Validation & Verification of Electrical Components B2 Test Facility National Aeronautics and Space Administration Tyler Bastian **Dillard University**

The research focus of this project is to assist in the closure of Measurement, Monitoring and Control System (SLS) Core Stage Green Run Test Project. Alongside this goal I am to understand project management tools to analyze and control activities/tasks associated with those items. The project I am working on will assist electrical requirements. Also as serving the role of a training project manager, I am to develop and maintain a method for tracking progress with estimate completion dates specifically identifying those items during this performance window. The methods I used in order to perform the research consisted of: a SLS Core Stage Green Run Facility Requirement Documents, excel sheets, and pdf documents needed for review. For example, documents consisted of: a SLS Core Stage Green Run Facility Requirement Documents needed for review. requirements, a Stage Controller to SSC Interface Control Document (ICD) identifies the MMCS and electrical requirements. The files were sent to me by both mentors, Mr. Barry Robinson and Ms. Dawn Davis Overall, the review process for the word documents and excel spreadsheets proved to be successful. The data for the electrical components were accurate and further and further and excel spreadsheets proved to be successful. The data for the electrical components were accurate and further and further and excel spreadsheets proved to be successful. revisions were done in order for the data to agree with each other. Furthermore, an itinerary was designed using Microsoft Outlook in order to track progress with estimated completion dates. This project contributes to NASA/Center Missions and Goals through the Waterfall Model. The Waterfall Model is a linear system used for engineering design. In the Waterfall Model, the fourth step is Verification and Validation. This involves installation, testing, and debugging of the B2 SLS Core Stage electrical components. For the SLS Core Stage electrical components. For the SLS Core Stage of the B2 SLS Core Stage electrical components. During the design phase, VIs will mostly consist of Analysis or Inspection types. Design phase VIs and closure information will be documented in Dynamics Data Management System (DDMS) in the form of analysis reports and design documentation.

Introduction

My internship project plan requires me to verify and validate the electrical components for the B2 Space Launch System (SLS) Core Stage Green Run Test Project. The document was sent to me by my alternate mentor, Ms. Dawn Davis. It gave me a better understanding of the requirements of the V&V matrix. For instance, I must verify the power requirements in the System Reference Document (SRD) and match the values in spreadsheets.

Objectives

1. Assist in the closure of Measurement, Monitoring and Control System (MMCS) and other electrical requirements in support of the B2 SLS Core Stage Green Run Test Project. 2. Understand project management tools to analyze and control activities/tasks associated with those items performed in support of Item #1.

RELEASED - Printed documents may be obsolete; validate prior to use.

Special Thanks to my mentors: Mr. Barry Robinson and Ms. Dawn Davis. Also, thanks to Ms. Joy Smith in the Office of STEM Management/Verification and Validation planning guidance is contained in NPR 7123.1, NASA Systems Engineering Processes and Requirements; the project System Engineering Management Plan; SOI-8080-0041, Systems and Test Integration; and SOI-8080-0027, E&TD Operations Work Control.

Grounded Power Description-Requirements			
Power Description-Requirements	Tyler	Source	Recept
208 VAC, 3 Phase, 30A, 4 wire w/ground	208 VAC, 3 Phase, 30A, 4 wire w/ground	LP-1 <mark>2: CKT</mark> 38	DPR LP-: Arktite
208 VAC, 30A, 3 wire w/ground	208 VAC, 30A, 3 wire w/ground	LP-13:CKT 30/32	CSS LP-13 N
120 VAC, 1 phase, 2 Wire w/Ground, 20A,	120 VAC, 1 phase, 2 Wire w/Ground, 20A, 60Hz	NEMA 5-15R	RLR: NE
120 VAC, 1 phase, 2 Wire w/Ground, 20A,	120 VAC, 1 phase, 2 Wire w/Ground, 20A, 60Hz	NEMA 5-15R	RLR: NE
120 VAC, 1 phase, 2 Wire w/Ground, 20A,	120 VAC, 1 phase, 2 Wire w/Ground, 20A, 60Hz	NEMA 5-15R	RLR: NE
120 VAC, 1 phase, 2 Wire w/Ground, 20A,	120 VAC, 1 phase, 2 Wire w/Ground, 20A, 60Hz	NEMA 5-15R	AC Load Ba
120 VAC, 1 phase, 2 Wire w/Ground, 20A,	120 VAC, 1 phase, 2 Wire w/Ground, 20A, 60Hz	NEMA 5-15R	AC Load Ba
120 VAC, 1 phase, 2 Wire w/Ground, 20A,	120 VAC, 1 phase, 2 Wire w/Ground, 20A, 60Hz	NEMA 5-15R	AC Load Ba
120 VAC, 1 phase, 2 Wire w/Ground, 20A,	120 VAC, 1 phase, 2 Wire w/Ground, 20A, 60Hz	NEMA 5-15R	AC Load Ba









Outcomes

tacle Label -12: CKT 38: ARE3413

3: CKT 30/32: IEMA

EMA 5-15R EMA 5-15R EMA 5-15R anks: NEMA 5 15R anks: NEMA 5anks: NEMA 5anks: NEMA 5

Anticipated contributions to the project consist of successful verification and validation of the test stage and further progression in the overall Space Launch System. The timeline for the project completion will presumably last the entirety of the internship, since there are a numerous amount of components to look over. The expected project deliverables for my mentors is to come to a completion of the verification and validation for the project. The expected educational outcomes for me would be to achieve a greater understanding of NASA's rocket testing, and the numerous steps and processes it takes in order to accomplish successful rocket launches.

Summary

- 1. Review the B2 SLS Core Stage Green Run Test Project System Requirements Document (SRD), identifying the MMCS and electrical requirements.
- 2. Review the Stage Controller to SSC Interface Control Document (ICD) identifying the SSC requirements.
 - 3. Review the SLS Core Stage Green Run Facility Requirement Document (FRD) identifying the SSC MMCS and electrical requirements.
- 4. Perform a gap analysis of the SRD and identify any MMCS and electrical requirements contained in the ICD and FRD that are not in the SRD.
 - 5. Assist electrical engineer in developing and or identifying closure rationale for the MMCS and electrical requirements.
- 6. Develop and maintain a method for tracking progress with estimated completion dates specifically identifying those items during this performance window.



