QUALITY ASSURANCE PLAN

TMT.PMO.MGT.10.008.CCR09

16 March

DOCUMENT APPROVAL

Author Release Note:

Prepared By:

SYSTEMS ENGINEERING
CONFIGURATION
MANAGEMENT
DOCUMENT RELEASE

Digital signatures available in Docushare Routing 4982
Release Date: 17 March 2016

Concurrence:

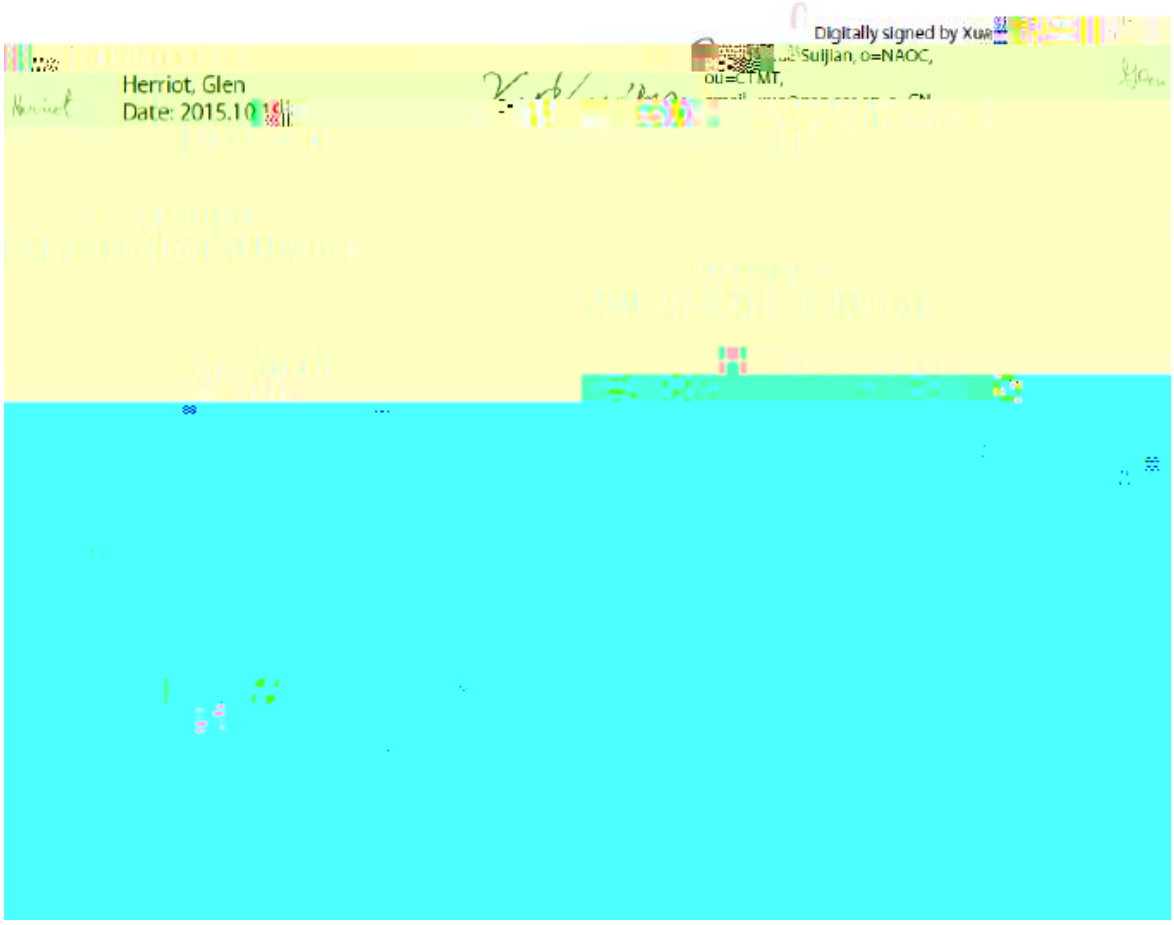

TABLE OF CONTENTS

1. INTRODUCTION

1.1 INTRODUCTION

The TMT Project quality assurance program provides a systematic process for checking to see whether a product or service being developed for the TMT observatory will meet/satisfy specified design requirements. In addition, an effective quality assurance system will improve work processes and efficiency and a contractor's/supplier's credibility. The quality assurance system emphasizes catching defects before they get into the final product.

1.2 PURPOSE

The TMT Project Quality Assurance Plan describes procedures, processes and methods that TMT Project and TMT Partner staff will use to establish and maintain effective quality assurance programs throughout the life of the TMT observatory. These QA programs provide requirements for prevention and detection of defects, and other quality control measures to help assure that the products and services supplied will meet the TMT Observatory design requirements and specifications (see AD7).

1.3 SCOPE

This TMT Project Quality Assurance Plan is applicable for all procurements and contracted services, acquisition of components and systems, materials and supplies, including spares that are to be used in the assembly and installation, testing, and operation of the TMT Observatory. The quality provisions of the plan also encompass support equipment and procedures/processes used for assembly and testing, including handling, transportation (shipping) and storage of all materials/equipment for the observatory. Appropriate quality assurance requirements will be implemented for the procurement and use of consumables (i.e., welding and leak test gasses, segment refurbishment process chemicals, laboratory supplies, etc.).

Note, the TMT Project Manager may direct that certain provisions of this QA Plan will be implemented during design/prototype qualification and testing activities of TMT and Observatory critical elements.

1.4 APPLICABLE DOCUMENTS

AD1. TMT Configuration Control Plan, (TMT.SEN.SPE.05.004.CCR19)

AD2. Requirements for TMT Software Quality Assurance Plans (TMT.SFT.TEC.14.011.REL06)

AD3. TMT Reviews, Definitions, Guidelines, and Procedures, (TMT.SEN.SPE.12.002.REL05)

AD4. Part Identification and Serial Numbering Methodology, (TMT.SEN.SPE.13.002.REL01)

AD5. TMT Project Quality Assurance Inspection Report Template, (TMT.PMO.MGT.14.043) Document in preparation

AD6. Calibration Laboratories and Measuring and Test Equipment – General Requirements, ANSI/NCSL Z 540.1 Edition 94 (Reaffirmed 2002)

AD7. Guidelines for Supplier Quality Requirements, (TMT.PMO.MGT.10.009.CCR03)

AD8. TMT Acceptance Testing Process Description, (TMT.SEN.SPE.14.005.REL01)

AD9. Material Review Board Process, (TMT.PMO.MGT.15.021.CCR07)

2. QUALITY SYSTEM

2.1 POLICY

Appointed by the TMT Project Manager, the TMT Project Quality Assurance Officer will establish and maintain a program to administer the quality aspects of the TMT Project. The Quality Assurance Officer reports directly to the TMT Project Manager.

The TMT Project is planning for a minimum TMT operational life of 50 years. Plans for continuing a QA program after completion of Telescope/Observatory construction, installation, and commissioning activities will be determined by the TMT Project Manager.

2.2 APPLICABILITY

The provisions of this plan are applicable to TMT Project and the TMT Project Partners and contractors/suppliers participating in the TMT Project.

2.3 DEVIATIONS AND WAIVERS

The Work Package Manager and the TMT Quality Assurance Officer may request deviations or waivers from the requirements. The deviations or waivers may only be authorized by the TMT Project Manager or their designee. The request for QA deviations and waivers will be processed in accordance with the TMT Configuration Control Plan (see AD1) and TMT Acceptance Testing Process Description (see AD8).

2.4 CONFLICTING REQUIREMENTS

Where there are conflicts between the requirements of this TMT Project Quality Assurance Plan and TMT design documentation or Work Package specifications, the provisions of the design documentation or specification shall prevail. Conflicts shall be brought to the attention of the TMT Project Quality Assurance Officer, who will as necessary, consult with TMT System Engineering and the TMT Work Package Manager for resolution.

4. QUALITY ASSURANCE PROCESSES

4.1 GENERAL

Quality Assurance processes will be used throughout the TMT Project life cycle to control and maintain the quality of TMT equipment and science systems to assure maximum science return.

4.2 QA SUPPORT OF DESIGN VERIFICATION

At appropriate stages of the design process, the TMT System Engineering Group, will schedule and conduct periodic reviews (see AD3) of subsystem designs and implementation plans. These reviews are intended to ensure that the design output will meet the TMT Project subsystem design and operational requirements. The TMT QA Officer and/or TMT QA Representative will participate in these reviews to help determine if adequate QA planning and verification methods have been included in the subsystem management planning.

4.3 RAW MATERIAL PROCUREMENTS

Suppliers of raw materials will be required

4.7 IN-PROCESS INSPECTION

In-process inspections will be required where subsequent assembly stages will prevent inspection access, and to detect defects early in the process. In-process inspections will be identified in fabrication and assembly planning documents as Mandatory Control Points (MCPs). Further processin

5. ORGANIZATION

5.1 THE TMT PROJECT QUALITY ASSURANCE ORGANIZATION

The TMTPO Quality Assurance organization consists of the TMTPO Quality Assurance Officer, TMT Work Package Managers and TMT Quality Assurance Representatives.

5.2 QUALITY ASSURANCE OFFICER

12. Preparation of a final Inspection Report reflecting the product quality status.
13. Perform audits and inspections to verify conformance to the QA program requirements at the TMT/Observatory site and TMT R&D facilities.
14. Concur with the responsible TMT Work Package Manager when in agreement with discrepant material dispositions; otherwise raise the discrepant item to Material Review Action.
15. Verifying that TMTPO handling, packaging, transportation (shipping) and storage requirements are met.