket # 2017-370-E - Page 16 of 73

CONFIDENTIAL, ATTORNEY-CLIENT PRIVILEGED
Provided to Governor Henry McMaster as directed by him
pursuant to S.C. Const. Art. IV, sec. 17, and S.C. Code Ann. 1-3-10

Manager, Information Resources Department, Nevada Test Site, Bechtel National

2004–2006: Mr. Pettis managed complex institutional level activities for a variety of administrative and technical support services for Bechtel's work on the Nevada Test Site. His responsibilities included functional management of all Bechtel administrative employees and technical writers, operation of the Nuclear Testing Archive, program management for all institutional records and document control, institutional scientific and technical information programs, office services functions such as printing and reproduction services, mail services, printing services through the Government Printing Office (GPO), and convenience copier program management

Manager, Program Administration and Support Department, Soil & Groundwater Closure Projects, Savannah River Site, Bechtel National

2002–2004: Mr. Pettis managed extensive department level activities in support of environmental restoration activities at the 310 square mile Savannah River Site. His responsibilities included development and implementation operations and regulatory training for environmental restoration employees, development, revision, publication and maintenance of procedures, production of a large number of regulatory documents, development of graphics and presentations to support internal and external communication of the environmental restoration mission, challenges, and successes, document control and records management to include management of the sites Administrative Record and public reading room materials, maintenance of the reproduction center and capability, coordination and management of division clerical and secretarial support personnel, and accountability and inventory of all division property and facilities.

Division Training, Procedures, and Reporting Manager, Soil & Groundwater Closure Projects, Savannah River Site, Bechtel National

1995–2002: Mr. Pettis managed division level activities that included the analysis, design, implementation, evaluation, and maintenance of initial and continuing training for job-specific operator, staff, supervisor and manager training programs. These programs included general, task specific, and regulatory training for 400+ employees and subcontractors; the development, scheduling, publication, and technical support for presentations and reporting to audiences including Department of Energy, Environmental Protection Agency, South Carolina Department of Health & Environmental Control, and the site's Citizen's Advisory Board. He also oversaw the management and maintenance of the division's emergency action and emergency response programs.

Administrative Manager, 400-D Power House, Savannah River Site

1993–1995: Mr. Pettis managed all phases of administrative support for the site's 70 MW coal fired power and steam plant, including the interpretation and administration of Power Operations Department plans and policies, document control and records management, procedures development, and publication and maintenance. He was also responsible for the analysis, design, implementation, evaluation, and maintenance of initial and continuing training for job-specific operator, staff, supervisor and manager training programs for 300+ employees, as well as facility issues investigation as Critique Director. He also functioned as interface with the DOE facility representative for resolving identified facility and programmatic issues and served as area emergency coordinator.

1987–1993: Prior to his position as Administrative Manager, Mr. Pettis held several positions of increasing complexity and responsibility at Savannah River, including the development of a cross functional team to identify, categorize, inspect and maintain the site's earthen dams. He was awarded the prestigious George Westinghouse Signature Award of Excellence for successfully supervising the $10 million, 19 month, PAR Pond earthen dam emergency stabilization project.

Various positions in manufacturing, civil service, finance, management consulting, and banking

1967–1987

ELECTRONICALLY FILED - 2018 September 24 9:06 PM - SCPSC - Docket # 2017-370-E - Page 17 of 73

CONFIDENTIAL, ATTORNEY-CLIENT PRIVILEGED
Provided to Governor Henry McMaster as directed by him
pursuant to S.C. Const. Art. IV, sec. 17, and S.C. Code Ann. 1-3-10

Michael K. Robinson

Construction Manager

Technical Qualifications

- Registered Professional Engineer in Pennsylvania

Education

- B.S., Civil Engineering University of California
- Certificate, Bechtel Executive Plan XVIII

Mike Robinson has more than 44 years of project and corporate management, construction, and engineering experience on various fossil and nuclear power generation projects worldwide, as well as U.S. Government environmental remediation and infrastructure rebuilding efforts. He has provided leadership on some of the largest mega-projects in the power and government sectors. His career has spanned all aspects of project and construction management of solid fuel, natural gas, and nuclear facilities, as well as commercial and engineering roles of increasing responsibility. He is a proven and highly respected leader who is equally adept in managerial, technical, and commercial roles. He has recently returned to Bechtel after several years in retirement.

Project Manager/Site Manager, Crystal River Unit 3 Containment Repair Project

2012–2013: Mr. Robinson led the multi-disciplinary team to develop engineering/construction solutions and cost and schedule estimates for the Crystal River 3 containment delamination repairs, one of the most technically daunting efforts in the industry, from its initial development through the phase I engineering effort until the project was cancelled by the customer and the plant permanently shut.

Project Manager, M-3 Mixing Project

2010–2011: Mr. Robinson was responsible for managing the closure of the mixing issues for the waste receiving, transfer, and mixing tanks and issues associated with them for the Department of Energy (DOE) site. Project requirements were to design the systems and provide testing that demonstrates the design works. DOE HQ and local office personnel required that any issues surrounding the Mixing Project were identified to ensure that the plant will operate for its 40-year life.

Area Project Manager/Project Operations Manager, Waste Treatment Plant (WTP)

2007–2010: Mr. Robinson was the Area Project Manager for the Plant-wide account that includes Engineering, Construction, Acquisition Services, Materials Management, and Startup for this $15B+ project. He had the responsibility to ensure that each department is meeting their budgets and schedules, have proper staff to meet the project needs, and have proper plans to go forward. Each department had to identify any cost or schedule changes and have adequate documentation and justification for those changes. Mr. Robinson interfaced daily with his client counterpart to ensure they were aware of current issues and events. In addition, he was the Project Operations Manager, and these additional responsibilities included safeguards and security, risk management, project support, and special project management projects. Mike was also the Six Sigma deployment manager.

Site Manager, Oak Creek Expansion Project (Elm Road)

2004–2007: In this capacity, Mr. Robinson was involved in developing the construction philosophy for this 1,300 MW two-unit EPC new build coal-fired power plant, including detailed up-front planning for execution of the project, staffing, schedule, erection scheme, and interface with engineering, vendors, subcontractors, and unions. The execution of the work included day-to-day direction of all construction personnel, interface with the owner and other agencies to resolve open issues, answer questions, and coordinate plans because of the existing power plant on the same site.

Operations Manager, Iraq Project

2003–2004: Mr. Robinson was responsible for all work in the northern two thirds of Iraq, which included included power projects, water and waste projects, bridge repair, telephone infrastructure repair, and school and hospital repair. Daily interface with both USAID and the U.S. military as required to coordinate work and ensure the most pressing projects were worked and funds were available. Additional coordination with the

ELECTRONICALLY FILED - 2018 September 24 9:06 PM - SCPSC - Docket # 2017-370-E - Page 18 of 73

CONFIDENTIAL, ATTORNEY-CLIENT PRIVILEGED
Provided to Governor Henry McMaster as directed by him
pursuant to S.C. Const. Art. IV, sec. 17, and S.C. Code Ann. 1-3-10

iraqi Ministry personnel was also required to ensure they were kept informed about the status of projects, and they agreed with the proposed projects being planned.

Fossil Operations Manager–North America, Bechtel Power

2000–2003: Mr. Robinson was responsible for project execution of over half of the on-going North American power projects, including establishing the project management philosophy and procedures, continuously monitoring the project status including cost, schedule, safety, staffing, trends, change orders, and client relations. He provided real time feedback and guidance to the project managers about their performance, in addition to providing training and personal development. Mike assisted Business Development with project development and reviewed the commercial issues to ensure that they met business requirements.

Fossil Operations Manager–Europe, Africa, Middle East, Bechtel Power

1999–2000: In this capacity Mr. Robinson was responsible for project execution of all power projects in the EAM region, including establishing project management philosophy and procedures. He continuously monitored project progress including cost, schedule, safety, client relations, staffing, and trends. Mike assisted with Business Development efforts and concurred with final estimates. He interfaced with other Regional Ops Managers to optimize resource usage and project execution.

Project Director, Dabhol Power Station Project

1994–1999: Bechtel and General Electric (GE) formed a consortium to perform the engineering, procurement, construction, and startup of this 2,240 MW combined cycle power project in India (at the time the largest foreign investment in India), with GE providing the major equipment and Bechtel providing the balance of the work. Mike had overall responsibility for the consortium, as well as being the prime interface with the Owners. Project Director. Primary activities included developing project execution philosophy, Bechtel/GE interface and day-to-day direction to the project managers and site manager.

Manager of Projects, Fossil, Bechtel Power

1992–1994: Mr. Robinson was responsible for the overall management of numerous fossil projects in various stages of development and execution. He supervised project managers and assisted them in setting goals and establishing philosophy of approach to individual projects. Mike provided guidance to project managers in their day-to-day activities, including client relationship and providing formal and informal training and development of the project managers. He also coordinated interaction between projects in areas of business, the goals, company direction, relevant project experience, resource sharing and allocation, and other pertinent information.

Project Manager, Coryton Cogeneration Power Project

1991–1992: Mr. Robinson was responsible for developing a lump sum package for the engineering, procurement, construction, and startup of a 500 MW combined cycle cogeneration plant for the Mobil Refinery in Coryton, England. Work included preliminary engineering to identify the technical scope of the project, selection and negotiation for lump sum contracts for the gas turbines, steam turbine, HRSG, and air cooled condenser. Also included were development of a construction and labor relations plan, project schedule, startup program, and full lump sum estimate. Assistance was provided to the client for permitting and non-recourse financing. Contractual negotiations for all terms and conditions were also included.

Project Manager, Panther Creek Project

1989–1991: Mr. Robinson assisted in project development including contract negotiations, cost, schedule and testing requirements. He was responsible for project execution and management of engineering, construction, startup, procurement, and project controls. Mike coordinated and communicated with client/owner including change order negotiation and approval. He established terms and philosophy of job execution and kept appropriate management updated on project status. Mike also tracked job to final and successful completion.

Project Manager, Scrubgrass Project

1989–1989: Mr. Robinson assisted in project development including contract negotiations, cost, schedule and testing requirements. He was responsible for project execution and management of engineering, construction, startup, procurement, and project controls. Mike coordinated and communicated with client/owner including change order negotiation and approval. He established terms and philosophy of job execution and kept appropriate management updated on project status.

Project Superintendent, Gilberton Cogeneration Project

1986–1989: Mr. Robinson was the Project Superintendent for the construction of a $100 million cogeneration facility. Contract included power plant and coal handling facility — 40 percent was subcontracted. Mike supervised 30 nonmanual and 200 craftsmen.

Lead Contracts Coordinator, Scott Paper Cogeneration Project

1984–1986: Mr. Robinson's duties included front end planning and contract package scoping. He also supervised the contract coordination on a fluidized bed boiler.

Civil, Mechanical, and Electrical Craft Superintendent, Grand Gulf Nuclear Power Plant

1983–1984: Mr. Robinson's duties included front end planning and contract package scoping. He also supervised the contract coordination on a fluidized bed boiler.

ELECTRONICALLY FILED - 2018 September 24 9:06 PM - SCPSC - Docket # 2017-370-E - Page 19 of 73

CONFIDENTIAL, ATTORNEY-CLIENT PRIVILEGED
Provided to Governor Henry McMaster as directed by him
pursuant to S.C. Const. Art. IV, sec. 17, and S.C. Code Ann. 1-3-10

Lead Civil Contracts Coordinator, Bruce Mansfield Coal Conversion

1981–1983: Mr. Robinson coordinated civil contracts, including contracts and specification interpretation, inspected and accepted the work, and negotiated extras and claims.

Various Civil Engineering and Quality Positions, Grand Gulf Nuclear Power Plant

1975–1981: Assignments at Grand Gulf included Assistant Lead Civil Engineer, Lead Area Engineer for the yard and control building, and Resident Civil Engineer. Mike acted on behalf of the Project Engineer at the jobsite. Duties as Lead Civil Quality Control Engineer and Assistant Project Field Quality Control Engineer included assisting in implementation of the project quality control policy and coordinating the work of all QC disciples. Later assignments included responsibility for senior contractors' changes, invoice approval, and monthly progress meetings. As HVAC Coordinator, Mike coordinated the completion of all heating and ventilating systems with the contractor and Bechtel. He supervised up to 100 people.

Construction Coordinator, SNUPPS

1972–1975: Mike reviewed drawings, specifications, project schedules, and procurement packages for final design phase and construction for the SNUPPS nuclear plant.

Civil Design Engineer, FFTF

1971–1972: Mike performed structural design and analysis for structural steel and concrete structures.

Civil Field Engineer, Calvert Cliffs Nuclear Power Plant

1969–1971: Mike was responsible for planning and scheduling, inspecting field placement, review drawings, quantity accounting, and scheduling civil activities.

ELECTRONICALLY FILED - 2018 September 24 9:06 PM - SCPSC - Docket # 2017-370-E - Page 20 of 73

CONFIDENTIAL, ATTORNEY-CLIENT PRIVILEGED
Provided to Governor Henry McMaster as directed by him
pursuant to S.C. Const. Art. IV, sec. 17, and S.C. Code Ann. 1-3-10

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Stephen D. Routh

Project Manager (Engineering and Licensing)

Technical Qualifications

Registered Professional Engineer, Virginia

Six Sigma Champion

Education

M.B.A., Finance, Mount St. Mary's College

MEng., Nuclear Engineering, Pennsylvania State University

B.S., Nuclear Engineering, Pennsylvania State University

Memberships

Member, American Nuclear Society

Member, ANS Large Light Water Reactor Consensus Committee

Member, EPRI Advanced Nuclear Technology Group

Member, NEI COL Task Force

Member, NEI Seismic Issues Task Force

Steve Routh is a Senior Project Manager with over 35 years of nuclear experience and is currently the manager of Bechtel's Nuclear Engineering Services group. He has supported new nuclear generation efforts at various sites since 2001 and is recognized as an industry expert in nuclear engineering, safety, and licensing. Additionally, Steve is an active member of NEI and EPRI new generation task forces and working groups.

Manager, Nuclear Engineering Services

2009–Present: Mr. Routh is responsible for Bechtel's engineering and licensing services projects including support of operating plants, new nuclear generation, Fukushima response projects, and proposal preparation. He was previously the Project Manager for New Nuclear Generation Projects. Projects supported during this period include:

- North Anna Unit 3 Owner's Engineer and COL (APWR/ESBWR)
- Turkey Point COL (AP1000)
- Calvert Cliffs COL (U.S. EPR)
- South Texas COL (ABWR)
- V.C. Summer Units 2 & 3 Engineering and Licensing Support (AP1000)
- FENOC New Nuclear Site Selection Study (mPower)
- AREVA DCD (U.S. EPR)
- Clinch River Construction Permit Application (mPower)
- Dominion, South Texas, Watts Bar, and Constellation Fukushima response projects
- SONGS Spent Fuel Pool Island Cooling
- Vermont Yankee Decommissioning Cost Estimate
- Monticello and Prairie Island design modifications
- Fennovoima (Finland) New Plant Constructability and Schedule Assessment (EPR and ABWR)
- Wylfa Newydd (UK) New Plant Schedule and Cost Study (ABWR)

Additionally, Mr. Routh managed Bechtel's overall Fukushima response efforts including industry representation and development of approaches and capabilities, as well as responsibility for nuclear power proposal preparation.

Project Manager, Early Site Permit/Combined Operating License Technology Group

2001–2008: As Manager of the ESP/COL Technology Group, Mr. Routh provided engineering and licensing oversight of Bechtel's new generation projects (Calvert Cliffs, North Anna, South Texas, Vogtle, V.C. Summer, Turkey Point, and Victoria County). He was also the project manager for the North Anna ESP project, North Anna COL and Site Engineering project, and the Turkey Point COL project.

Manager of Regulatory Affairs, Nuclear Power

1999–2001: Mr. Routh was responsible for the licensing and regulatory oversight of the Bechtel nuclear power projects (new nuclear generation, steam generator replacements [SGRs], operating plant services, and SERCH, Bechtel's generic licensing service).

ELECTRONICALLY FILED - 2018 September 24 9:06 PM - SCPSC - Docket # 2017-370-E - Page 21 of 73

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Licensing and Safety Analysis Supervisor, U.S. Enrichment Corporation

1995–1999: Mr. Routh managed the preparation of the upgraded Safety Analysis Reports for the Paducah and Portsmouth gaseous diffusion plants and managed activities for the project team including subcontractor support. He also provided detailed cost and schedule control, technical review of revised analyses, responded to NRC questions, and interfaced with NRC and DOE personnel. Mr. Routh also established regulatory processes for NRC oversight.

Project Engineer for the North Anna 1, North Anna 2, and Surry Steam Generator Replacement Projects

1991–1995: Mr. Routh's duties included managing mechanical, materials, civil, nuclear, and licensing engineering activities in support of the projects including evaluation of alternative approaches, conceptual and detailed engineering, constructability reviews, subcontractor control, and client interface.

Assistant Chief Nuclear Engineer

1987–1991: Mr. Routh provided nuclear licensing support to operating plant services projects in the areas of design change packages operability and safety evaluations, justified continued operations, Part 21s, and NRC interaction, and assisted in the administration of the nuclear department and salary planning.

Nuclear Licensing Supervisor

1983–1987: Mr. Routh prepared the safety analysis report, environmental report, and license documents for the Surry plant dry cask independent spent fuel storage installation (the first licensed in the United States) and supported several other operating plant services and SGR projects.

Licensing Engineer/Deputy Supervisor, Grand Gulf Project

1980–1982: Mr. Routh supported the licensing effort for the operating license, preparation of the FSAR, environmental report, and the technical specifications. He supported NRC question responses, public hearings, as well as NRC safety evaluation report review and SER open item responses.

ELECTRONICALLY FILED - 2018 September 24 9:06 PM - SCPSC - Docket # 2017-370-E - Page 22 of 73

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Edward (Ed) A. Sherow

Engineering Manager

Technical Qualifications

Six Sigma Champion

Education

B.S., Electrical Engineering, Rensselaer Polytechnic Institute

Ed Sherow has over 43 years of engineering experience in the nuclear and fossil power industry, focusing on all phases of power plant activities, with specific background in electrical. He has worked on numerous projects throughout his career including Calvert Cliffs, Grand Gulf, Turkey Point, and Brown's Ferry Units 1 and 3 nuclear plants, as well as the design development of the U.S. EPR and the associated submittal of a COL for Calvert Cliffs Unit 3.

Engineering Manager, Nuclear Projects

2012–Present: Mr. Sherow is currently responsible for functional engineering management oversight, development, and execution of multiple nuclear projects. Work involves assistance and review of project estimates/schedules, project setup and staffing review, quality, schedule, and budget performance monitoring, project-specific process and procedural approvals, and coordination of lessons learned/experiences between multiple nuclear projects.

Nuclear Project Engineering Manager/Project Engineer, U.S. EPR Design Development & Certification and Calvert Cliffs Unit 3 COLA

2005–2011: Mr. Sherow managed the detailed design for the U.S. EPR, a 1,600 MW Generation III+ nuclear plant, with the first plant in the U.S. targeted for Calvert Cliffs. He also managed the work associated with supporting AREVA in achieving design certification. He also managed the development and support to UniStar (JV of EdF and Constellation) for submittal of the Combined Operating License Application for Calvert Cliffs Unit 3 based upon the EPR technology.

Fossil Project Engineer, Fossil Technology Group

2005–2005: Mr. Sherow managed the development and design of fossil generation plants. Work involved supervision or coordination of multidisciplinary engineers, technical specialists, estimators, and Business Development to provide proposals and the development aspects of fossil power projects. Close client coordination was required.

Task Integration Manager/Metrics Manager, Browns Ferry Unit 1 Restart Project

2003–2005: Mr. Sherow was responsible for the overall execution and quality of work relating to metrics reporting, integrated task equipment list programming/data integrity, and overall training program.

Assistant Project Manager/Project Engineer, Mountainview CCGT Project

2001–2003: As assistant project manager on this combined cycle gas project, Mr. Sherow's responsibilities included supervising execution planning, contract administration of the EPC Agreement, contract administration of major equipment (including the GE Power Island subcontract), contract compliance as well as the championing of other specific areas of critical concern to the success of the project. He was also responsible for interface with the Owner's project manager and for monitoring cost and schedule progress. As project engineer, he was also responsible for the overall engineering of the project, including technical correctness, compliance with codes, optimizing design/installation costs, and interface with suppliers and owner.

Fossil Project Engineer, Fossil Technology Group

1999–2001: Mr. Sherow managed the development and design of fossil generation plants. Work involved supervision or coordination of multidisciplinary engineers, technical specialists, estimators, and Business Development to provide proposals and the development aspects of fossil power projects. Close client coordination was required. During this period, Mr. Sherow also completed a 7-month assignment in 2000 at the Red Hills Generation Facility jobsite, a 440 MW CFB in Mississippi, as the Project Field Engineer responsible for all Field Engineering activities at the site.

ELECTRONICALLY FILED - 2018 September 24 9:06 PM - SCPSC - Docket # 2017-370-E - Page 23 of 73

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Multi-Project Acquisition Group (MPAG) Manager, MPAG

1996–1999: Mr. Sherow managed the electrical MPAG. The group is an integrated cross-functional team of engineering and procurement personnel implementing the Bechtel supply chain strategy. Efforts focused on optimizing and managing cost and schedule in the delivery of equipment. Key items included interfacing power projects and suppliers, implementing standard products, making process improvements and negotiating supplier agreements. During this period, he managed the combined Electrical/Control Systems MPAG until it was separated into two groups.

Project Manager, Substation/Transmission Engineering

1993–1996: In this assignment, Mr. Sherow was responsible for commercial and technical operations of the Gaithersburg Substation/Transmission Engineering (STE) Group. The STE Group varied in size from 20 to 30 multidiscipline engineers doing switchyard and transmission line work directly for utilities while also supporting Bechtel New Generation projects.

Project Engineer, Browns Ferry Nuclear Unit 3

1991–1993: Mr. Sherow's responsibilities included overseeing the electrical discipline consisting of 135 to 200 engineers preparing design modifications for upgrading Unit 3 to allow restart. Effort included monitoring schedules for all activities, monitoring costs, interfacing with client, supervising personnel, and preparing, evaluating, and approving proposals. He was also responsible for special projects and later the DCN Production Group. Special projects duties included overall responsibility for Procurement Engineering Group and engineering scheduling for restart of Browns Ferry Unit 3. For the DCN Production Group, he was responsible for multidiscipline group of 250 engineers preparing design modifications for upgrade of Unit 3 to allow restart. Effort included monitoring schedules for all activities, monitoring costs, interfacing with the client and preparing, evaluating, and approving DCN modification packages.

Project Engineer/Group Supervisor, FPL Projects

1986–1991: Mr. Sherow was responsible for managing FPL's drawing update efforts for Turkey Point Units 3 and 4. Work included approving drawings as client representative, monitoring and correcting work output, reviewing indicators, assigning work priorities for up to 60 people, and maintaining budgets/schedules. He was also responsible for managing the design fossil operating plant services and the electrical and I&C work.

Group Supervisor, Electrical/Control Systems Group, Operating Services

1984–1986: Mr. Sherow's tasks included supervising electrical and instrumentation and Sentron (I&C) work at various operating plants. He approved drawings, calculations and installation packages, preparing/evaluating proposals, coordinating with vendors/client, monitoring schedules/budgets, and electrical/control systems work of up to 20 engineers. Typical projects included addition of a precipitator for BG&E H.A. Wagner Unit 3, addition of dry cask spent fuel storage, radiation monitoring upgrade, and a facilities renovation for Virginia Power's North Anna and Surry Nuclear Stations, addition of natural gas warm up for BG&E H.A. Wagner Unit 2, upgrading coal handling and sampling for Virginia Power's Mt. Storm Plant, a conversion to natural gas for FPL's Martin plants, and using coal water slurry as an alternate fuel for the Pfizer plant at Groton.

Group Supervisor, Electrical/Control Systems Design, Grand Gulf Units 1 and 2

1976–1984: In this assignment, Mr. Sherow's responsibilities included approving drawings, calculations, and installation packages, preparing/evaluating proposals, coordinating with vendors/client, monitoring schedules/budgets, and supervising electrical and I&C work.

Electrical Field Engineer, Calvert Cliffs Units 1 & 2 and Grand Gulf Unit 1

1972–1980: Mr. Sherow was responsible for overall installation and turnover to Startup of various plant systems. Duties included verifying system scope, walking down the system to ensure construction reflected design, interfacing with Design Engineering, preparing punch lists for outstanding items, and releasing systems to Startup. He was also responsible for cable installation. Duties included verifying routing (both by drawing review and walkdowns), correcting routings, cable inspections, initiating termination installation, cable termination inspection, documentation reviews, and resolving problems.

ELECTRONICALLY FILED - 2018 September 24 9:06 PM - SCPSC - Docket # 2017-370-E - Page 24 of 73

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BECHTEL

George D. Spindle

Construction Manager

Over his 47 year Bechtel career, Mr. Spindle has served in a variety of construction management and leadership roles, both domestically and around the world. He offers broad and deep construction and managerial experience from nuclear and fossil power plants to oil and gas facilities with a variety of execution and contractual models. He has a proven ability to both manage and lead others in order to successfully execute **projects on time and budget. Currently, Bechtel is privileged to have Mr. Spindle as a consultant resource, and he serves as a construction subject matter expert on a variety of Bechtel projects world-wide.**

Technical Qualifications

- Registered Civil Engineer California and Pennsylvania (Retired)
- Member: National Society of Professional Engineers
- Member: California Society of Professional Engineers

Education

- B.S.: Civil Engineering & Mathematics: University of Arizona
- Construction Executive Program: Texas A&M University

Consultant, Bechtel Group

2005–current: Since his retirement from Bechtel, Mr. Spindle has consulted on various Bechtel projects, providing insight on nuclear and fossil power, mining and metals, infrastructure, and oil and gas projects. His input has included analysis of execution strategies, risks, and implementation of lessons learned as well as commercial and technical aspects of projects. He has also led two assessments of the status challenges, and opportunities on the Watts Bar Unit 2 Completion Project.

Site Manager, Olympic Dam Project

2009: Mr. Spindle was the Site Manager of the Olympic Dam Project in Australia, a $12B uranium mine for BHP Billiton awarded to Bechtel on an EPC basis. He led the development and execution planning for the project until it was cancelled due to the economic downturn.

Manager of Construction, Bechtel Oil, Gas & Chemicals (OG&C)

2005–2008: Mr. Spindle oversaw the construction execution and personnel deployment for all OG&C projects world-wide.

Manager of Construction, Bechtel Construction Operations Incorporated (BCOI)

2000–2005: Mr. Spindle was responsible for the world-wide execution of construction projects, deployment of construction personnel, and the effective implementation of processes and procedures.

Manager of Construction, Bechtel Construction Co. / Bechtel Builders Inc.

1994–2000: Mr. Spindle was responsible for the execution of all construction projects in the Asia Pacific region, deployment of construction personnel, and the effective implementation of processes and procedures.

Manager of Construction, Bechtel Construction Co.

1992–1993: Mr. Spindle was responsible for the execution of all construction projects in Western North America and the Asia Pacific region, deployment of construction personnel, and the effective implementation of processes and procedures.

Manager of Construction, San Francisco Regional Office

1990–1992: Mr. Spindle was responsible for the execution of all construction projects sponsored by the SF office, deployment of construction personnel, and the effective implementation of processes and procedures.

Construction Manager, Bechtel Construction, Inc.

1989–1990: Mr. Spindle was responsible for the construction execution of all direct hire power and petroleum projects.

ELECTRONICALLY FILED - 2018 September 24 9:06 PM - SCPSC - Docket # 2017-370-E - Page 25 of 73

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pursuant to S.C. Const. Art. IV, sec. 17, and S.C. Code Ann. 1-3-10

Field Construction Manager, Basic American Foods America, 1 Cogeneration Project

1988–1989: Mr. Spindle was responsible for the construction execution of this 120 MW California cogen project, which primarily uses natural gas to provide supply steam for vegetable drying and power to the electric grid.

Field Construction Manager, Gilroy Food Cogeneration Project

1986–1987: Mr. Spindle was responsible for the construction execution of this 115 MW California cogen project, which primarily uses natural gas to provide supply steam for food processing and power to the electric grid.

Field Construction Manager / Project Superintendent, Colstrip Units 3 & 4 Power Project

1979–1986: Mr. Spindle was responsible for the construction execution of two coal fired units in Montana producing 740 MW each. He began the project as Superintendent and in 1984 became the Field Construction Manager.

Lead Civil Superintendent, Limerick Nuclear Generating Station

1974–1979: Mr. Spindle was responsible for all civil work in the reactor buildings.

Assistant Superintendent, Jim Bridger Generating Station

1973–1974: Mr. Spindle was responsible for supervising all craft personnel involved in civil earthworks on these four coal fired units in Wyoming, producing a total of 2,110 MW.

Senior Field Engineer/Construction Coordinator, Limerick Nuclear Generating Station

1971–1973: As Senior FE, Mr. Spindle was responsible for construction planning and scheduling, and as CC he was the construction liaison between the field work and engineering.

Field Engineer, Monticello Nuclear Power Plant

1968–1970: Mr. Spindle was responsible for the construction planning and scheduling.

Various Construction Roles

1961–1968: Mr. Spindle held various construction labor and planning/scheduling positions.

ELECTRONICALLY FILED - 2018 September 24 9:06 PM - SCPSC - Docket # 2017-370-E - Page 26 of 73

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Appendix C

Bechtel Weekly Reports

ELECTRONICALLY FILED - 2018 September 24 9:06 PM - SCPSC - Docket # 2017-370-E - Page 27 of 73

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Bechtel Weekly Report
V.C. Summer Units 2 &3 Completion Assessment
Week Ending August 28, 2015

- Members of the Bechtel team are scheduled to arrive onsite on Tuesday afternoon September 8
- On August 19 Bechtel provided a suggested agenda for the Wednesday September 9 Consortium presentation at the site A revised version of the agenda was received from WEC on August 25 Some additional suggested changes were provided by Bechtel on August 26
- On August 24, a conference call was held with WEC to discuss Bechtel's document request list:

  WEC described the status of identifying and obtaining approval to release copies of documents to Bechtel

  WEC described that a document room would be setup in the NOB where hard copies of certain documents would be placed

  Bechtel provided clarifications of several documents requested to WEC on August 26

  No new documents were received from SCANA or the Consortium during the week The last documents received were posted in SCANA's electronic reading room on August 14
- A CD of the Owner's P6 Integrated Project Schedule (IPS) was received on August 19 Since then Bechtel has down loaded the schedule, identified the subprojects, and has begun manipulations of the schedule data Based on initial reviews

  The IPS CD does not include all of the P6 schedule files (e g., the WEC Engineering files are missing and the Milestones integration file was not provided) Without the Milestones file schedule calculations cannot be performed

  It appears that there are as many as 60 mandatory constraints in the schedule data base that are precluding a true calculation of critical path negative float The path that will have the largest impact appears to be through the shield building

  There appear to be minimal quantities loaded in the schedule Quantities for the next 3 months are included but it is not clear if they are complete Quantities loaded in the schedule are needed to understand the impacts on installation sustained unit rates

  A preliminary manpower curve extracted from the schedule shows a peak of around 450 000 hours (2,200 craft) for a single month This appears significantly low for a two unit construction effort

  An initial discussion of the above schedule items was conducted with CB&I Project Controls personnel on August 26
- Members of Bechtel's team continued their review of documents provided by SCANA and the Consortium
- Began review of subproject schedules related to Construction Also began review of subproject schedules containing Engineering Licensing Procurement/Subcontracts and Quality Assurance activities
- Prepared preliminary list of Construction discussion topics and questions in preparation for site mobilization and initial interviews

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ELECTRONICALLY FILED - 2018 September 24 9:06 PM - SCPSC - Docket # 2017-370-E - Page 28 of 73

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Bechtel Weekly Report
V.C. Summer Units 2 &3 Completion Assessment
Week Ending August 28, 2015

- For Construction, Bechtel is interested in more information about the shield building. Bechtel's assessment will focus on panel fabrication, engineering tolerances, engineering changes, and installation sequencing. Installation of bulks is likely a near second critical path and will also be a focus area for the assessment
- Information still needed from the Consortium for the Construction assessment includes
  - Quantity curves
  - Unit rates
  - Manpower curves: non-manual and craft
  - Percent complete curves and method of calculation
  - Manpower loaded schedule
  - Equipment release dates
  - Module details, delivery schedules, and summary of all
  - Shield wall details and delivery and installation schedule

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ELECTRONICALLY FILED - 2018 September 24 9:06 PM - SCPSC - Docket # 2017-370-E - Page 29 of 73

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Bechtel Weekly Report
V.C. Summer Units 2 &3 Completion Assessment
Week Ending September 4, 2015

- Members of the Bechtel team are scheduled to arrive onsite on Tuesday afternoon, September 8
- The Consortium presentation to the Bechtel team is scheduled for Wednesday, September 9. A final agenda was issued by WEC on September 7
- Status of **Bechtel's document request**

  - No new documents were received from the Consortium, SCANA, or Santee Cooper during the week. The last documents **received were posted in SCANA's** electronic reading room on August 14

  - **Members of Bechtel's team** continued their review of documents that have been received to date

  - In September 4 and 7 emails, WEC provided the following status of documents.

    219 Total Items Requested

    - 138 items previously issued electronically or via IPS disc
    - 20 items have been marked as duplicates to other items on the list
    - 3 items have been approved as software access – no documentation required
    - 1 item needs clarification from Bechtel regarding Bingo sheets (10.19)
    - 57 remaining items required approval to release

    Remaining 57 Items

    - 45 items have been approved and printed or made available for review. The reading room should be set up on Tuesday, September 8, for access by the Bechtel team
    - 10 items have been approved and are part of the September 9 presentation and/or will be made available during follow-up deep dive sessions (difficult to produce copies of the information)
    - 1 item is approved but information is still being gathered regarding Construction Equipment plan (4.5)
    - 1 item will be discussed on September 9 - Engineering Manpower curves (10.13)

- A CD of the Owner's P6 Integrated Project Schedule (IPS) was received on August 19. Bechtel has down loaded the schedule, identified the subprojects, and is continuing to manipulate the schedule data. Bechtel's Project Controls, Construction, Engineering, Procurement, and Licensing personnel continued our review of the IPS information

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ELECTRONICALLY FILED - 2018 September 24 9:06 PM - SCPSC - Docket # 2017-370-E - Page 30 of 73

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Bechtel Weekly Report
V.C. Summer Units 2 &3 Completion Assessment
Week Ending September 11, 2015

1.	Work Activities Performed Last Week (September 8-11)
1.1	**General** • The Bechtel Assessment team arrived on Tuesday, September 8, 2015 to begin the six-week, onsite assessment effort • WEC and CB&I Consortium members gave a full-day presentation to the Bechtel Assessment team on Wednesday, September 9, 2015. Copies of the presentation were placed in the Assessment Reading Room • The Bechtel Assessment team spent most of Thursday, September 10, and a large part of Friday, September 11, in training in order for the Bechtel team members to be granted a badge that will allow the Bechtel personnel unescorted access to the site. It is expected that the badges for unescorted access will be issued sometime during the week of September 14 • On Friday morning, September 11, SCE&G provided a site tour of Units 2 & 3 and a majority of the lay down areas. All of the Bechtel team members on site took this tour • On Friday afternoon, members of the Bechtel Assessment team began to review the hard copy documents placed in the Reading Room

2.	Work Activities Planned This Week (September 14-18)
2.1	**General** • Complete badging for Bechtel Assessment team members • Scheduled breakout meetings with WEC and CB&I personnel on Tuesday (September 15), Wednesday (September 16), and Thursday (September 17) from 1-4 pm to discuss - Quantity Curves - Craft Staffing Curves - % Complete Curve - Schedule – Critical Paths - Quality Issues - Modules Follow-up meetings will be schedule as needed
2.2	**Project Management** • Carl Rau and Dick Miller have requested to have singular interviews with the following people on Wednesday, September 16: Steve Byrne, Jeff Archie (in Japan all week), Ron Jones, Alan Torres, Carlette Walker, and Carl Churchman • Continue review of documents in Reading Room
2.3	**Construction** • Perform direct observation of site activities - Jobsite and area walk downs with senior construction personnel responsible for work areas

ELECTRONICALLY FILED - 2018 September 24 9:06 PM - SCPSC - Docket # 2017-370-E - Page 31 of 73

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Bechtel Weekly Report
V.C. Summer Units 2 &3 Completion Assessment
Week Ending September 11, 2015

	- Review of on-site fabrication activities of modules
	- Review of indirects with responsible superintendent
	- Review of construction equipment with responsible superintendent
	- Overview of the safety program including the successes and challenges
	- Overview of the Quality Control program and activities
	- Overview of the Work Package process and Document Control
	- Review of constructability review program with responsible manager
	- Attend the following meetings
	  - POD – 9-10 am
	  - Area Schedule Review – Thurs 1-3 pm
	  - Module meeting with Customer – Tues 11-12 pm
	  - OCC & Site laydown plan – Wed 12-1 pm
	  - Safety meeting
	  - Individual Area Schedule Review meetings
	
	• Review documents in reading room
	
	• Conduct internal discussions on comparisons of VCS against Bechtel historical information on unit rates, schedule durations, quantities, manpower, etc
	
	• Review welding activities, quantities, and manpower required

2.4	**Engineering and Licensing** • Continue review of documents in Reading Room • Participate in breakout meetings described in Item 2.1. Schedule follow-up meetings as needed • Attend CB&I/WEC Engineering Issues Meeting (0700) • Meetings are being scheduled with WEC, CB&I, and SCE&G lead engineering personnel • Followup meeting scheduled with Brian McIntyre, WEC Licensing, at 8 am on Tuesday September 15 • Meeting with April Rice, SCE&G Licensing, is scheduled for Tuesday, September 15, at 4:30 pm

2.5	**Procurement**
	
	• Continue review of documents in Reading Room
	
	• Meetings are being scheduled with CB&I Procurement at the corporate level followed by the site team
	
	• **Meetings are being scheduled with Westinghouse's Procurement organization**
	
	• Attend the following meetings
	  - POD – 9-10 am
	  - Area Schedule Review – Thru 1-3 pm
	  - Module meeting with Customer – Tues 11- 12 pm
	  - OCC & Site laydown plan – Wed 12-1 pm

ELECTRONICALLY FILED - 2018 September 24 9:06 PM - SCPSC - Docket # 2017-370-E - Page 32 of 73

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Bechtel Weekly Report
V.C. Summer Units 2 &3 Completion Assessment
Week Ending September 11, 2015

	• Participate in schedule reviews with Bechtel Team • Module Plan – Determine focus of review and where potentially the Bechtel team needs to go
2.6	**Project Controls** • Continue review of documents in Reading Room • Participate in breakout meetings described in Item 2.1 Schedule follow-up meetings as needed • Develop sustained rate comparison evaluation tables against Bechtel historical data • Begin critical path evaluations • Begin productivity evaluations against Bechtel historical projects

ELECTRONICALLY FILED - 2018 September 24 9:06 PM - SCPSC - Docket # 2017-370-E - Page 33 of 73

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Bechtel Weekly Report
V.C. Summer Units 2 &3 Completion Assessment
Week Ending September 18, 2015

1. Project Management

Activities Performed Last Week (September 14-18)

- Four (of the nine) Bechtel personnel on the assessment team completed in-processing and received their Unit 1 badges. Four others were notified that their training was complete so they could be badged when they were available
- Carl Rau and Dick Miller completed interviews with Ron Jones (VP-New Nuclear Operations and Owner's Project Director), Alan Torres (General Manager-Nuclear Plant Construction), and Carl Churchman (Consortium Project Director)
- September 17 – Bechtel (Steve Routh and Dick Miller) were invited and attended the Monthly Project Status Meeting
- September 18 – Attended Consortium POD meeting

Activities Planned This Week (September 21-25)

- Work with Jason Brown of WEC to identify what remaining document requests will be filled this week. Documents provided after this week may be too late to be considered in the Bechtel assessment
- Complete Unit 1 badging for remaining Bechtel team members
- Obtain CB&I badges for Bechtel team members
- Conduct interviews with Carlette Walker (SCE&G VP - Nuclear Financial Administration), Jeffrey Archie (SVP-SCANA and CNO-SCE&G), and Stephen Byrne (EVP-SCANA and COO-SCE&G & President-Generation)
- Attend various team and Consortium meetings
- Tour site construction areas

2. Construction

Activities Performed Last Week (September 14-18)

- Reviewed Reading Room material including contract, quantity and manpower curves, September 9 Consortium presentation package, module drawings, etc
- September 16 - Met with Bill Wood and JJ White and had a general discussion of project including nonmanual staffing, manual skill level and difficulties recruiting skilled crafts, and laid out plans for our walkdowns and interviews
- September 14 – Toured laydown with SCE&G
- September 15 – Attended SCE&G module meeting
- September 15 – Attended Consortium Engineering overview presentation
- September 15 – Participated in Consortium Project Controls presentation on quantity curves, manpower, earned percent complete, and critical path
- September 16, 17, 18 – Attended POD meetings
- September 16 – Met with Consortium Procurement and discussed procurement issues including laydown and warehouse issues, pipe holds and changes, organization
- September 16 – Participated in Consortium Quality review of project with Dave Jantosik
- September 17 – Toured the Unit 2 Nuclear Island and discussed issues with Bob Johnson and Andrew Fleetwood
- September 17 – Toured the Module Assembly Building operation with Bart Schaffer and staff
- September 18 – Toured the Turbine Building area with Scotty Holland and discussed issues impacting work
- September 18 – Met with Indirects Superintendent Terry Bolton and reviewed indirect program

ELECTRONICALLY FILED - 2018 September 24 9:06 PM - SCPSC - Docket # 2017-370-E - Page 34 of 73

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Bechtel Weekly Report
V.C. Summer Units 2 &3 Completion Assessment
Week Ending September 18, 2015

Activities Planned This Week (September 21-25)

- Review new material as it is posted to the Reading Room
- Attend Plan of the Day meetings
- Attend September 21 Safety meeting
- Discuss welding program with Mark Pietre
- Attend September 21 meeting with Consortium on modules
- Attend September 23 meeting with Consortium on QC program, including a detailed review of what the civil QC inspector does when inspecting a slab for concrete placement
- Review Document Control Program, specifically how drawings are given to craftsmen and revisions tracked in the field
- Review Work Package Program
- Review Constructability Program
- Conduct further review of Unit 2 Nuclear Island
- Perform detailed review of Unit 2 containment schedule
- Conduct internal discussions on comparisons of VCS against Bechtel historical information on unit rates, schedule durations, quantities, manpower, etc.

3. Engineering and Licensing

Activities Performed Last Week (September 14-18)

- Reviewed electronic and Reading Room material including engineering and licensing procedures licensing schedules, contract, September 9 Consortium presentation package, module drawings, etc
- September 14 – Attended Consortium Licensing overview presentation
- September 15 – Attended Consortium Engineering overview presentation
- September 15 – Attended Consortium Project Controls presentation
- September 15 – Met with April Rice of SCE&G to discuss general licensing issues and processes
- September 16 – Attended Consortium Procurement presentation
- September 16 – Participated in Consortium Quality review of project with Dave Jantosik
- September 16, 17 – Attended POD meetings
- Participated in internal schedule discussions on comparisons of VCS against Bechtel historical information

Activities Planned This Week (September 21-25)

- Review new material as it is posted to the Reading Room
- Attend POD meetings
- Meet with Brad Stokes and other SCE&G Engineering personnel
- Attend September 21 meeting with Consortium on modules
- Attend September 22 meeting with CB&I Engineering
- Schedule visits to CB&I-Charlotte and WEC-Cranbury
- Meet with Consortium Engineering personnel to discuss piping re-design effort and electrical support design
- Obtain and evaluate metrics on E&DCRs and N&Ds
- Review schedules for LARs and ITAAC closure
- Provide Engineering and Licensing schedule input to Bechtel Project Controls

ELECTRONICALLY FILED - 2018 September 24 9:06 PM - SCPSC - Docket # 2017-370-E - Page 35 of 73

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Bechtel Weekly Report
V.C. Summer Units 2 &3 Completion Assessment
Week Ending September 18, 2015

4. Procurement

Activities Performed Last Week (September 14-18)

- Reviewed electronic and Reading Room material
- September 15, 17 – Attended POD meetings
- September 16 – Participated in Consortium Quality review of project with Dave Jantosik
- September 16 – Met with Consortium site and corporate Procurement management personnel
- September 17 – Participated in walkdown of Unit 2 containment and adjacent area
- September 17 – Attended Area Schedule Review meeting

Activities Planned This Week (September 21-25)

- Continue review of documents in Reading Room as they are submitted
- Conduct additional meetings with CB&I Site Procurement to discuss data and process
- Conduct walkdown of site warehouses and laydown yards
- Schedule further discussion with WEC Procurement
- Attend POD meetings
- Attend September 21 meeting with Consortium on modules
- Discuss need for site visits to module fabricator(s) and schedule

5. Project Controls

Activities Performed Last Week (September 14-18)

- Reviewed electronic and Reading Room material
- Compared current planned construction sustained rates to Bechtel historicals
- Developed Bechtel version Level 2 schedule with additional detail within the key critical areas
- Prepared a high level schedule milestone comparisons chart
- Prepared initial productivity analysis for internal team reviews
- September 15 – Attended Consortium Engineering overview presentation
- September 15 – Attended Consortium Project Controls presentation
- September 16 – Attended Consortium Procurement presentation

Activities Planned This Week (September 21-25)

- Continue review of documents in Reading Room as they are submitted
- Schedule meetings with meetings with Abney Smith Jr. and Michele Stephens
- Continue critical path evaluations
- Start schedule probability assessment within P6 through use of PAR software
- Review and finalize sustained rate comparison tables
- Finalize Bechtel version L2 schedule for analysis reference
- Create first revised schedule duration evaluation which considers current productivity impacts projected into the future
- Create copy of the P6 Construction file with all hard constraints removed for future variation analysis

ELECTRONICALLY FILED - 2018 September 24 9:06 PM - SCPSC - Docket # 2017-370-E - Page 36 of 73

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Bechtel Weekly Report
V.C. Summer Units 2 &3 Completion Assessment
Week Ending September 25, 2015

1. Project Management

Activities Performed Last Week (September 21-25)

- All Bechtel personnel are now badged
- Carl Rau and Dick Miller conducted interviews with Steve Byrne (COO & SVP), Jeff Archie (CNO & SVP), and Carlette Walker (VP Nuclear Financial Administration)
- Attended various team and Consortium meetings

Activities Planned This Week (September 28-October 2)

- Work with Jason Brown of WEC to obtain the remaining documents requested
- Interview Santee Cooper personnel
- Meet with Bechtel assessment team members to review initial observations and recommendations
- Attend various team and Consortium meetings
- Tour site construction areas
- Prepare sections of Bechtel assessment report

2. Construction

Activities Performed Last Week (September 21-25)

- Reviewed Reading Room material
- September 21 – Attended weekly superintendent safety meeting
- September 21 – Met with Consortium personnel to discuss modules status and issues with deliveries and engineering
- September 21 – Met with SCE&G Quality Manager to discuss client audits of CB&I quality
- September 22 – Toured inside containment
- September 22 – Attended the daily C20 Auxiliary Building and Containment 2 superintendent/field engineer schedule meeting
- September 23 – Toured the shield building
- September 23 – Met with CB&I Quality Control Manager to discuss organization and responsibilities
- September 23 – Met with Consortium personnel to review the containment vessel schedule
- September 24 – Met with CB&I Strategic Planning and Mechanical/Electrical Work Manager to discuss his group's efforts and review work package approach
- September 24 – Met with Consortium Civil Work Package and Document Control personnel and reviewed the Annex Building civil work package and document control organization
- September 24 – Met with Consortium project controls personnel to review the Unit 2 containment vessel schedule
- September 25 – Attended the videoconference with WEC home office and site engineering personnel

Activities Planned This Week (September 28-October 2)

- Review new material as it is posted to the Reading Room
- Attend Plan of the Day meetings
- Hold meeting with CB&I Electrical superintendent to better understand electrical packages
- Hold meeting with Consortium Advanced Constructability Personnel to better understand Containment 2 civil work

ELECTRONICALLY FILED - 2018 September 24 9:06 PM - SCPSC - Docket # 2017-370-E - Page 37 of 73

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Bechtel Weekly Report
V.C. Summer Units 2 &3 Completion Assessment
Week Ending September 25, 2015

- Hold meeting with Consortium personnel to discuss electrical quantities and electrical support designs
- Hold meeting with CB&I personnel to understand discipline superintendent roles
- Attend September 28 follow-up meeting with WEC home office and site engineering personnel
- Meet with Consortium Strategic Planning personnel to discuss work packages for piping and electrical on September 29
- Meet with Consortium personnel to discuss startup plan, schedule, component test matrix, etc. on September 30
- Perform detailed review of containment, auxiliary building, and turbine building schedules
- Conduct internal discussions on comparisons of VC Summer against Bechtel historical information on unit rates, schedule durations, quantities, manpower, etc
- Prepare sections of Bechtel assessment report

3. Engineering and Licensing

Activities Performed Last Week (September 21-25)

- Reviewed new material as it is posted to the Reading Room
- Attended POD meetings on September 22 and 24.
- September 21 – Attended meeting with Consortium on modules
- September 22 – Attended meeting with CB&I Engineering
- September 23 – Attended meeting on with Consortium on Strategic Planning
- September 24 – Attended meeting on Work Package Development and Document Control
- September 25 – Held videoconference with WEC Home Office (Cranberry, PA) and site engineering personnel to discuss to-go Engineering and engineering changes
- Reviewed limited available metrics on E&DCRs and N&Ds
- Provided Engineering and Licensing schedule input to Bechtel Project Controls

Activities Planned This Week (September 28-October 2)

- Continue review of documents in Reading Room as they are submitted
- Attend September 29 and October 1 POD meetings (focus is engineering)
- Attend September 28 meeting with WEC Engineering to address to-go work (follow-up to September 25 videoconference)
- Attend September 30 meeting with Brad Stokes and other SCE&G Engineering personnel
- Hold follow-up meeting with CB&I Engineering
- Hold follow-up meeting with CB&I Licensing
- Hold follow-up meeting with SCE&G Licensing
- Meet with Consortium Engineering personnel to discuss piping re-design effort
- Meet with Consortium personnel to discuss electrical quantities and electrical support design
- Obtain and evaluate metrics on E&DCRs and N&Ds
- Review schedules for LARs and ITAAC closure
- Review representative ITAAC closure packages.
- Provide Engineering and Licensing schedule input to Bechtel Project Controls
- Prepare sections of Bechtel assessment report

ELECTRONICALLY FILED - 2018 September 24 9:06 PM - SCPSC - Docket # 2017-370-E - Page 38 of 73

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Bechtel Weekly Report
V.C. Summer Units 2 &3 Completion Assessment
Week Ending September 25, 2015

4. Procurement

Activities Performed Last Week (September 21-25)

- Reviewed Reading Room material
- Conducted meetings with CB&I Site Procurement to discuss data, process, and reports
- Conducted walkdown of site warehouses and laydown yards.
- September 21 – Attended meeting with Consortium on modules
- September 25 – Attended videoconference with WEC home office and site engineering

Activities Planned This Week (September 28-October 2)

- Continue review of documents in Reading Room as they are submitted
- Conduct meeting with CB&I Charlotte and Site Procurement personnel (Consortium to schedule)
- Attend September 28 follow-up meeting with WEC home office and site engineering personnel
- Prepare sections of Bechtel assessment report

5. Project Controls

Activities Performed Last Week (September 21-25)

- Reviewed Reading Room material
- Completed the projects baseline version Level 2 schedule with additional detail within the key critical areas
- Created first version of Bechtel revised schedule forecast
- Created baseline bulk installation curves based upon current Consortium forecast
- Downloaded and reviewed the engineering/procurement P6 milestones file
- September 22 – Attended Consortium Containment schedule overview
- September 24 – Attended Consortium Auxiliary Building and Turbine Building schedule overview

Activities Planned This Week (September 28-October 2)

- Continue review of documents in Reading Room as they are submitted
- Create revised Bechtel forecasted critical path for evaluation
- Create Basis and Assumptions file for Bechtel forecasts
- Create multiple forecasts based upon productivity analysis
- Finalize Bechtel version of Level 2 schedule for analysis reference
- Create revised bulk and manpower curves based upon Bechtel forecasts
- Create Unit 3 Level 2 schedule
- Create combined Unit 2 and 3 craft manpower curves
- Prepare sections of Bechtel assessment report

ELECTRONICALLY FILED - 2018 September 24 9:06 PM - SCPSC - Docket # 2017-370-E - Page 39 of 73

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Bechtel Weekly Report
V.C. Summer Units 2 &3 Completion Assessment
Week Ending October 2, 2015

1. Project Management

Activities Performed Last Week (September 28-October 2)

- Continued with Interviews of Owner Personnel
- Attended various schedule, work planning, and startup meetings with Consortium members
- Continued data validation of transmitted project documents
- Prepared observations and recommendations
- Prepared sections of Bechtel assessment report

Activities Planned This Week (October 5-9)

- Interview Santee Cooper personnel
- Meet with Bechtel assessment team members to review initial observations and recommendations
- Attend various team and Consortium meetings
- Tour site construction areas
- Prepare additional observations and recommendations
- Continue to prepare sections of Bechtel assessment report

2. Construction

Activities Performed Last Week (September 28-October 2)

- Reviewed Reading Room material
- September 29 – Met with CB&I Strategic Planning Group to discuss work packaging
- September 29 – Met with CB&I Electrical Field Superintendent to review extremely dense and complex electrical raceway and hangers in containment
- September 29 – Met CB&I Advanced Constructability program to understand group responsibilities
- September 30 – Observed Work Package distribution from the Document Control Center for Unit 2 Nuclear Island at start of shift
- September 30 and October 1 – Met CB&I Startup personnel to review startup program and area and system turnovers from construction
- October 1 – Met with CB&I Modules Procurement Manager to review program for module procurement
- October 1 – Met with CB&I Shield Wall Manager to review erection of shield wall and roof
- October 1 – Toured Unit 2 containment and auxiliary buildings and Unit 3 condenser assembly area
- Conducted internal discussions on comparisons of VC Summer against Bechtel historical information on unit rates, schedule durations, quantities, manpower, etc
- Prepared observations and recommendations
- Prepared sections of Bechtel assessment report

Activities Planned This Week (October 5-9)

- Review new material as it is posted to the Reading Room
- Attend Plan of the Day meetings
- Attend Safety Meeting
- Meet with CB&I Labor Relations to discuss recruitment and training of crafts
- Meet with CB&I Welding Engineering to discuss welding program
- Meet with CB&I Field Engineering to discuss work packaging
- Conduct internal discussions on comparisons of VC Summer against Bechtel historical information on

ELECTRONICALLY FILED - 2018 September 24 9:06 PM - SCPSC - Docket # 2017-370-E - Page 40 of 73

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unit rates, schedule durations, quantities, manpower, etc.
- Prepare additional observations and recommendations
- Continue to prepare sections of Bechtel assessment report

3. Engineering and Licensing

Activities Performed Last Week (September 28-October 2)

- Reviewed new material as it is posted to the Reading Room
- September 28 – Conducted follow-up conference call with WEC Cranberry Engineering
- September 29 – Attended meeting with CB&I Strategic Planning Group to discuss work packaging
- September 29 – Attended meeting with CB&I Electrical Field Superintendent
- September 29 – Attended meeting CB&I Advanced Constructability program
- September 30 and October 1 – Attended meeting with CB&I Startup personnel to review startup program
- September 30 – Met with Brad Stokes, SCE&G General Manager, Engineering Services
- October 1 - Met with Consortium Project Controls to review WEC Engineering schedule
- Provided Engineering and Licensing schedule input to Bechtel Project Controls
- Prepared observations and recommendations
- Prepared sections of Bechtel assessment report

Activities Planned This Week (October 5-9)

- Continue review of documents in Reading Room as they are submitted
- Perform follow-up interviews with Consortium and SCE&G personnel as needed
- Evaluate metrics on E&DCRs and N&Ds
- Review schedules for LARs and ITAAC closure
- Review representative ITAAC closure packages
- Provide Engineering and Licensing schedule input to Bechtel Project Controls
- Prepare additional observations and recommendations
- Continue to prepare sections of Bechtel assessment report

4. Procurement

Activities Performed Last Week (September 28-October 2)

- Reviewed Reading Room material
- September 29 – Conducted follow-up meetings with CB&I Site Procurement to discuss data and reports on field procurement activity
- September 2 – Attended meeting with CB&I on work packages
- September 30 – Attended meeting with CB&I 1X4 Procurement Manager
- October 1 – Attended meeting with CB&I Modules Procurement Manager
- Reviewed ROYG Procurement Report
- October 1 – Met with WEC to discuss ROYG reports and requested different sorts of reports
- Prepared observations and recommendations
- Prepared sections of Bechtel assessment report

ELECTRONICALLY FILED - 2018 September 24 9:06 PM - SCPSC - Docket # 2017-370-E - Page 41 of 73

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Bechtel Weekly Report
V.C. Summer Units 2 &3 Completion Assessment
Week Ending October 2, 2015

Activities Planned This Week (October 5-9)

- Continue review of documents in Reading Room as they are submitted
- Continue to analyze the ROYG report interface with Project Controls on schedule
- Hold follow-up meetings as required with CB&I & WEC Procurement
- Prepare additional observations and recommendations
- Continue to prepare sections of Bechtel assessment report

5. Project Controls

Activities Performed Last Week (September 28-October 2)

- Reviewed Reading Room material
- Created revised Bechtel forecasted Unit 2 critical path for evaluation
- Created bases and assumptions file for Bechtel forecasts
- Evaluated multiple forecasts based upon productivity analysis
- Finalized Bechtel version of Level 2 schedule for analysis reference
- Created revised bulk and manpower curves based upon Bechtel forecasts
- Created Unit 3 Level 2 schedule
- Created combined Unit 2 and 3 craft manpower curves
- Conducted internal review of preliminary schedule package and incorporated comments
- September 30 – Attended Consortium commodity installation and manpower curves review
- October 1 – Attended WEC Engineering schedule review
- Prepared initial observations and recommendations
- Prepared sections of Bechtel assessment report

Activities Planned This Week (October 5-9)

- Continue review of documents in Reading Room as they are submitted
- Update bases and assumptions file for Bechtel forecasts for Unit 3
- Finalize Bechtel version of Level 2 Unit 3 schedule
- Analyze Unit 2 and 3 bulk curves for stagger between units
- Finalize combined Unit 2 and 3 craft manpower curves
- Continue to prepare sections of Bechtel assessment report
- Finalize schedule package for internal management review
- Prepare additional observations and recommendations
- Continue to prepare sections of Bechtel assessment report

ELECTRONICALLY FILED - 2018 September 24 9:06 PM - SCPSC - Docket # 2017-370-E - Page 42 of 73

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Bechtel Weekly Report
V.C. Summer Units 2 &3 Completion Assessment
Week Ending October 9, 2015

1. Project Management

Activities Performed Last Week (October 5-9)

- October 9 – Met with CB&I Functional Operations Manager in Charlotte
- Reviewed draft schedule, quantities, and sustained rates developed by Bechtel Project Controls
- Prepared observations and recommendations
- Prepared sections of Bechtel assessment report

Activities Planned This Week (October 12-16)

- Interview Santee Cooper personnel
- Finalize observations and recommendations
- Finalize sections of Bechtel assessment report
- Meet with Bechtel assessment team members to review draft report sections, observations and recommendations
- Complete preparation of Bechtel draft report

2. Construction

Activities Performed Last Week (October 5-9)

- Reviewed Reading Room material
- October 7 – Attended Plan of the Day meeting
- October 7 – Met with CB&I Lead Welding Engineer to discuss welding program
- October 7 – Met with CB&I Human Resources Director to discuss non-manual turnover
- October 7 – Met with CB&I Project Director to review some initial observations of construction effort
- October 9 – Met with CB&I Industrial Relations Director to discuss recruiting of crafts
- Conducted internal discussions on comparisons of VC Summer against Bechtel historical information on unit rates, schedule durations, quantities, manpower, etc
- Prepared observations and recommendations
- Prepared sections of Bechtel assessment report

Activities Planned This Week (October 12-16)

- Review new material as it is posted to the Reading Room
- Attend Plan of the Day meetings
- Visit Craft Training trailer
- Meet with CB&I Work Package planning personnel discuss work packaging, expected problems with electrical installations
- Conduct internal discussions on comparisons of VC Summer against Bechtel historical information on unit rates, schedule durations, quantities, manpower, etc
- Finalize observations and recommendations
- Finalize sections of Bechtel assessment report

ELECTRONICALLY FILED - 2018 September 24 9:06 PM - SCPSC - Docket # 2017-370-E - Page 43 of 73

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Bechtel Weekly Report
V.C. Summer Units 2 &3 Completion Assessment
Week Ending October 9, 2015

3. Engineering and Licensing

Activities Performed Last Week (October 5-9)

- Reviewed new material as it is posted to the Reading Room
- Provided Engineering and Licensing schedule input to Bechtel Project Controls
- Prepared observations and recommendations
- Prepared sections of Bechtel assessment report

Activities Planned This Week (October 12-16)

- Continue review of documents in Reading Room as they are submitted
- Perform follow-up interviews with Consortium and SCE&G personnel as needed
- Finalize observations and recommendations
- Finalize sections of Bechtel assessment report

4. Procurement

Activities Performed Last Week (October 5-9)

- Reviewed Reading Room material
- October 7 – Conducted follow-up meetings with CB&I Site Procurement to discuss data and reports on field procurement activity
- Reviewed ROYG Procurement Report
- October 7, 8, 9 – Met with WEC Deputy Project Manager to discuss ROYG reports and requested different sorts of the ROYG report
- Prepared observations and recommendations
- Prepared sections of Bechtel assessment report

Activities Planned This Week (October 12-16)

- Finalize observations and recommendations
- Finalize input to Bechtel assessment report

5. Project Controls

Activities Performed Last Week (October 5-9)

- Reviewed Reading Room material
- Developed internal schedule package for review
- Updated bases and assumptions to include Unit 3 addition to Level 2 schedule
- Finalized Bechtel version of Level 2 schedule for analysis reference including Unit 3 forecasts
- Conducted internal "Team Meeting" review and incorporated comments into overall schecule package
- Decided on the separation duration between Unit 2 and 3 completion dates
- Finalized Units 2 and 3 manpower curves
- Created Unit 2 percent complete curves based on Bechtel forecast
- October 9 – Met with CB&I Functional Operations Manager in Charlotte

ELECTRONICALLY FILED - 2018 September 24 9:06 PM - SCPSC - Docket # 2017-370-E - Page 44 of 73

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Bechtel Weekly Report
V.C. Summer Units 2 &3 Completion Assessment
Week Ending October 9, 2015

- Created additional Observations and Recommendations
- Prepared sections of Bechtel assessment report

Activities Planned This Week (October 12-16)

- Continue to review documents in Reading Room as they are submitted
- Finalize Bechtel version of Level 2 Unit 3 schedule
- Finalize observations and recommendations
- Finalize sections of Bechtel assessment report

ELECTRONICALLY FILED - 2018 September 24 9:06 PM - SCPSC - Docket # 2017-370-E - Page 45 of 73

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Bechtel Weekly Report
V.C. Summer Units 2 &3 Completion Assessment
Week Ending October 16, 2015

1. Project Management

Activities Performed Last Week (October 12-16)

- October 16 – Met with SCE&G CEO
- Reviewed draft schedule, quantities, and sustained rates developed by Bechtel Project Controls
- Prepared observations and recommendations
- Prepared sections of Bechtel assessment report
- Prepared presentation to SCE&G and Santee Cooper executive management

Activities Planned This Week (October 19-23)

- October 22 – Presentation to SCE&G and Santee Cooper executive management
- Finalize observations and recommendations
- Finalize sections of Bechtel assessment report

2. Construction

Activities Performed Last Week (October 12-16)

- October 13, 15 – Attended Plan of the Day meeting
- October 13 – Met with CB&I work planning group to discuss electrical and pipe hanger installation challenges
- October 13 – Met with CB&I training manager to discuss program and capabilities of the onsite training facility and staff
- October 14 – Performed field walkdown
- Conducted internal discussions on comparisons of VC Summer against Bechtel historical information on unit rates, schedule durations, quantities, manpower, etc
- Prepared observations and recommendations
- Prepared sections of Bechtel assessment report
- Prepared input for presentation to SCE&G and Santee Cooper executive management

Activities Planned This Week (October 19-23)

- Conduct internal discussions on comparisons of VC Summer against Bechtel historical information on unit rates, schedule durations, quantities, manpower, etc
- Finalize observations and recommendations
- Finalize sections of Bechtel assessment report

3. Engineering and Licensing

Activities Performed Last Week (October 12-16)

- October 14 – Performed field walkdown
- Reviewed new material posted to the Reading Room
- Prepared observations and recommendations
- Prepared sections of Bechtel assessment report
- Prepared input for presentation to SCE&G and Santee Cooper executive management

ELECTRONICALLY FILED - 2018 September 24 9:06 PM - SCPSC - Docket # 2017-370-E - Page 46 of 73

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Bechtel Weekly Report
V.C. Summer Units 2 &3 Completion Assessment
Week Ending October 16, 2015

Activities Planned This Week (October 19-23)

- Finalize observations and recommendations
- Finalize sections of Bechtel assessment report

4. Procurement

Activities Performed Last Week (October 12-16)

- Prepared observations and recommendations
- Prepared sections of Bechtel assessment report
- Prepared input for presentation to SCE&G and Santee Cooper executive management

Activities Planned This Week (October 19-23)

- Finalize observations and recommendations
- Finalize input to Bechtel assessment report

5. Project Controls

Activities Performed Last Week (October 12-16)

- Reviewed Reading Room material
- Developed internal schedule package for review
- Prepared observations and recommendations
- Prepared sections of Bechtel assessment report
- Prepared input for presentation to SCE&G and Santee Cooper executive management

Activities Planned This Week (October 19-23)

- Finalize observations and recommendations
- Finalize sections of Bechtel assessment report

ELECTRONICALLY FILED - 2018 September 24 9:06 PM - SCPSC - Docket # 2017-370-E - Page 47 of 79

BECHTEL

INFRASTRUCTURE
MINING & METALS
NUCLEAR, SECURITY & ENVIRONMENTAL
OIL, GAS & CHEMICALS

V.C. Summer Nuclear Generating Station Units 2 & 3

Schedule Assessment Report

February 5, 2016

Strictly Confidential to Bechtel, SCE&G, and SCPSA

34°17'55"N | 81°18'53"W

V.C. Summer Nuclear Generating Station Jenkinsville, SC USA

ELECTRONICALLY FILED - 2018 September 24 9:06 PM - SCPSC - Docket # 2017-370-E - Page 48 of 73

This Report was prepared by Bechtel Power Corporation (Bechtel) expressly and exclusively for the purpose stated in the Professional Services Agreement between (1) Bechtel and (2) Smith, Currie & Hancock LLP (SCH) in its capacity as legal representative of South Carolina Electric & Gas Company and South Carolina Public Service Authority (together the Owners). Any use of this Report (or any part thereof) for any different purpose is expressly not authorized.

This Report includes materials based on Bechtel's intellectual property (including Bechtel know-how), as well as Bechtel's industry experience and knowledge. Any disclosure of any such material beyond SCH and the Owners is not authorized.

Except where specifically stated to the contrary, the information contained in this Report was provided to Bechtel by others and has not been independently verified or otherwise examined to determine its accuracy, completeness or feasibility. In addition, the report relies upon certain assumptions which have been made. Any person's unauthorized use of or reliance on this Report or any information contained in this Report shall be at such person's sole risk.

ELECTRONICALLY FILED - 2018 September 24 9:06 PM - SCPSC - Docket # 2017-370-E - Page 49 of 73

Table of Contents

1. Introduction 1
2. Schedule Analysis Process 2
3. Bases and Assumptions 6
4. Conclusions and Results 8

List of Figures

Figure 1 — V. C. Summer Units 2 & 3 Project Assessment, Summary Schedule
Figure 2 — Unit 2 Midpoint Forecast – Total Family of Curves
Figure 3 — Unit 2 Midpoint Forecast Nuclear Island – Family of Curves
Figure 4 — Unit 2 Midpoint Forecast Turbine Island – Family of Curves
Figure 5 — Unit 2 Midpoint Forecast Balance of Plant – Family of Curves
Figure 6 — Unit 2 Direct Craft Manpower Curve and Percent Complete Curve
Figure 7 — Unit 2 Head Count by Craft (Does Not Include S/C Hrs)
Figure 8 — Unit 3 Direct Craft Manpower Curve and Percent Complete Curve
Figure 9 — Total Unit 2 & 3 Direct & Indirect Manpower Curve (12, 18, 24 Month Staggers)
Figure 10 — Unit 2 Midpoint Forecast Nuclear Island – Family of Curves

ELECTRONICALLY FILED - 2018 September 24 9:06 PM - SCPSC - Docket # 2017-370-E - Page 50 of 73

1. Introduction

In accordance with a Professional Services Agreement signed on August 6, 2015 between Bechtel Power Corporation and Smith, Currie & Hancock LLP (SCH), Bechtel performed an assessment of the Virgil C. Summer Nuclear Generating Station (V.C. Summer) Units 2 & 3 project. The objective of the assessment was to assist SCH and the Owners (South Carolina Electric & Gas Company (SCE&G) and South Carolina Public Service Authority (SCPSA)) to better understand the current status and potential challenges of the project to help ensure the project is on the most cost efficient trajectory to completion.

The February 5, 2016, "V. C. Summer Nuclear Generating Station Units 2 & 3, Project Assessment Report," contains the results of Bechtel's assessment for each functional area—project management, engineering and licensing, procurement, construction and project controls, and startup.

This Schedule Assessment Report describes Bechtel's evaluation of the project construction schedule to determine its most likely outcome. The schedule assessment is based on the information, walkdowns, interviews, evaluations, observations, recommendations, etc. identified in the Project Assessment Report. The current status of the project's to-date performance and percent complete by area were used as the starting point. Bechtel's past performance (21 completed nuclear units) plus four new reactor projects in the planning phase were used as predictive metrics for to-go activities.

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ELECTRONICALLY FILED - 2018 September 24 9:06 PM - SCPSC - Docket # 2017-370-E - Page 51 of 73

2. Schedule Analysis Process

The primary steps of the schedule analysis process are identified below.

1. A Level 2 baseline schedule was created from data included within the Consortium's Primavera P6 baseline file (January 2015) and the Consortium's published Level 1 summary schedule.

2. Current forecast bars were added from data included within the Consortium's P6 current forecast file (July 2015) and the Consortium's published Level 1 summary schedule with status through July 2015.

3. A baseline version of bulk commodity curves for each major facility was created from data included within the Consortium's bulk curves.

   The Consortium provided Bechtel the estimated bulk quantities for installation, as well as the budgeted jobhours and performance to date by general account (such as concrete, piping, and electrical; but no further breakdown). The Consortium would not, however, share the unit rates. Without the unit rates, the Bechtel estimate of the jobhours needed to complete the project was based on Bechtel's historical records and estimates of work activities observed during the assessment.

4. A new "assessment forecast" was created within the newly created Level 2 schedule based on the following:

   - Near Term Civil/Concrete – Forecast start and completion dates were identified based on walkdowns and assessments performed by Bechtel construction personnel.
   - Near Term Steel – Forecast start and completion dates were based on walkdowns and assessments performed by Bechtel construction personnel.
   - Above Ground Large Bore Piping by Area – Initially focused on placement of the 10% forecasted completion mark by area making sure to account for building predecessor logic and current forecast percent complete to-date.
   - Above Ground Small Bore Piping by Area – Set the 10% to 100% forecast dates based on Bechtel's historical relationship logic with above ground piping installation windows.
   - Cable Tray – Set the 10% to 100% forecast dates based on Bechtel's historical relationship logic with above ground piping installation windows.

ELECTRONICALLY FILED - 2018 September 24 9:06 PM - SCPSC - Docket # 2017-370-E - Page 52 of 73

- Above Ground Conduit – Set the 10% to 100% start and completion forecast dates based on Bechtel's historical relationship logic with tray installation windows.
- Cable – Set the 10% to 100% forecast dates based on Bechtel's historical relationship logic with above ground conduit and tray installation windows.
- Terminations – Set the 10% to 100% forecast based on Bechtel's historical relationship logic with cable installations windows.
- Major Equipment Erection Durations – Bechtel's historical median durations were used.

5. New assessment bulk installation curves were created with the to-go installation windows set based on Bechtel's median historical sustained rates.

6. The newly created assessment "family of curves" was compared to Bechtel's recommended model. The "family of curves" is a chart containing all of the major commodities scaled by percent complete. These commodities are then compared against each other in relationship of project percent of time. A properly sequenced project will represent itself in installation windows that follow a typical relationship. The installation windows were adjusted as necessary to account for differences as compared to Bechtel historicals.

7. Productivity factored hours were developed based on current performance and input from Bechtel construction personnel by major account (site work, civil, piping and electrical). The newly created unit installation rates were verified against a current, equivalently-sized, Bechtel project.

8. The commodity installation curves were converted into craft hours based on the assessed unit rates.

9. The assessed schedule and unit rate converted hours were used to create craft manpower curves by craft type and facility.

10. Each major facility was reviewed for peak craft loading. Schedule durations were extended where area saturation occurred.

11. Key craft (pipefitters and electricians) unit stagger curves were created for 9, 12, 18, and 24 month staggers between units and evaluated for "best fit" and "most achievable".

12. The assessment manpower curves were converted into percent complete curves. The planned percent complete per month values were compared to Bechtel historical references.

ELECTRONICALLY FILED - 2018 September 24 9:06 PM - SCPSC - Docket # 2017-370-E - Page 53 of 73

13. The Consortium's current startup schedule was reviewed. The heavily concentrated "turnover and checkout" duration was increased from 12 months to 18 months to account for the following concern in the turnover system waterfall:

    - 2015: 2 turnovers
    - 2016: 44 turnovers (cumulative: 46)
    - 2017: 475 turnovers - 86% of total (cumulative: 521 or 94% of the total BIPs)
    - 2018: 33 turnovers (cumulative: 554)
    - 2019: 1 turnover (cumulative: 555)

    The increased duration will allow for a more balanced split between years which ultimately will create a more achievable schedule.

14. The 90% complete dates of each commodity to fuel load durations were set based on Bechtel's historical range data. This will ensure sufficient time to complete startup activities.
15. The assessment schedule logic for the "energization" activity was tied to 65% complete of terminations and the cold hydro activity was tied to 100% complete of nuclear island large bore pipe completion.

16. As a secondary verification method, Bechtel's historical durations were compared against currently forecasted durations driven by logic for the following areas:

    - Energization to start of cold hydro
    - Energization to start of integrated flush
    - Energization to start of hot functional testing
    - Start of cold hydro to fuel load
    - Fuel load to commercial operation date

17. Reconciliations for sustained rates by area, startup durations by unit, manpower peaks by craft type, percent complete by unit, and overall project duration from first concrete to commercial operation were developed.

18. A limited schedule probability assessment was performed using the Primavera Risk Analysis software. This probability assessment was used to identify the contingency value needed to increase the probability of outcome to the 75th percentile level.

ELECTRONICALLY FILED - 2018 September 24 9:06 PM - SCPSC - Docket # 2017-370-E - Page 54 of 73

- Because of time limitations, the probability assessment was only performed on the critical path and the top 4 near critical paths.
- A typical 1,000 iteration Monte Carlo approach was used.
- Minimum/maximum windows were identified from Bechtel historicals and input from senior construction personnel on the assessment team.
- Minimum/maximum historical bulk installation rates were used as a secondary verification method.
- Only preferential logic was considered.
- Identification of required contingency was for assessment purposes only.

A more robust probability assessment approach would be needed before finalizing any changes to the project baseline target schedule.

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ELECTRONICALLY FILED - 2018 September 24 9:06 PM - SCPSC - Docket # 2017-370-E - Page 55 of 73

3. Bases and Assumptions

The primary bases and assumptions for the schedule analysis are identified below.

1. Bechtel's historical reference data includes 21 completed nuclear units and four new reactor projects currently in the planning phase. (It is noted that past nuclear power plants were constructed in accordance with 10 CFR 50 construction permits and not 10 CFR 52 combined licenses.)

2. Turbine generator erection duration is based on Bechtel's average historical installation durations.

3. All activities are worked on a 48 hour work week. A second shift is assumed at 20% of overall directs.

4. During the current civil phase of the work, there are significant productivity impacts resulting from engineering and procurement issues. The impacts during the bulk installation of piping and electrical commodities are not expected to be as extensive; however, some impacts due to future engineering and procurement issues were included when developing the median case schedule.

5. Sufficient quantities and quality of craft are available to support project staffing needs up to a maximum of 3,700 craft.

6. Engineering changes will not affect material availability to support construction installation dates.

7. All modules and materials will be delivered to support construction installation dates.

8. Preventative maintenance will keep equipment operationally ready for installation.

9. The schedule has been developed to avoid craft area saturation levels by building and elevation.

10. The typical historical bulk installation sequence has been altered to account for the following:

    - The north side of the auxiliary building is exclusively electrical commodities which allows for an almost parallel start with piping commodities which are primarily located in the south half.

    - The north side of the annex building is 80% electrical commodities which allows for an almost parallel start with piping commodities. The south side of the building is mixed and will follow the typical bulk installation sequence.

ELECTRONICALLY FILED - 2018 September 24 9:06 PM - SCPSC - Docket # 2017-370-E - Page 56 of 73

11. The Consortium's bulk commodity estimates by building were used for concrete, steel, large bore piping, small bore piping, cable tray, conduit, and cable with one exception. The Consortium's estimates for conduit and large bore piping in the annex building were not used and are considered unreliable. Schedule extensions to account for these high annex building quantities were not included. The Consortium is in the process of validating these quantities.

12. The Consortium's recovery schedule for shield building installation was being finalized during the assessment and was not available for review. Because of the predicted schedule duration increases in other areas of the integrated schedule, it is assumed that the shield building will not remain on the critical path.

13. The assembly and issuance of work packages will support the construction schedule to ensure work fronts are not limited.

14. There are no construction equipment limitations.

15. The indirect-to-direct craft ratio is reduced significantly from its current ratio of 1.3.

16. ITAAC closures do not impact the critical path.

17. Licensing issues (e.g., the need to obtain prior NRC approval of license amendments) do not limit work fronts or enter the critical path.

18. Cyber security issues do not affect the critical path.

19. Simulator and operator qualifications do not affect the critical path.

ELECTRONICALLY FILED - 2018 September 24 9:06 PM - SCPSC - Docket # 2017-370-E - Page 57 of 73

4. Conclusions and Results

Based on Bechtel's assessment, the Consortium's forecasts for schedule durations, productivity, forecasted manpower peaks, and percent complete do not have a firm basis and the current schedule is at risk.

The results of the schedule analysis are identified below:

- The to-go scope quantities, installation rates, productivity, and staffing levels all point to project completion later than the current forecast. Bechtel's assessment, based on certain assumptions, is that the Unit 2 and Unit 3 commercial operation dates (CODs) will extend as follows:

Impacts on Commercial Operation Dates		
	Unit 2	Unit 3
Current COD	June 2019	June 2020
Adjustment	18 to 26 months	24 to 36 months
New COD	Dec 2020 to Aug 2021	June 2022 to June 2023

- The critical path will change from shield building installation to a more typical critical path for power plant projects that includes bulk commodity installations through overall project checkout and testing/startup.
- Increasing schedule confidence to 75% increases the schedule duration by 8 months (included in the 26 months for Unit 2 and the 36 months for Unit 3).
- The stagger between the Units 2 & 3 commercial operation dates is extended by 6 months (from the current 12 months apart to a recommended 18 months apart).
- The peak monthly construction percent complete is reduced from 3.1% to a lesser, more realistic, percentage.
- The primary checkout window is extended by 6 months (from the current 12 months per unit to a recommended 18 months per unit).
- The total craft population is increased by 25% to approximately 3,700. At peak, 850 pipefitters and 730 electricians will be required.
- The bulk installation windows are increased by a minimum of 30%.

Figure 1 provides the assessment Level 1 summary schedule. Both the Consortium and the Bechtel assessment schedule activities are shown for comparison. (Figures are located starting on the next page.)

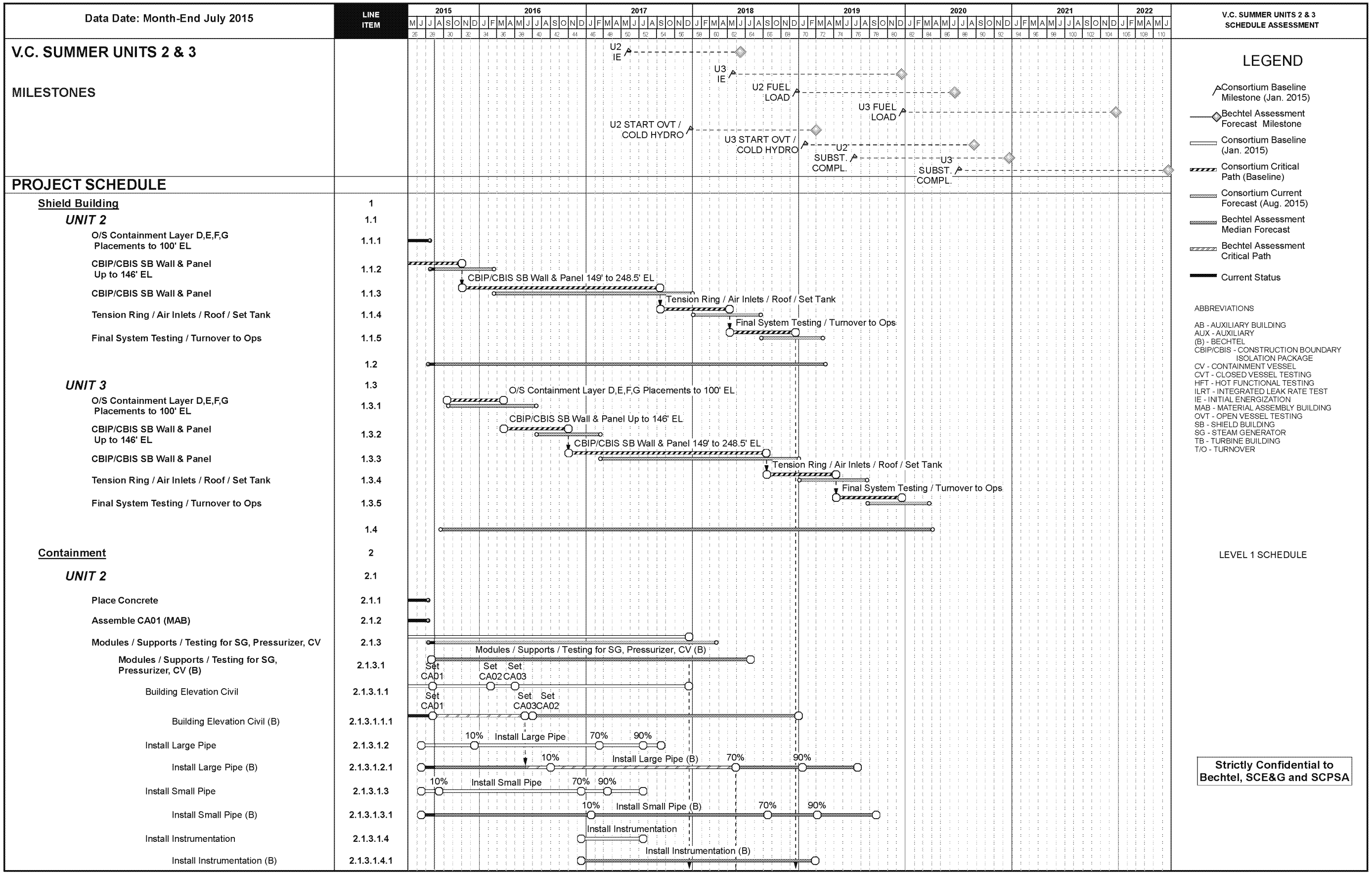
Figures 2 through 5 provide the mid forecast family of curves for Unit 2 total, nuclear island, turbine island, and balance of plant, respectively.

ELECTRONICALLY FILED - 2018 September 24 9:06 PM - SCPSC - Docket # 2017-370-E - Page 58 of 73

Figure 6 shows the Unit 2 craft manpower and percent complete curves. Figure 7 shows the Unit 2 head count by craft (not including subcontract hours). Figure 8 shows the Unit 3 craft manpower and percent complete curves.

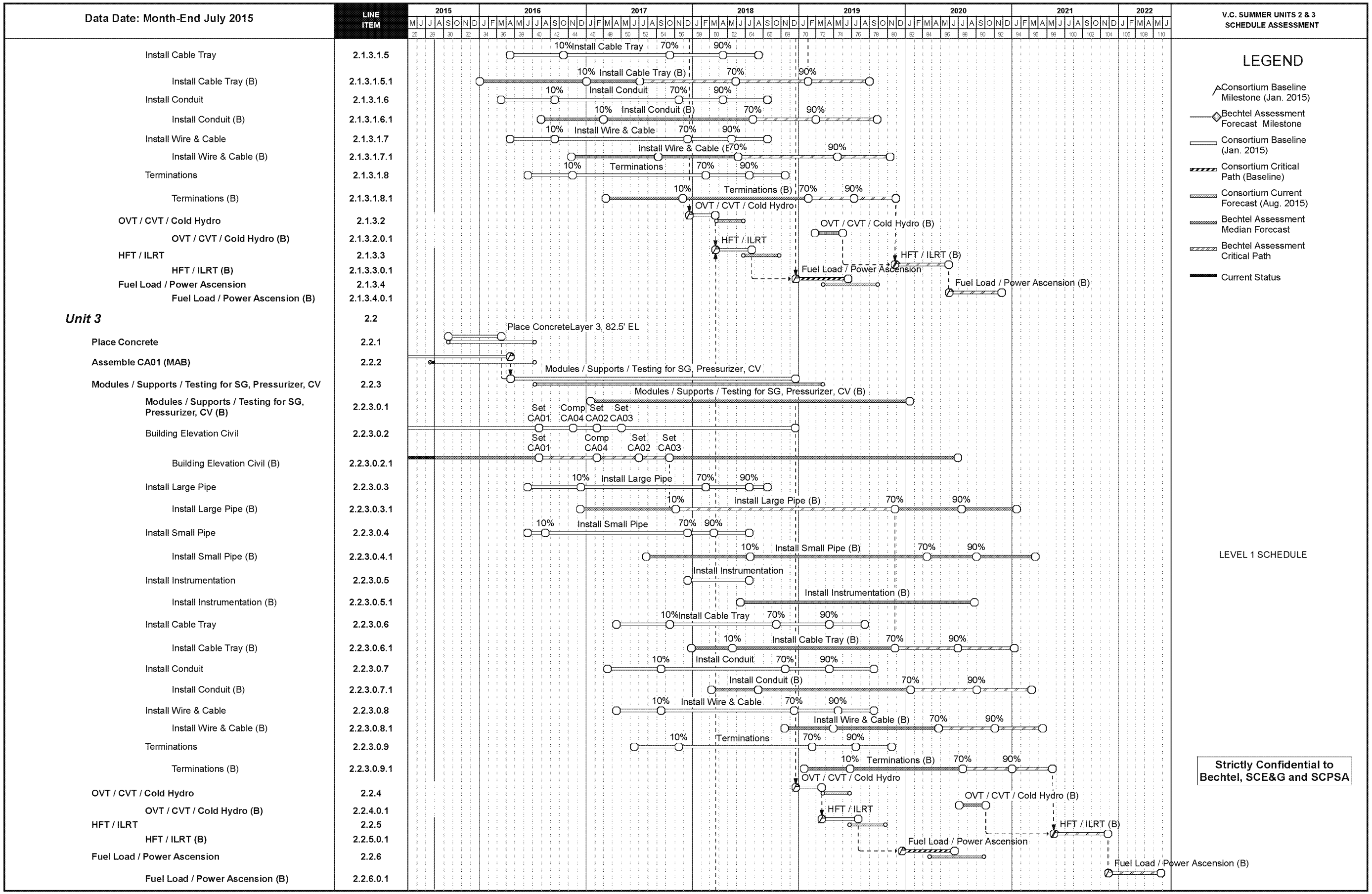
Figure 9 shows the Unit 2 and 3 direct and indirect manpower curves for 12, 18, and 24 month staggers between units. Figure 10 shows the Unit 2 and 3 percent complete curves for 12, 18, and 24 month staggers between units.

Figure 1. V.C. Summer Units 2 & 3 Schedule Assessment
Summary Schedule



ELECTRONICALLY FILED - 2018 September 24 9:06 PM - SCPSC - Docket # 2017-370-E - Page 59 of 73

Figure 1. V.C. Summer Units 2 & 3 Schedule Assessment
Summary Schedule



ELECTRONICALLY FILED - 2018 September 24 9:06 PM - SCPSC - Docket # 2017-370-E - Page 60 of 73

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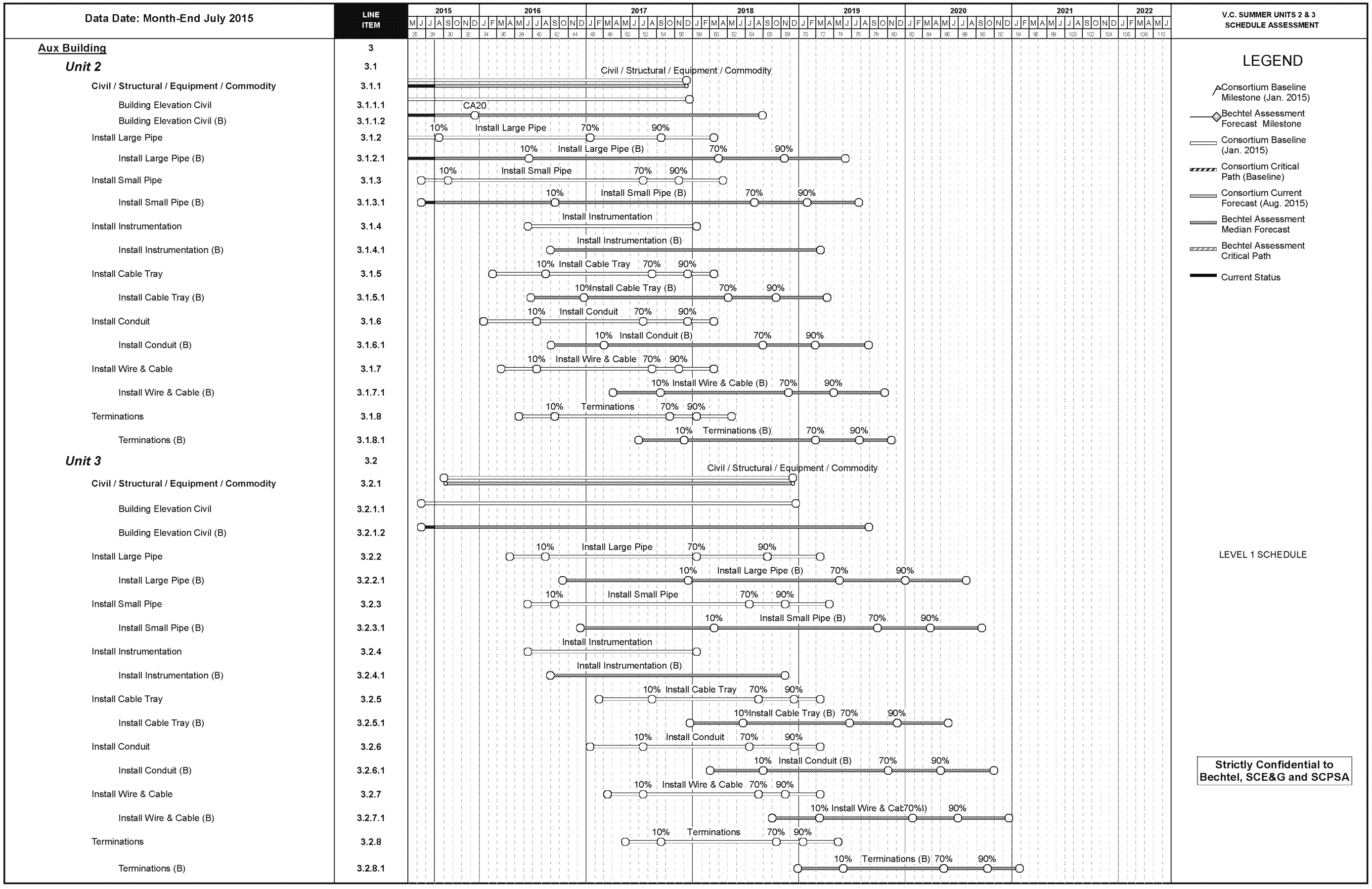
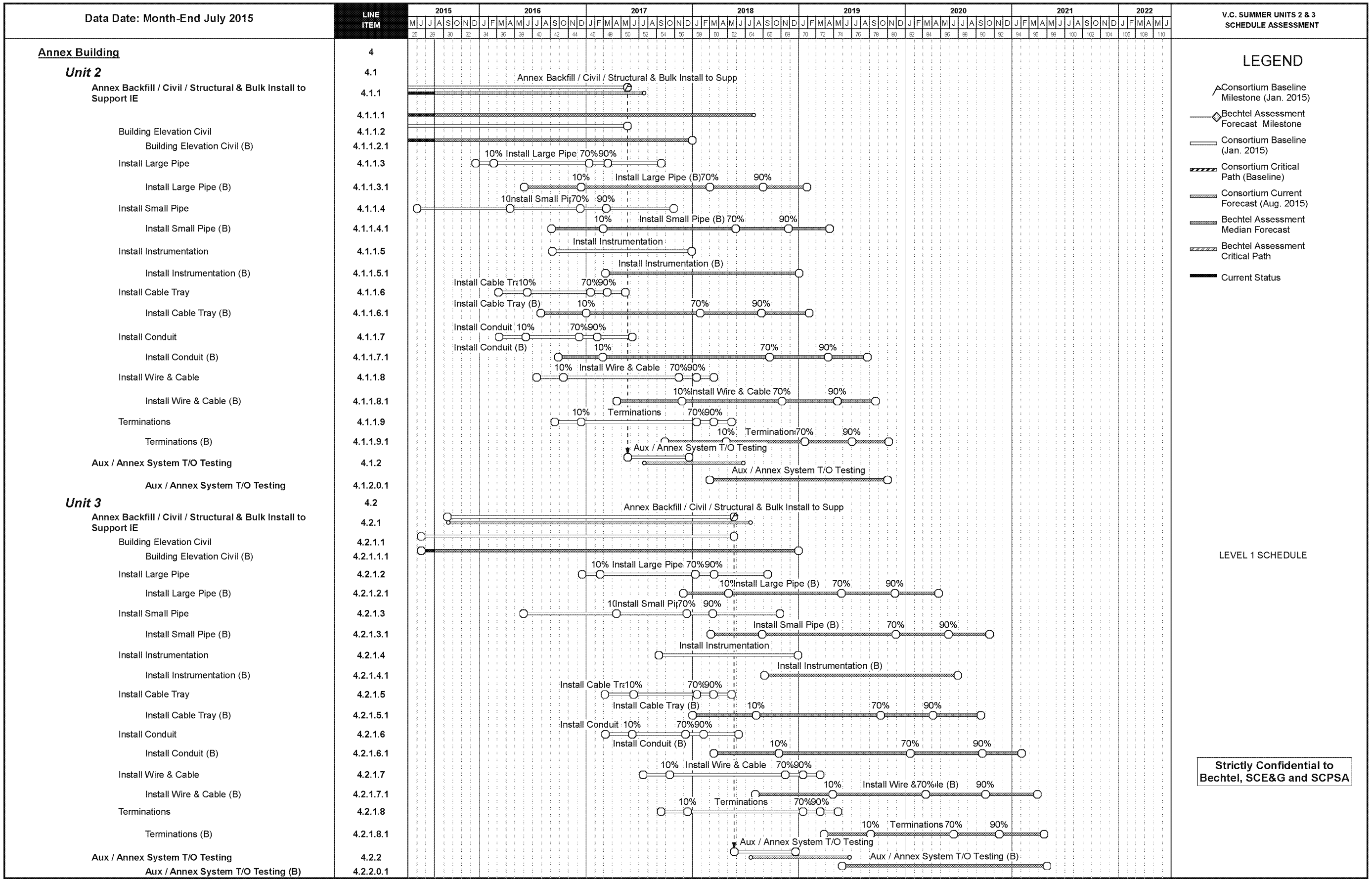
Summary Schedule



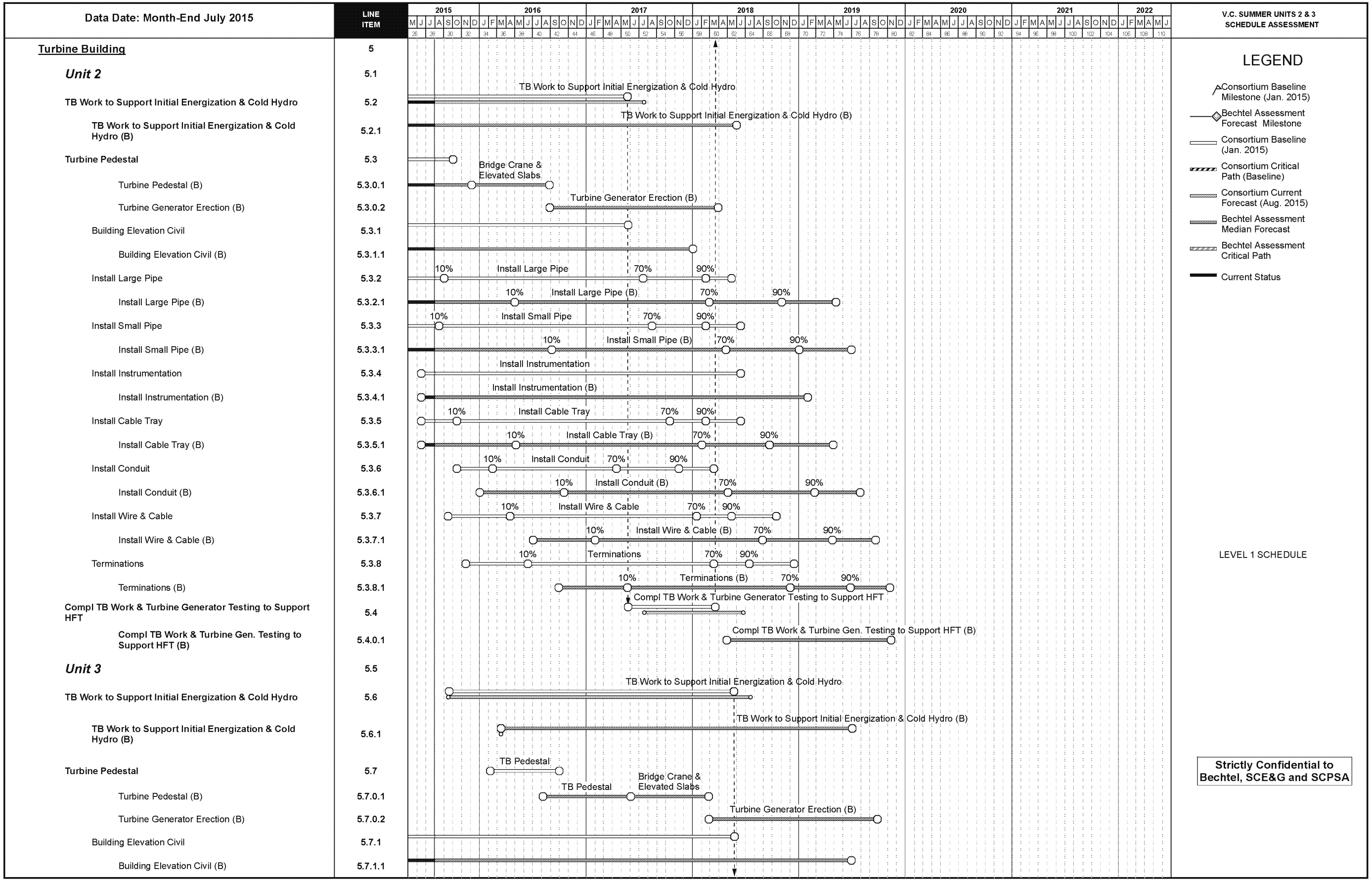
ELECTRONICALLY FILED - 2018 September 24 9:06 PM - SCPSC - Docket # 2017-370-E - Page 61 of 73

Figure 1. V.C. Summer Units 2 & 3 Schedule Assessment
Summary Schedule



ELECTRONICALLY FILED - 2018 September 24 9:06 PM - SCPSC - Docket # 2017-370-E - Page 62 of 73

Figure 1. V.C. Summer Units 2 & 3 Schedule Assessment
Summary Schedule

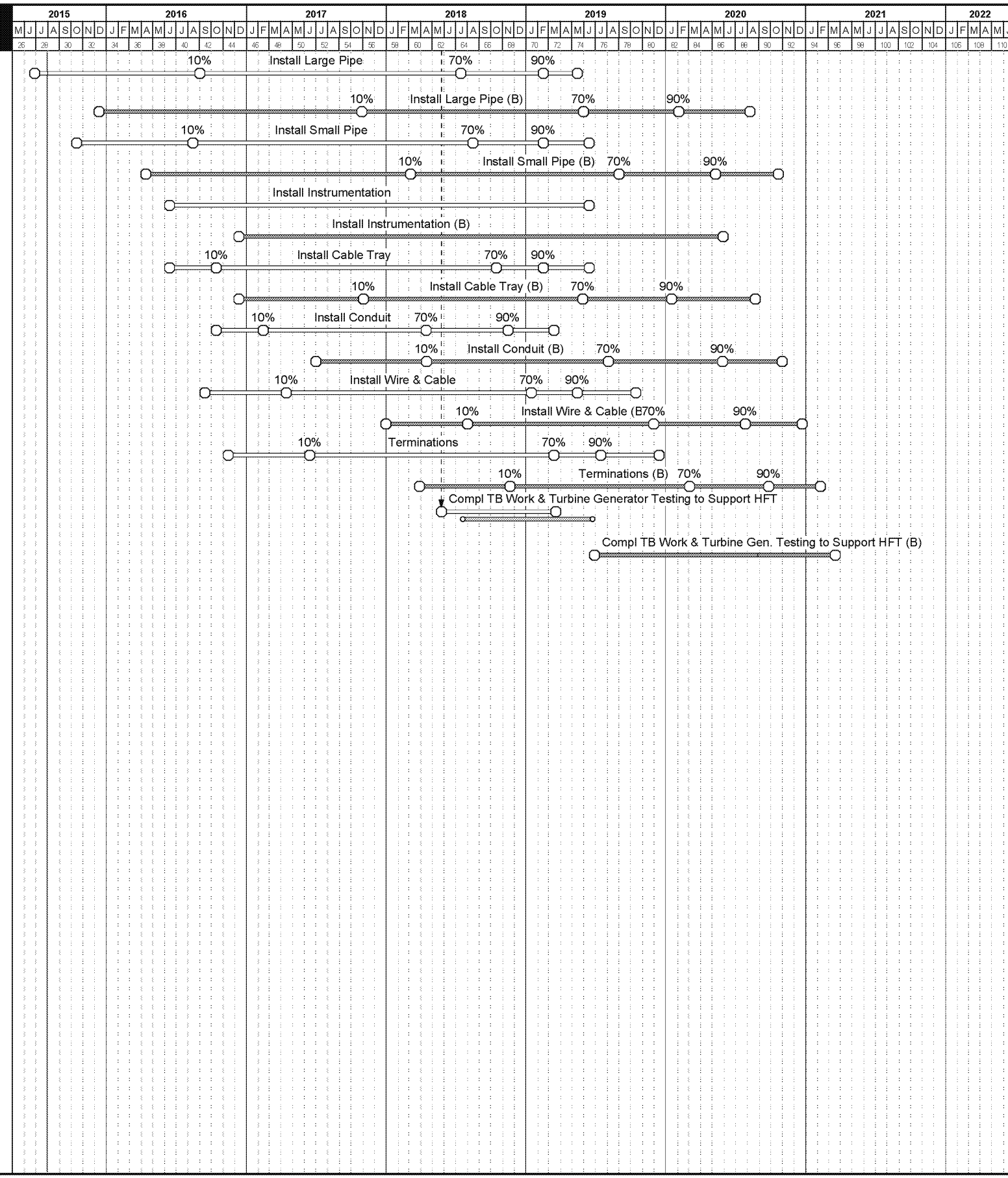


ELECTRONICALLY FILED - 2018 September 24 9:06 PM - SCPSC - Docket # 2017-370-E - Page 63 of 73

Figure 1. V.C. Summer Units 2 & 3 Schedule Assessment
Summary Schedule

Data Date: Month-End July 2015

	LINE ITEM
Install Large Pipe	5.7.2
Install Large Pipe (B)	5.7.2.1
Install Small Pipe	5.7.3
Install Small Pipe (B)	5.7.3.1
Install Instrumentation	5.7.4
Install Instrumentation (B)	5.7.4.1
Install Cable Tray	5.7.5
Install Cable Tray (B)	5.7.5.1
Install Conduit	5.7.6
Install Conduit (B)	5.7.6.1
Install Wire & Cable	5.7.7
Install Wire & Cable (B)	5.7.7.1
Terminations	5.7.8
Terminations (B)	5.7.8.1
Compl TB Work & Turbine Generator Testing to Support HFT	5.8
Compl TB Work & Turbine Gen. Testing to Support HFT (B)	5.8.0.1



V.C. SUMMER UNITS 2 & 3 SCHEDULE ASSESSMENT

LEGEND

- Consortium Baseline Milestone (Jan. 2015)
- Bechtel Assessment Forecast Milestone
- Consortium Baseline (Jan. 2015)
- Consortium Critical Path (Baseline)
- Consortium Current Forecast (Aug. 2015)
- Bechtel Assessment Median Forecast
- Bechtel Assessment Critical Path
- Current Status

LEVEL 1 SCHEDULE

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ELECTRONICALLY FILED - 2018 September 24 9:06 PM - SCPSC - Docket # 2017-370-E - Page 64 of 73

Figure 2. Unit 2 Midpoint Forecast - Total Family of Curves

Sheet 1 of 1

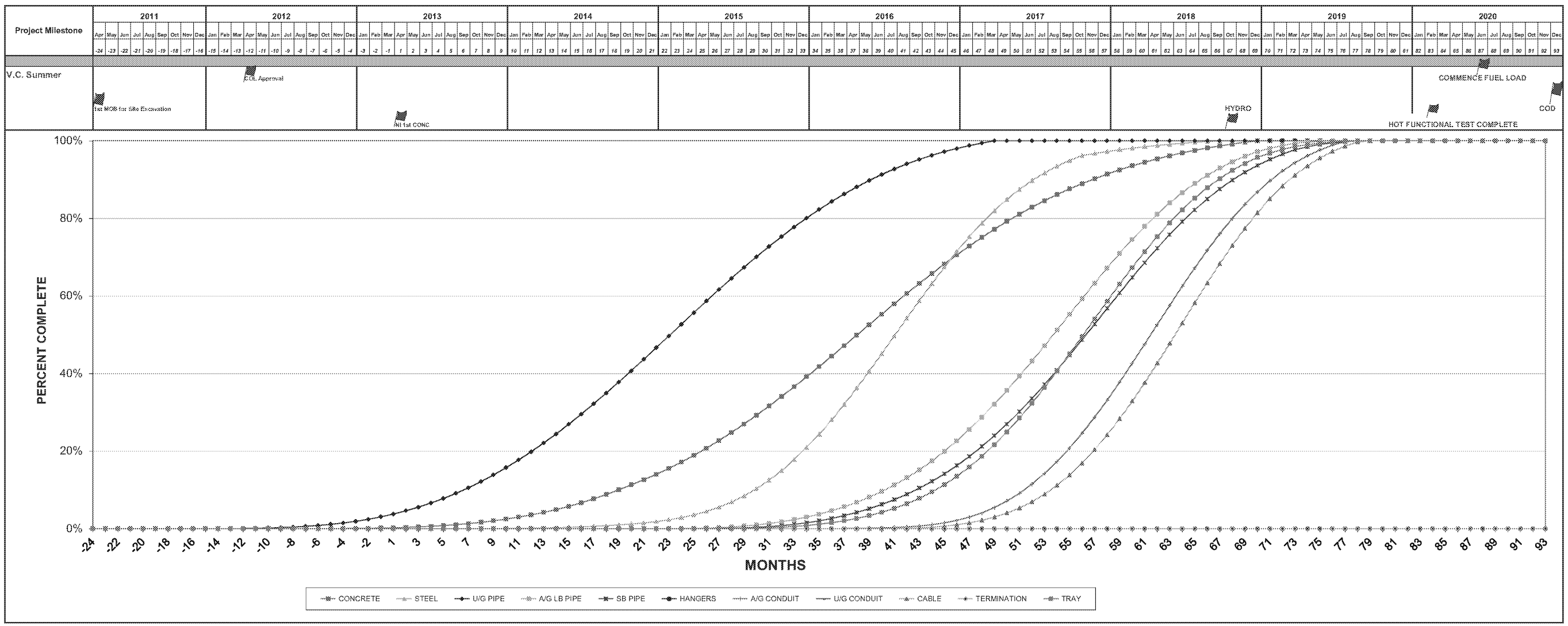

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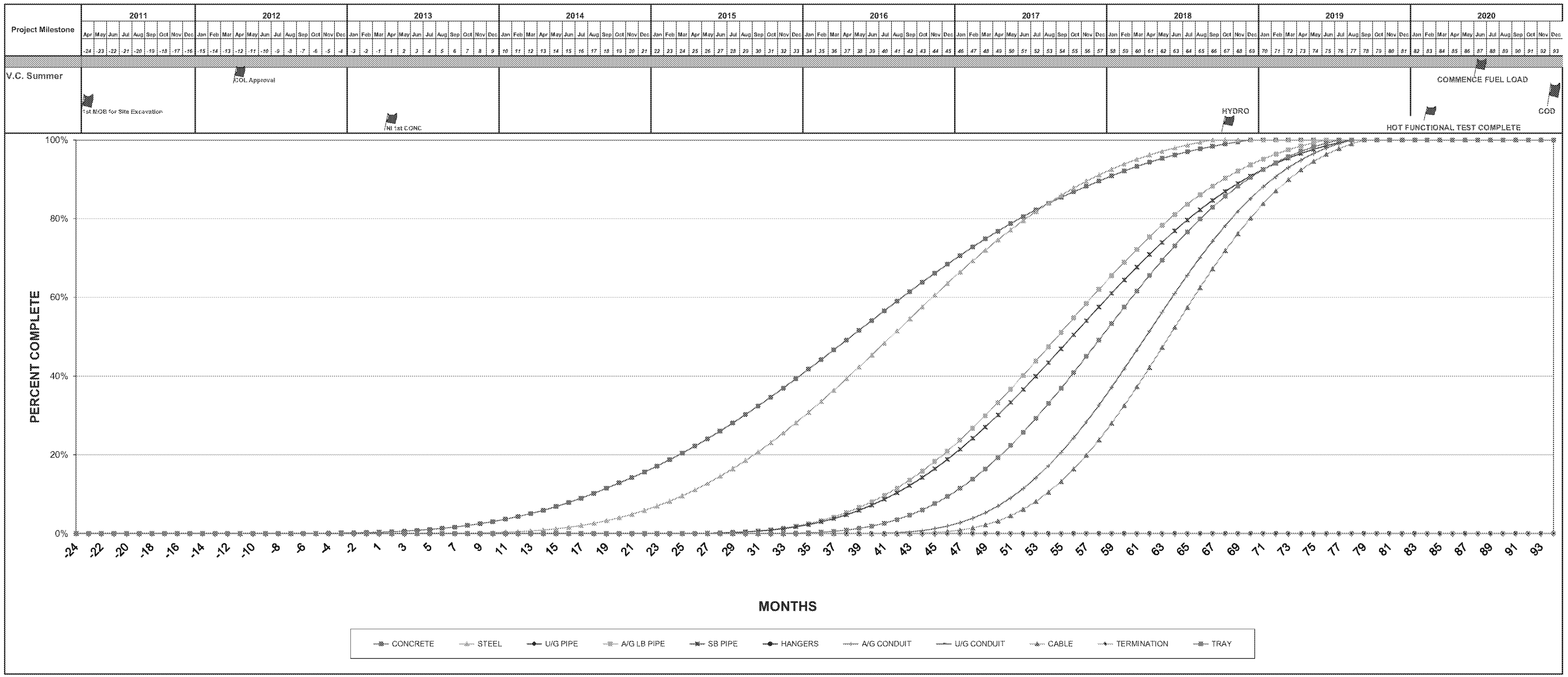
Figure 3. Unit 2 Midpoint Forecast - Nuclear Island Family of Curves

Sheet 1 of 1



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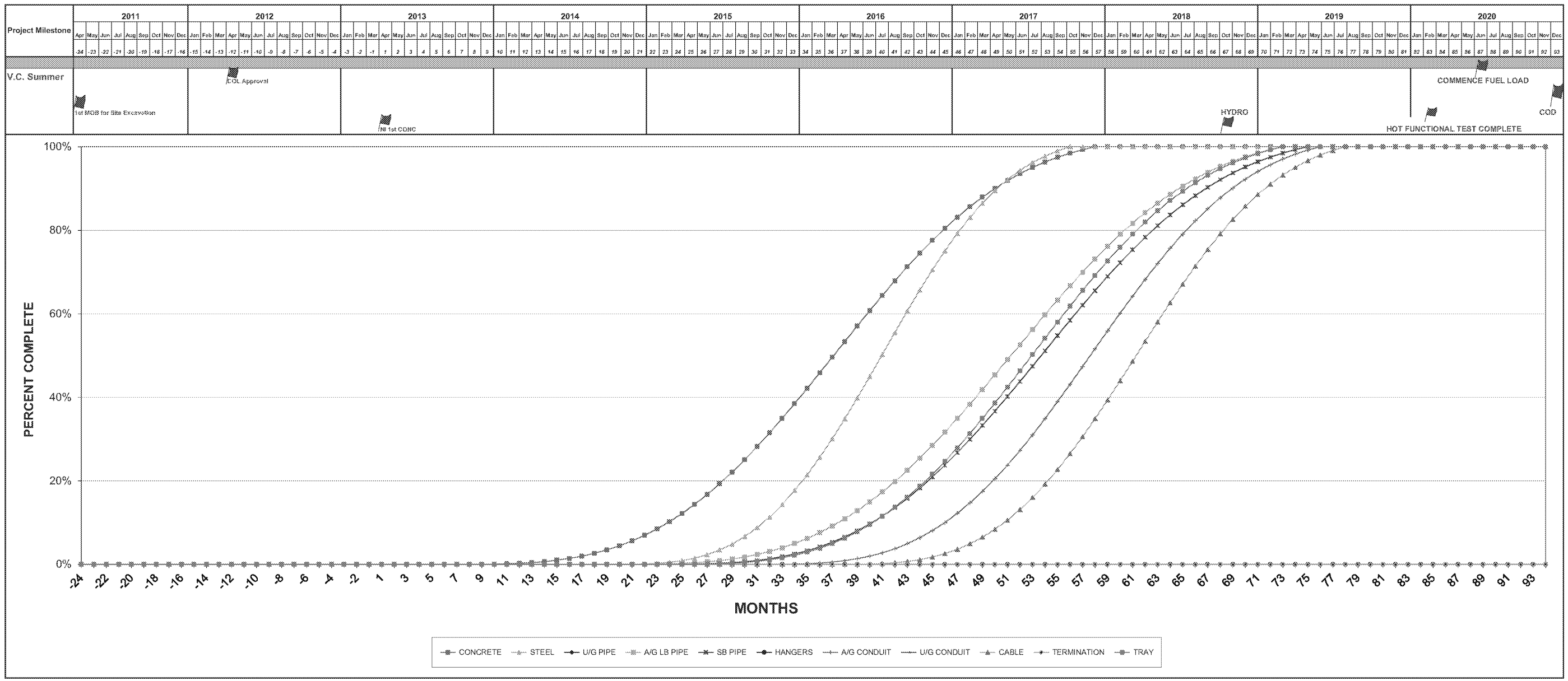
ELECTRONICALLY FILED - 2018 September 24 9:06 PM - SCPSC - Docket # 2017-370-E - Page 66 of 73

Figure 4. Unit 2 Midpoint Forecast - Turbine Island Family of Curves

Sheet 1 of 1



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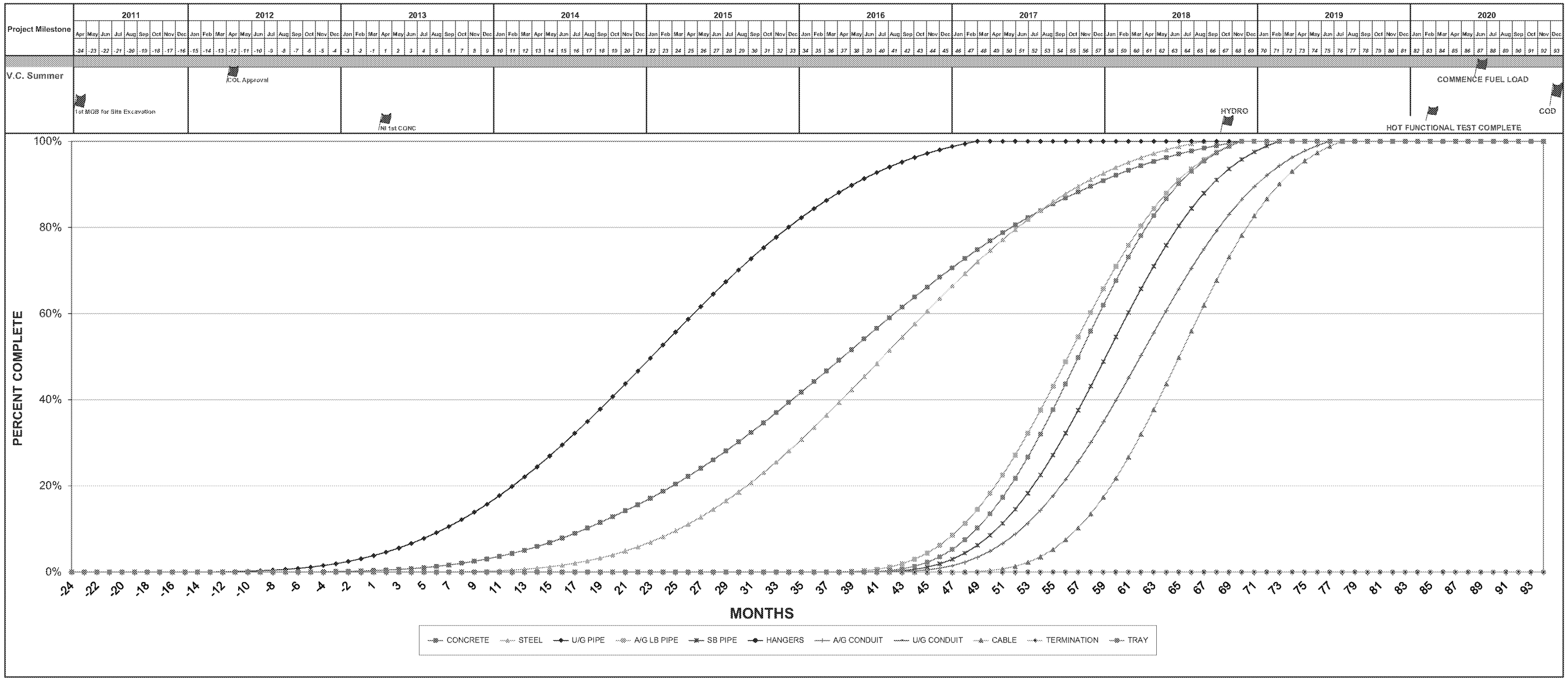
ELECTRONICALLY FILED - 2018 September 24 9:06 PM - SCPSC - Docket # 2017-370-E - Page 67 of 73

Figure 5. Unit 2 Midpoint Forecast - Balance of Plant Family of Curves

Sheet 1 of 1



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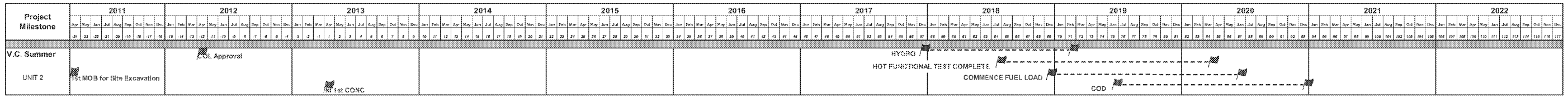
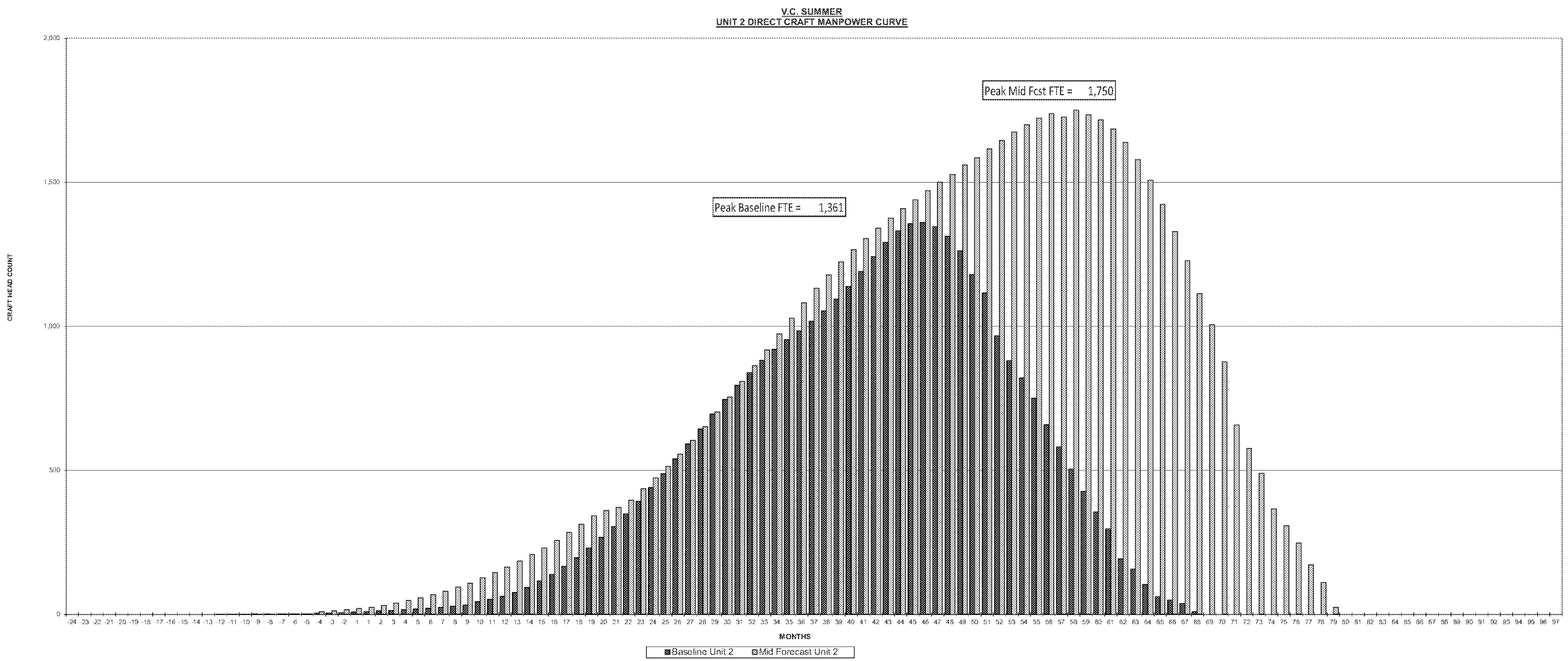
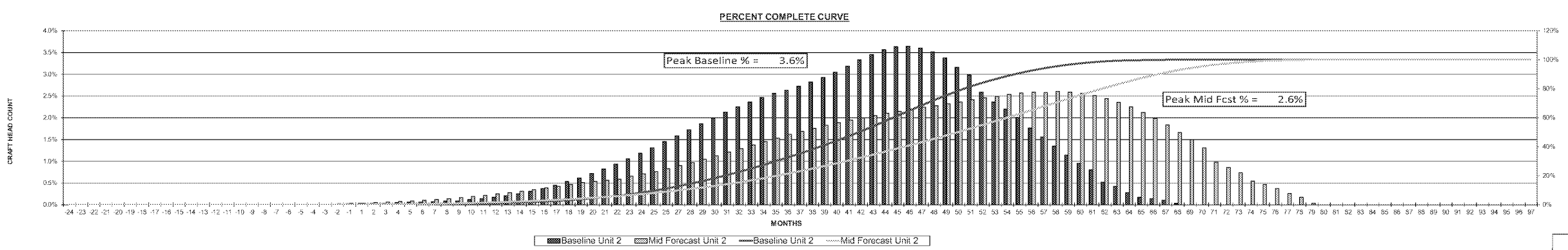
ELECTRONICALLY FILED - 2018 September 24 9:06 PM - SCPSC - Docket # 2017-370-E - Page 68 of 73

Figure 6. Unit 2 Direct Craft Manpower Curve and Percent Complete Curve

Sheet 1 of 1







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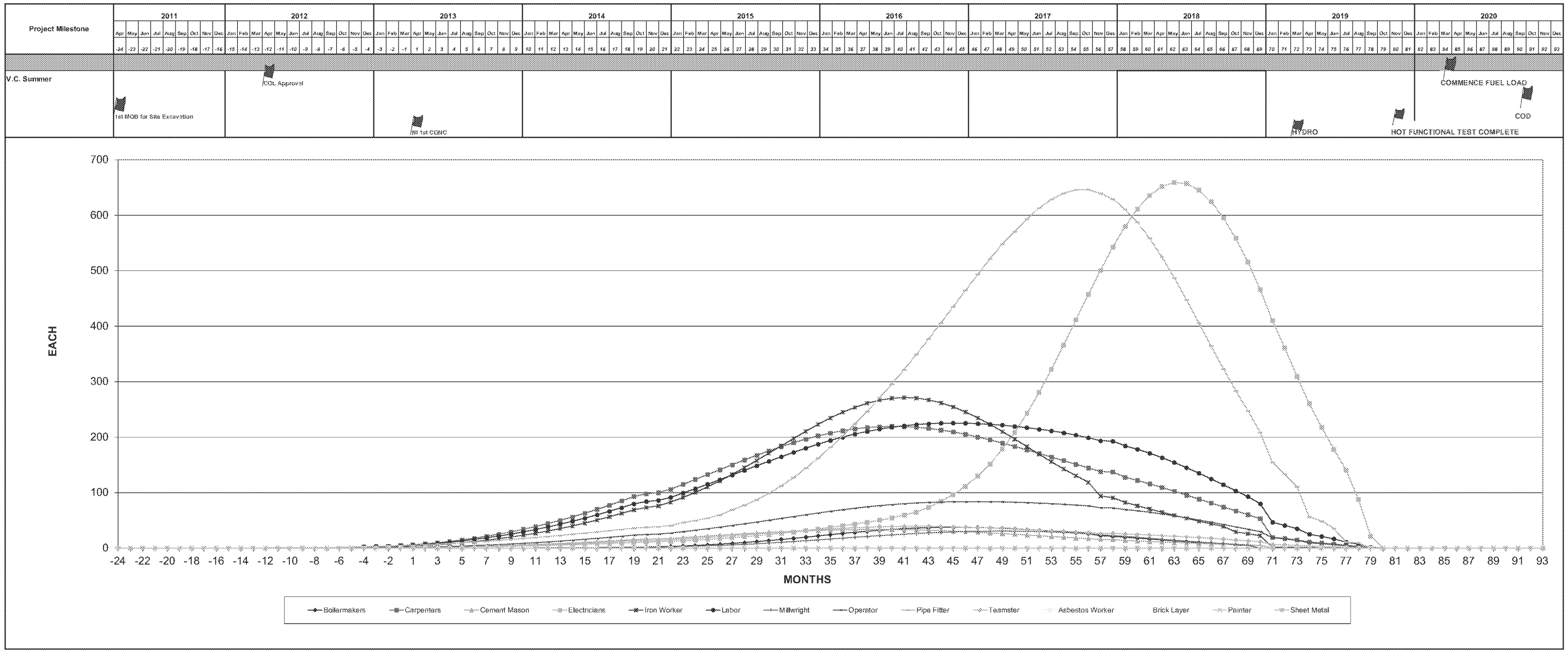
ELECTRONICALLY FILED - 2018 September 24 9:06 PM - SCPSC - Docket # 2017-370-E - Page 69 of 73

Figure 7. Unit 2 Headcount by Craft (Does not Incl S/C Hrs)

Sheet 1 of 1



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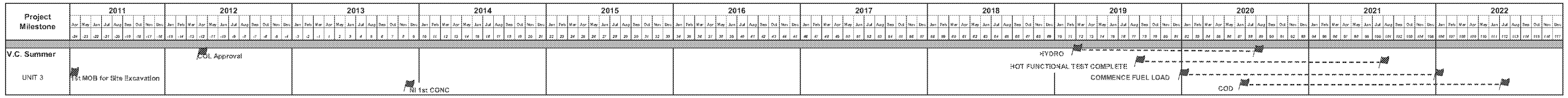
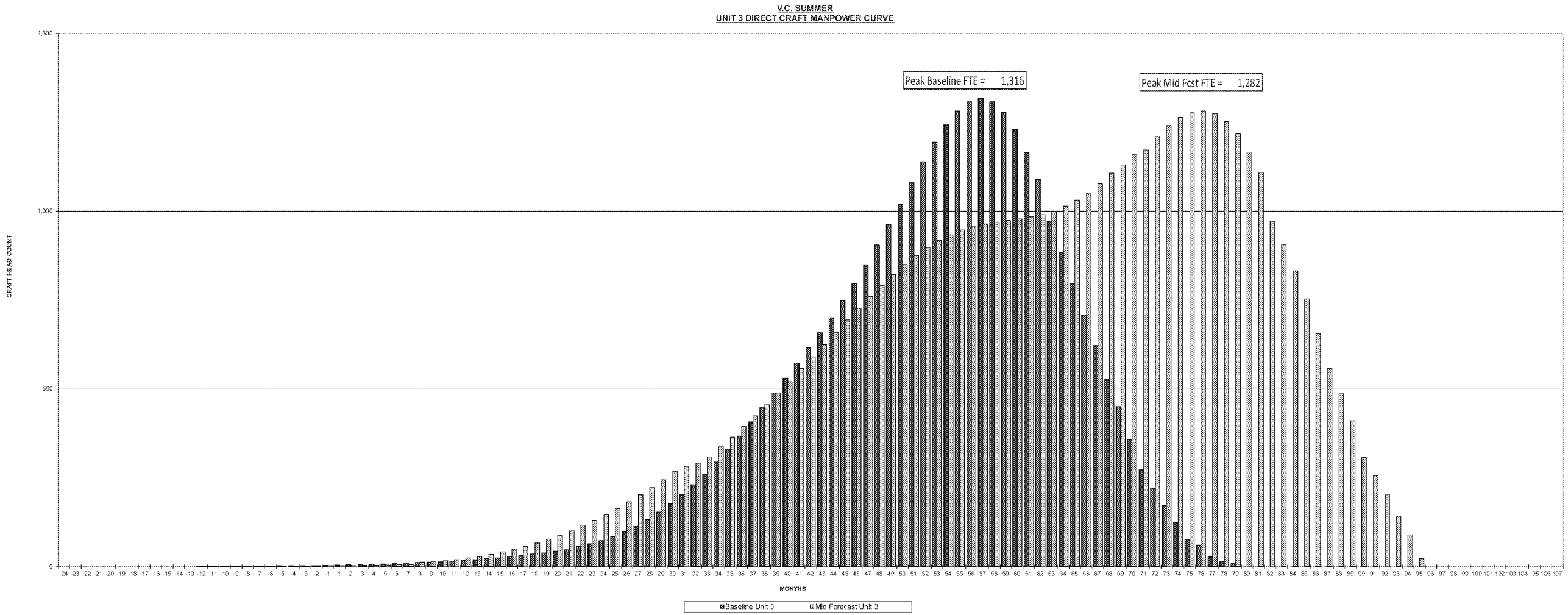
ELECTRONICALLY FILED - 2018 September 24 9:06 PM - SCPSC - Docket # 2017-370-E - Page 70 of 73

Figure 8. Unit 3 Direct Craft Manpower Curve and Percent Complete Curve

Sheet 1 of 1





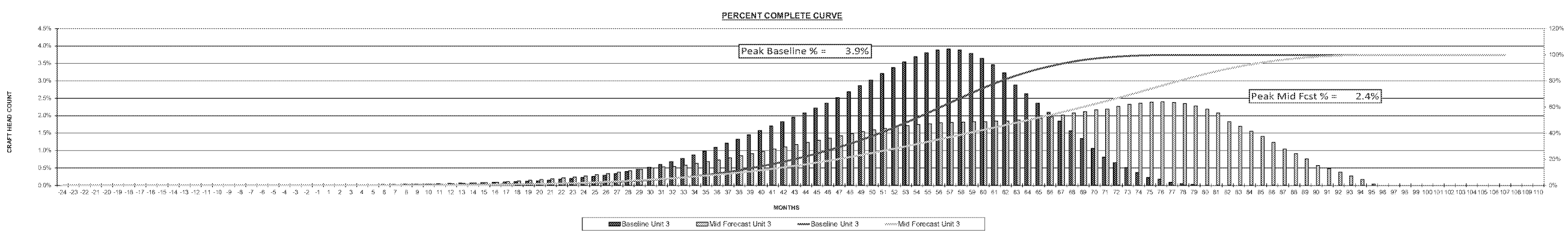


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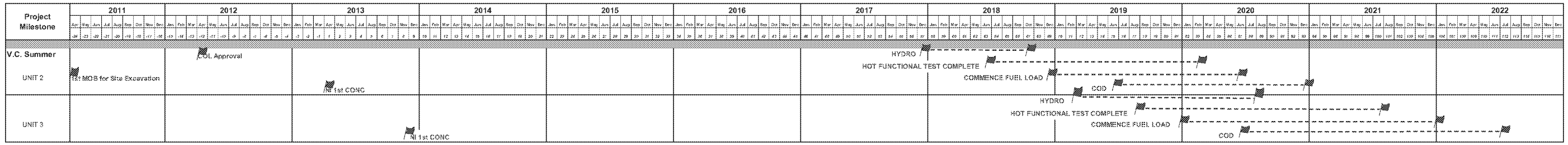
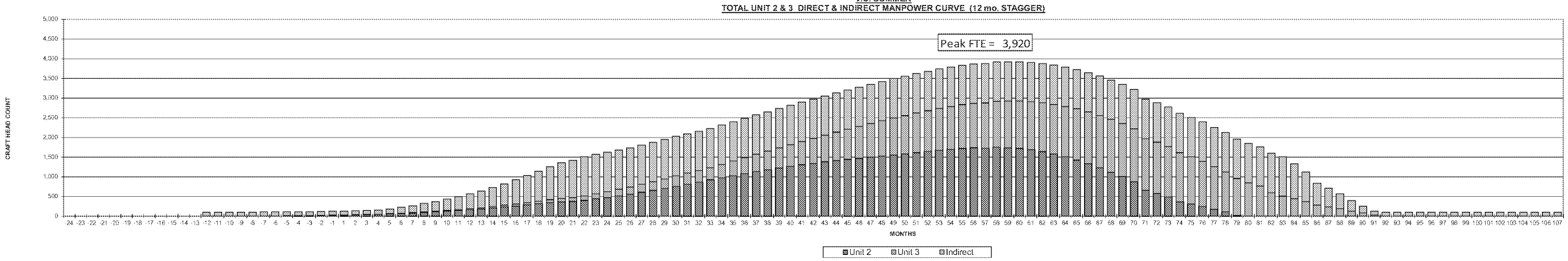
Figure 9. Total Unit 2 3 Direct Indirect Manpower Curves
(12, 18, 24 Month Staggers)

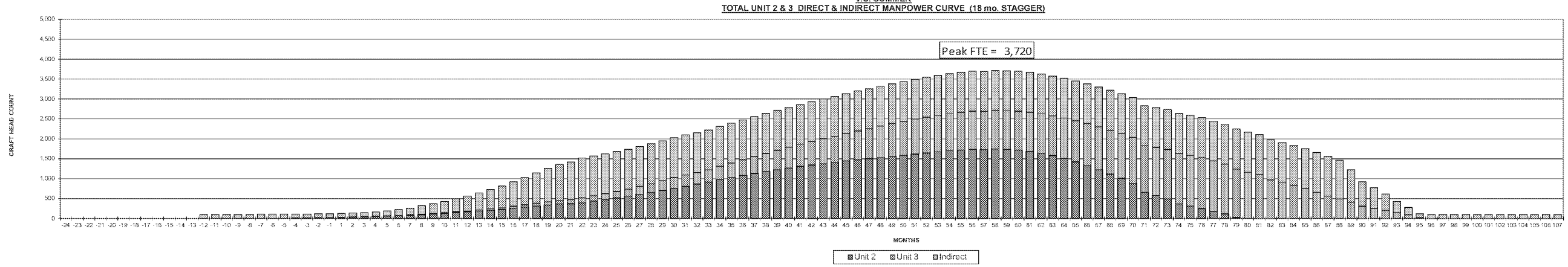
Sheet 1 of 1



V.C. SUMMER
TOTAL UNIT 2 & 3 DIRECT & INDIRECT MANPOWER CURVE (12 mo. STAGGER)



V.C. SUMMER
TOTAL UNIT 2 & 3 DIRECT & INDIRECT MANPOWER CURVE (18 mo. STAGGER)



V.C. SUMMER
TOTAL UNIT 2 & 3 DIRECT & INDIRECT MANPOWER CURVE (24 mo. STAGGER)

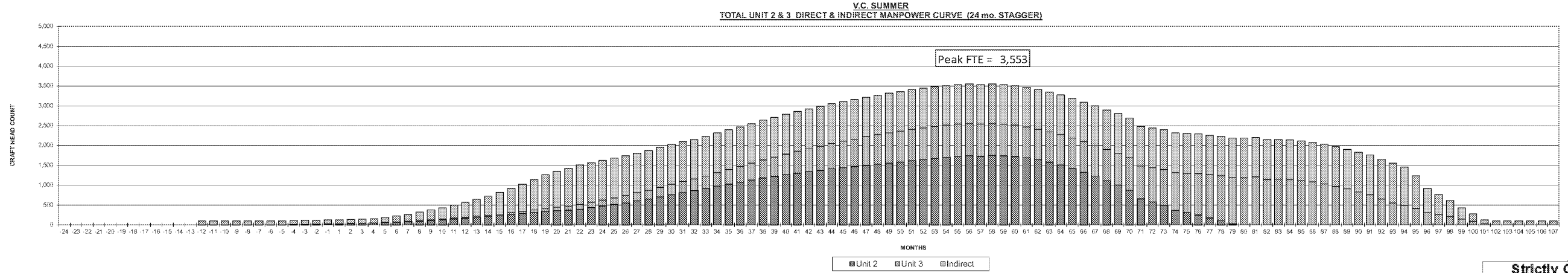


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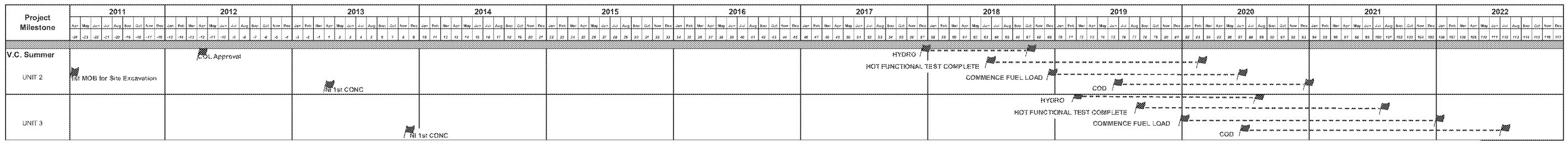
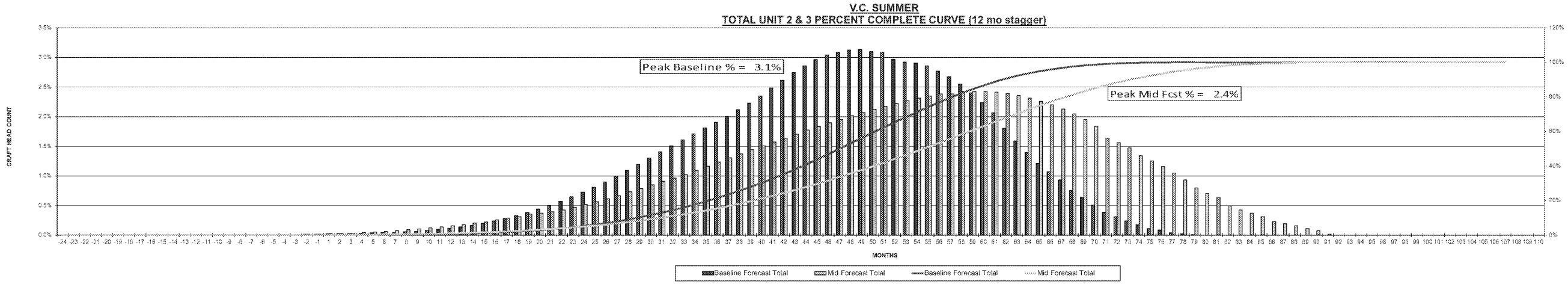
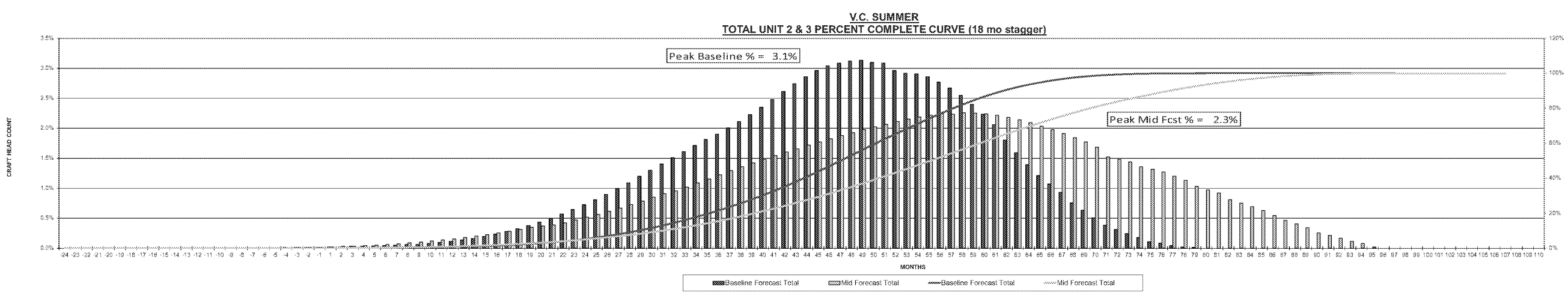
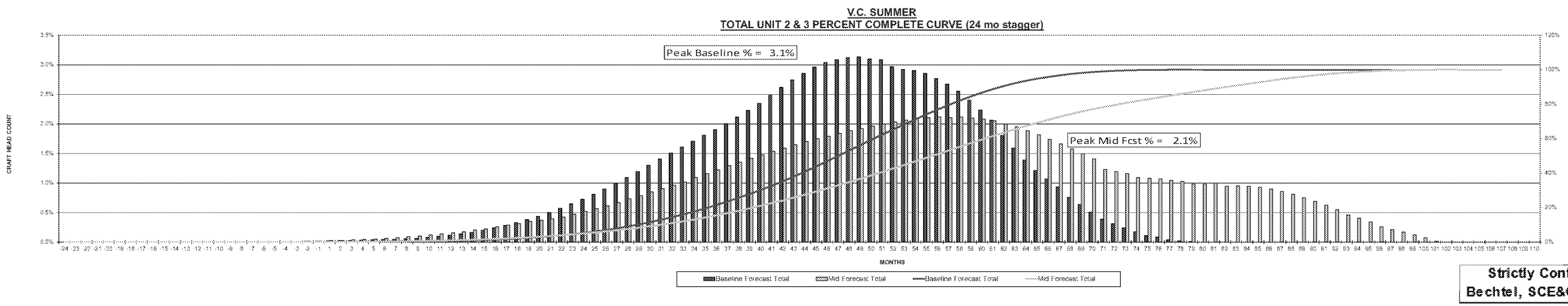
Figure 10. Total Unit 2 3 Percent Complete Curves
(12, 18, 24 Month Staggers)

Sheet 1 of 1









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ELECTRONICALLY FILED - 2018 September 24 9:06 PM - SCPSC - Docket # 2017-370-E - Page 73 of 73