

Facility Modifications and Preparation Acceptance

Facility Modifications

LIGO-E1300450-v6

20 Nov 2013

1. Vacuum Equipment Modifications at LHO and LLO

Requirements:

[G1000040-IO Tubes Bidders' Conference](#)
[C1002601-SOW LHO Mid/End Vacuum Equipment Installation](#)
[C1105429-Pilot Test Vacuum Component Bakeout and RGA](#)
[T070122-Facilities Modifications and Preparations Conceptual Design](#)

Design:

[D0902635-Annulus Piping Detail](#)
[D0902636-Shipping Cover Air Purification System](#)
[D0902687-External Loads at Mid Station Spool](#)
[D0902724-84.25 inch Flange Flat Faced](#)
[D0902727-Tie Rod Assembly 1 inch](#)
[D0902728-Tie Rod Assembly 1 ¼ inch](#)
[D0902729-Sample 60 inch Vacuum Test Cover](#)
[D1000188-44 5/8 inch Groove and Slotted Flange](#)
[C1001339-FDR Drawings ZIP File](#)
[C1001345-GNB FDR Submittal A16 \(Drawing\)](#)
[C1001346-GNB FDR Submittal A17 \(Drawing\)](#)
[C1001347-GNB FDR Submittal A18 \(Drawing\)](#)
[C1001348-GNB FDR Submittal MCA \(Drawing\)](#)
[C1001349-GNB FDR Submittal MCB \(Drawing\)](#)
[C1001350-GNB FDR Submittal Mid Station Spool \(Drawing\)](#)
[C1001351-GNB FDR Submittal Bellows \(Drawing\)](#)
[C1001352-GNB FDR Submittal Misc \(Drawing\)](#)
[C1001599-GNB FDR Submittal Septum Plates \(Drawing\)](#)
[C1101241-Septum Plate H1,L1 PRC \(Drawing\)](#)
[C1101242-Septum Plate H2 PRC \(Drawing\)](#)
[D1000245-IO Tubes Corner Station Layout](#)
[D1003176-aLIGO Installation LHO X \(Right\) Mid Station Vacuum Equipment Layout](#)
[D1003177-aLIGO LHO Y \(Left\) End Station Vacuum Equipment Layout](#)
[D1003178-aLIGO LHO X \(Right\) End Station Vacuum Equipment Layout](#)
[D1003179-aLIGO LHO Corner Station Vacuum Equipment Layout](#)
[D1003180-aLIGO LLO Corner Station Vacuum Equipment Layout](#)

Material and Fabrication Specifications:

[E0900402-Specification for SS Plate](#)
[E0900403-Specification for Vacuum Component Cleaning](#)
[E0900404-Specification for Vacuum Component Leak Checking](#)

[E0900405-Specification for SS Flange Floorings](#)
[E0900406-Specification for SS Rolling and Machining](#)
[E0900407-Specification for Vacuum Component Bake-Out](#)
[E0900408-Specification for Welding Inspection](#)
[E0900409-Specification for Blacklight Inspection](#)
[E0900410-Vacuum Component List](#)
[E0900411-Specification for Vacuum Equipment Design and Fabrication](#)
[E0900428-Specification for Welding Repairs](#)
[E0900429-Specification for Raw Material Handling](#)
[E0900430-Specification for Cleanliness Testing](#)
[E0900431-Specification for O-Ring Installation](#)
[E0900439-Specification for SS Bellows](#)
[E1000046-Specification for Viton O-Ring Procurement](#)
[E1000713-Specification for Piping Design and Material](#)
[E1000715-Specification for Pipe Cleaning](#)
[E1000717-Specification for Piping Thermal Insulation](#)
[E1000718-Specification for Vacuum/Clean Air Piping](#)
[E1000719-Contamination Control for aLIGO Vacuum Equipment Installation](#)

Inventory Information: NA

Assembly Procedures: NA

Installation Procedures:

[E1000707-Specification for WA Mid/End VE Installation](#)
[E1000708-aLIGO WA Corner Station Installation Specification](#)
[E1000711-aLIGO LA Corner Station VE Installation Specification](#)
[E1000712-Anchor Bolt Installation](#)
[E1000716-Component Alignment Procedure](#)

Test rationale-plan-data:

[Q1300009-aLIGO Spool Component Inspection Reports from GNB Corp.](#)

User interface software: NA

Operation-Maintenance Manual: NA

Troubleshooting Guide: NA

Safety Documentation:

[C1001600-GNB FDR Submittal Topsfield Analysis](#)

Other:

[Associated Event GNB FDR](#)
[Procurement Event ID # FM-107](#)

2. Facility Modifications

Generic Requirements:

[T080110-Facilities Requirements Matrix](#)

[T070122-Facilities Modifications and Preparations Conceptual Design](#)

[C080058-aLIGO Observatory Facility Modification Scope](#)

[L080058-Review Committee Report on FMP](#)

2.1. LIGO Hanford Observatory (LHO aka H)

2.1.1. Ear Bonding/Fiber Pulling Lab Build-out

Design:

[T080006-Laboratory Layout During Ear Bonding at LASTI](#)

[T0900474-COC/Monolithic FMP Design Requirements](#)

[D0902698-LHO Bonding Lab Change Room](#)

[G0900949-LHO Fiber Pulling Lab Layout](#)

Material and Fabrication Specifications:

See Generic Requirements information above

Inventory Information: NA

Assembly Procedures: NA

Installation Procedures: NA

Test rationale-plan-data: NA

User interface software: NA

Operation-Maintenance Manual: NA

Troubleshooting Guide: NA

Safety Documentation: NA

2.1.2. H1 Mezzanine and HVAC Build-Out

Design:

[M1000060-Building Addition/Modifications for Electronics Spaces](#)

[D1200028-LIGO H1 Electronics HVAC Plan](#)

[D1200029-LIGO H1 Electronics Plan and Equipment Schedules](#)

[D1200030-LIGO H1 Electronics Room Mezzanine Plan](#)

[D1200031-LIGO H1 Electronics Room Mezzanine Elevations](#)

Material and Fabrication Specifications:

See Generic Requirements and Design information above

Inventory Information: NA

Assembly Procedures: NA

Installation Procedures: NA

Test rationale-plan-data: NA

User interface software: NA

Operation-Maintenance Manual: NA
Troubleshooting Guide: NA
Safety Documentation: NA
2.1.3. H2 Electronics Building
Requirements: M1000060-Building Addition/Modifications for Electronics Spaces C1002031-SOW for H2 Building Concrete Pad C1002822-SOW for FM-150b H2 Electronics Building C1104440-SOW for H2 Electronics Building HVAC
Design: D1003016-H2 Electronics Modular Building Plan D1003017-H2 Electronics Modular Building Electrical Plan D1100814-H2 Electronics Building HVAC Plan
Material and Fabrication Specifications: C1104149-Mod 1 Supplemental Agreement Williams Scotsman 75ADV-S109567 E1300874-Design Documentation for H2 Electronics Building
Inventory Information: NA
Assembly Procedures: NA
Installation Procedures: NA
Test rationale-plan-data: NA
User interface software: NA
Operation-Maintenance Manual: NA
Troubleshooting Guide: NA
Safety Documentation: NA
Other: T1100334-Power Dissipation in the H2 Electronics Room
2.1.4. Staging Building Build-Out
Design: D1300733-LHO Staging Building-aLIGO Facility Modification Plan
Material and Fabrication Specifications: D080563-LHO Staging Building Modifications-Drawing Set
Inventory Information: NA
Assembly Procedures: NA
Installation Procedures: NA
Test rationale-plan-data: NA
User interface software: NA
Operation-Maintenance Manual: E1300435-LHO Staging Facility Operation and Maintenance Manual 2009 E1300466-LHO Staging Building Cerus P-Series Variable Frequency Drive User Manual
Troubleshooting Guide: See Operation-Maintenance Manual above
Safety Documentation: NA

2.1.5. Vacuum Prep Warehouse (VPW) Build-out

Requirements:

See Generic Requirements information above

Design:

[D0810022-LHO Warehouse Modifications Architectural Plan](#)

[D0810023-LHO Warehouse Modifications Reflected Ceiling Plan](#)

[D0810024-LHO Warehouse Modifications Electrical Plan](#)

[D0810025-LHO Warehouse Modifications Mechanical HVAC Plan](#)

[D0810026-LHO Warehouse Modifications Curtain Wall and HVAC Sections](#)

[D0810027-LHO Warehouse Modifications Mechanical Schedules](#)

Material and Fabrication Specifications:

[E1300882-LHO VPW Drawings and Specifications](#)

Inventory Information: NA

Assembly Procedures: NA

Installation Procedures: NA

Test rationale-plan-data: NA

User interface software: NA

Operation-Maintenance Manual: NA

Troubleshooting Guide: NA

Safety Documentation: NA

2.2. LIGO Livingston Observatory (LLO aka L)

2.2.1. Electronics and HVAC Build-Out

Design:

[M1000060-Building Addition/Modifications for Electronics Spaces](#)

Material and Fabrication Specifications: NA

Inventory Information: NA

Assembly Procedures: NA

Installation Procedures: NA

Test rationale-plan-data: NA

User interface software: NA

Operation-Maintenance Manual: NA

Troubleshooting Guide: NA

Safety Documentation: NA

2.2.2. Staging Building Build-Out

Design:

[D1300515-LLO Staging Building a LIGO Layout](#)

Material and Fabrication Specifications: NA

Inventory Information: NA

Assembly Procedures: NA

Installation Procedures: NA

Test rationale-plan-data: NA

User interface software: NA

Operation-Maintenance Manual: NA

Troubleshooting Guide: NA

Safety Documentation: NA

2.2.3. VPW and Annex Build-Out

Design:

[D1300516-LLO VPW Floor Plan Elevation Cross Section-aLIGO](#)

Material and Fabrication Specifications:

[D1300517-LLO VPW Electrical Layout and Specs-aLIGO](#)

[D1300518-LLO VPW HVAC Layout and Specs-aLIGO](#)

[D1300519-LLO VPW Hat Channel-aLIGO](#)

Inventory Information: NA

Assembly Procedures: NA

Installation Procedures: NA

Test rationale-plan-data: NA

User interface software: NA

Operation-Maintenance Manual: NA

Troubleshooting Guide: NA

Safety Documentation: NA