**Charles Steven Tomkies**

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**SENIOR MANAGER**

Highly self-motivated, systems thinker with a broad technical experience base, combined with a demonstrated drive for technical excellence. Experienced in manned and un-manned Space and Missile Systems. Provides a proven ability to lead and integrate technical organizations across multi-function teams and multi-site projects.

* An accomplished, results-oriented Senior Project Manager over 35 years of experience in highly technical fields with the last 20 years focused on managing large scale projects.
* Recognized for ability to identify, develop and deploy innovative processes and technologies that result in expanded capabilities, reduced cost and cycle times and improved quality.
* Exemplary track record of developing teams by recruiting and mentoring outstanding, highly motivated team members that consistently develop complex products to meet aggressive schedules.
* Strong understanding of engineering technologies and development environments, especially in structural, mechanical, flight and systems engineering, including modeling and simulation.
* Significant experience in partnering with Program and Capability Senior Leaders to develop plans, drive execution, resolve issues and build capabilities to successfully achieve program and corporate goals
* Established track record of working with customers, vendors and other company capability leaders to find mutually beneficial integrated solutions to problems and achieve common goals
* Demonstrated ability to manage challenging projects with detailed planning, early risk mitigation and aggressive pursuit of emerging issues while completing on time and within budget.

**MANAGEMENT & LEADERSHIP EXPERIENCE**

Successfully demonstrated a strong capability to manage teams and technical projects in nine different programs at four different sites.

* Programs: Space Launch System (SLS), Ares, Space Shuttle, Titan IV, and Delta launch vehicles, Constellation Integration, Commercial Crew Transportation System, HS601HP Satellites,   
  International Space Station, Air Force Ground Based Strategic Deterrent
* Sites: Huntsville, AL; Houston, TX; Huntington Beach, CA; El Segundo, CA

**Senior Manager – Space Launch System Integrated and Structural Analysis (ISA)**

Currently leading the SLS ISA team with peak staffing of over 200 employees with 7 direct reporting managers within the Integrated Design Engineering organization. Engineering efforts cover both Core Stage and Exploration Upper Stage teams with technical scope including:

Loads & Dynamics Vibroacoustic/Shock/Acoustics Thermal  
Stress/Fracture & Fatigue Analysis Integration Structural Materials

Also responsible for analytical integration across integrated product teams including coordinating Analysis Cycles for all program technical disciplines. All activities require regular communication and presentations to Boeing and NASA senior leadership.

- Developing detailed team plans to achieve program objectives and meet requirements

- Managing group efforts to meet challenging schedule plans and budget allocations including EVM

- Identifying resource, budget, staffing and skill requirements

- Finding skills, tools and processes to meet program needs and when necessary develop new capabilities

- Guiding the team to execute program plans and proactively resolve technical issues

- Promoting, managing, and improving technical excellence and innovation. Leading process improvement   
 initiatives to improve product quality and process efficiency

- Developing and coaching employees to achieve team goals, personal goals and provide improved   
 capabilities for future Boeing endeavors.

As a senior leader in the SLS program, has been regularly requested by Chief Engineer to personally led resolution of key program challenges including resolution of issues relating to Thick Plate Aluminum material property issues, Tank Slosh Baffle design and material issues, propellant line joint strength margin issues, etc.

**Missile Systems - Senior Manager - Systems Analysis, Engineering, Integration & Test**

Led Ground Based Strategic Deterrence and Next-Generation Interceptor proposal classified programs as Sr. Manager for Systems Analysis, Integration and Test teams with responsibilities including Integration across the IPT, Systems Analysis, Modeling and Systems Engineering during development. Responsible for analytical integration across integrated product teams including coordinating Design Analysis Cycles across all technical disciplines. Responsible for team modeling and simulation efforts including Model Based System Engineering (MBSE) implementation for these teams (MIT Architecture of Complex Systems (MBSE) certificate.

For GBSD served as Systems Analysis & Integration IPT during early development with responsibilities including Systems Analysis and Engineering, including requirements development and design analysis, for:

Aerodynamics Loads & Dynamics GN&C Flight Simulations  
Aerothermal Environments Vibroacoustic/Shock/Acoustics Mass Properties  
Mechanical/Separation Systems Weapon System Mission Analysis Thermal Control Systems

Matured the design of highly complex vehicles through multiple development cycles while also developing new tools to refine critical design environments and reduce risk.

Led proposal activities for these teams in both the GBSD and NGI pursuits including contributing to strategic approaches, writing technical sections, developing cost estimates and schedule plans.

**Commercial Crew Transportation System - Integrated Performance Manager**  
Led the SEIT/Integrated Performance team for 5 years of development with responsibilities including Systems Analysis and Specialty Engineering including requirements, design and verification analysis for:

Aerodynamics Loads & Dynamics Crew and Life Support  
Aerothermal Environments Vibroacoustic/Shock/Acoustics Mass Properties  
Mechanical/Separation Systems Thermal Control Systems Special Engineering (EME)

* Won BDS Engineering Excellence Team of the Year award for CCTS Emergency Abort Design Team work
* Responsible for analytical integration across integrated product teams including coordinating Analysis Cycles across all technical disciplines. Also lead Modeling and Simulation certification for program.
* Matured the design of a highly complex vehicle through multiple development cycles while also developing new tools to refine critical design environments and reduce risk.
* Successfully led planning and executing over 20 Aerodynamic Wind Tunnel Tests and developing 30 complex Aerodynamic Databases with some having 9 parametric dimensions and over 3 million points.
* Coordinated across IPTs to lead thermal issue resolution team to resolve dozens of thermal related design problems including challenges related to aeroheating, ablation and thermal isolation.
* Also wrote proposal sections including serving as Technical Volume Lead for NASA CCiCap contract.

**Space Launch System Program (pre-PDR) - Stages Structural Analysis Manager**

Requested by Division management to serve as NASA Space Launch System Stage Structural Analysis manager during start-up phase. Provided leadership in Launch Vehicle Loads, Vibroacoustics, Thermal Analysis, Fracture and Structural Integrity for a team of over 60 people distributed across 3 sites

* Worked closely with customer to understand, refine and shape plans for new program
* Developed cost and schedule plans. Tracked progress using new Earned Value Measurement system
* Grew technical staff to meet program needs and developed new processes to achieve program objectives
* Led team to resolve technical issues and mitigate key program risks
* Developed criteria and initial templates for Non-Recurring Product Development implementation on SLS

**Constellation Program - Structures, Mechanisms and Element Integration Manager**

Managed team providing specialty engineering support to NASA and grew engineering team to several times its original size. This was done by using close, long term relationships with key NASA customers and developing new relationships with emerging NASA leaders.

As a result of his technical expertise and strong working relationship with NASA customers, Steve was asked to be Co-Lead the NASA Constellation Level 2 Integrated Loads, Structures & Mechanisms Systems Integration Group (a position normally held by a government employee rather than a government contractor), working with his NASA counterpart to lead technical reviews across the program, define and prioritize tasks and co-chair the Loads and Structures Panel. This role was recognized by the receipt of a NASA Group Achievement Award for SE&I Leadership.

* Expanded Boeing team to cover a broad range of tasks including; structural design, integrated loads, vibroacoustics, flight performance, abort analysis, propulsion, test and verification, space architecture and mission analysis, power, systems engineering, and ground/mission operations
* Demonstrated continued excellent performance; contributing to record high award fee scores with dozens of strengths noted by Systems Engineering and Integration customers and no award fee weaknesses
* NASA recognized the importance of the Boeing contribution by extending the support even after the Constellation program ended. All work was accomplished within budget each year
* Added new budget and scope to Boeing contract backlog every year
* Developed key elements of the Boeing Constellation Program Engineering Support project infrastructure by implementing LEAN process improvements and Program Management Best Practices
* Established Technical Excellence Forum to exchange technical knowledge between groups and functions
* On his own initiative, developed and executed a cross-training plans to improve staffing flexibility
* Dedicated to mentoring and developing employees. As exemplified by several achieving positions in management, Boeing Technical Fellowship and winning Space Exploration Engineer of the Year awards

Played key role in developing loads and closing structural issues that enabled launch of the Ares IX flight.

* Asked by NASA Ares IX team to personally present Design Loads section at the Critical Design Review
* Recognized by over a dozen personal and team awards from customers including; Langley Research Center Directors Award, Ares IX Mission Manager awards and NASA Group Achievement awards
* NASA also asked the team to perform follow-on work to analyze the flight data, validate models and determine how the test data can be used on future launch vehicles
* Won the Boeing Space Exploration Engineering Excellence Team of the Year Award in 2011

**Crew Exploration Vehicle Phase 1 contract - Structures and Mechanisms Manager**

* Led integrated Northrop Grumman-Boeing team of engineers from Boeing Houston, Huntsville and Huntington Beach sites as well as Northrop Grumman to develop the NGB CEV baseline design
* Recruited team members to develop critical processes early in the program such as integrated loads, rapid design sizing, mechanical design, pyrotechnic/ordnance shock and vibroacoustic environment definition
* Coordinated design efforts of each module, developed integrated schedules, and led internal design reviews to drive the system from initial requirements and to detailed design
* Developed fault tolerance and hazard assessments and manage technical, cost and schedule risks
* Cost account manager in charge of developing budget estimates and tracking Earned Value Management
* Requested by the CEV Spacecraft Manager to write the Structures section of the CEV proposal

Additional information on previous jobs noted in Work History available upon request.

**PROCESS EXCELLENCE**

Recognized by company awards for aggressively and consistently pursuing process improvements.

* Won John Van Gels Award "to provide BDS-wide recognition for teams with management who have made significant contributions to Boeing Defense Systems". This competitive award recognizes teams for outstanding achievements in establishing close collaboration between team members and management, significant contributions through continuous improvement projects, intentional use of Lean+ structured approaches and using metrics to measure performance and sustain continuous improvement.
* Led teams to complete process improvements each year. Several reduced cycle times 60-90%
* Led improvement to a critical thrust oscillation analysis process which was highly praised by NASA
* Coached members of his team to achieve a LEAN 5S Level 3 certification
* Led International Space Station Vehicle CMMI effort
* Worked with NASA to run Constellation Program Integrated Loads LEAN event at Boeing Houston that involved representatives from 5 NASA centers and many contractors. The event identified improvements to the multi-company / multi-discipline process that led to 41% reduction in cycle time.
* Developed innovative system to rank potential process improvements according to their impact/leverage if implemented and implementation cost
* Won Boeing Integrated Defense Systems Employee Involvement award

**TECHNICAL EXPERTISE**

In-depth technical knowledge has led to significant contributions in; on-orbit & launch vehicle loads analyses, structural design, finite element modeling, structural test planning and model correlation, fatigue analyses and vibration, acoustic and shock environment definition. Much of this work has required the development of new tools or methods with subsequent validation using flight or test data. The successful resolution of these issues demonstrates Steve’s ability to integrate and lead teams spanning different subsystems and functional teams

* Co-lead for program critical vibroacoustic issue on Commercial Crew Transportation System project
* Requested by the International Space Station Chief Engineer to resolve numerous issues including leading ISS support to the Shuttle Inadvertent Thruster Firing Resolution and the Stud Hang-up Resolution teams
* Recognized with a NASA Team Space Flight Awareness Award after the Shuttle Columbia accident for work on analytical uncertainty and it’s affects on vehicle integrity and damage assessments
* Awarded NASA JSC Group Achievement Award for leading the loads and dynamics efforts on the ISS Mission 4A Solar Array Repair Team that repaired a solar array after it failed to deploy on orbit
* Developed innovative analysis tool for assessing pipe weld stresses in vibration environments
* Created GUI-driven Coupled Loads Analysis tool with sign. Reduced cycle time from 3 weeks to 1 day
* Successfully led over 14 Internal Application and Development projects worth $1.3 million to develop new company proprietary capabilities and targeted competitive discriminating technologies.

**EDUCATION**

**MS Mechanical Engineering** University of California, Los Angeles, 1995

**BS Mechanical Engineering** Rice University, 1985

**Architecture & Systems Engineering (MBSE) Certificate** Massachusetts Institute of Technology 2018

**CLEARANCE**

**Top Secret (Active)**

**PERSONAL INTERESTS**

Golf, Camping, Hiking, Kayaking, Art, Curling  
Martial Arts (Black Belts in Tae Kwon Do and Kuk Sool Won)

**WORK HISTORY**

Consistent progression through technical leadership positions into project and program management. Reputation for technical excellence has often led to requests from senior division management to lead proposals, launch critical new business pursuits and establish new development programs.

**Senior Manager – Integrated and Structural Analysis** 2020 to Present

Space Launch System Program, In-Space Vehicle Directorate

Boeing Defense, Space & Security Systems– Huntsville, AL

**Senior Manager – Air Vehicle Systems Analysis and Integration** 2017 to 2020

Ground Based Strategic Deterrent (GBSD) and  
Next-Generation Interceptor (NGI) Programs

Boeing Defense and Space Systems– Huntsville, AL

**Senior Manager of Systems Analysis**  2013 to 2017

Commercial Crew Transportation System (CCTS) Program

Boeing Space Exploration- Houston, TX

**Senior Manager of Space Exploration Strategic Capabilities** 2010 to 2013

Boeing Space Exploration- Houston, TX

**Senior Manager of Structures, Mechanisms and Element Integration**  2006 to 2010

Constellation Program Engineering Support

Boeing Space Exploration- Houston, TX

**Manager of Structures and Mechanisms** 2005 to 2006

Crew Exploration Vehicle, Phase 1

Boeing Space Exploration- Houston, TX

**Manager of Loads, Dynamics and Mechanical Analysis** 2003 to 2006

International Space Station

Boeing Space Exploration- Houston, TX

**Loads and Dynamics Lead Engineer** 2001 to 2003

International Space Station

Boeing Space Exploration- Houston, TX

**Senior Loads and Dynamics Analyst**  1999 to 2001

Space Shuttle Cargo Integration

Boeing Space Exploration- Houston, TX

**Loads, Dynamics and Environments Lead Engineer** 1997 to 1999

HS601 Satellite Programs and Satellite Design Center

Hughes Space and Communications – El Segundo, CA

**Vibration, Shock and Acoustics Analyst and Test Engineer** 1996 to 1997

Delta Launch Vehicle Programs

McDonnell Douglas Space Systems– Huntington Beach, CA

**Technical Analysis Lead**  1987 to 1996

Titan IV Loads and Dynamics

McDonnell Douglas Space Systems– Huntington Beach, CA

**Robotics and Structural Analysis Engineer/Scientist**  1985 to 1987

Space Shuttle Program

McDonnell Douglas Astronautics- Houston, TX

**Engineering Intern** 1984

Oil and Gas Directional Drilling

Maurer Engineering, Inc. - Houston, TX