

STS QIKR Motion Preliminary Design Review Welcome & Introduction

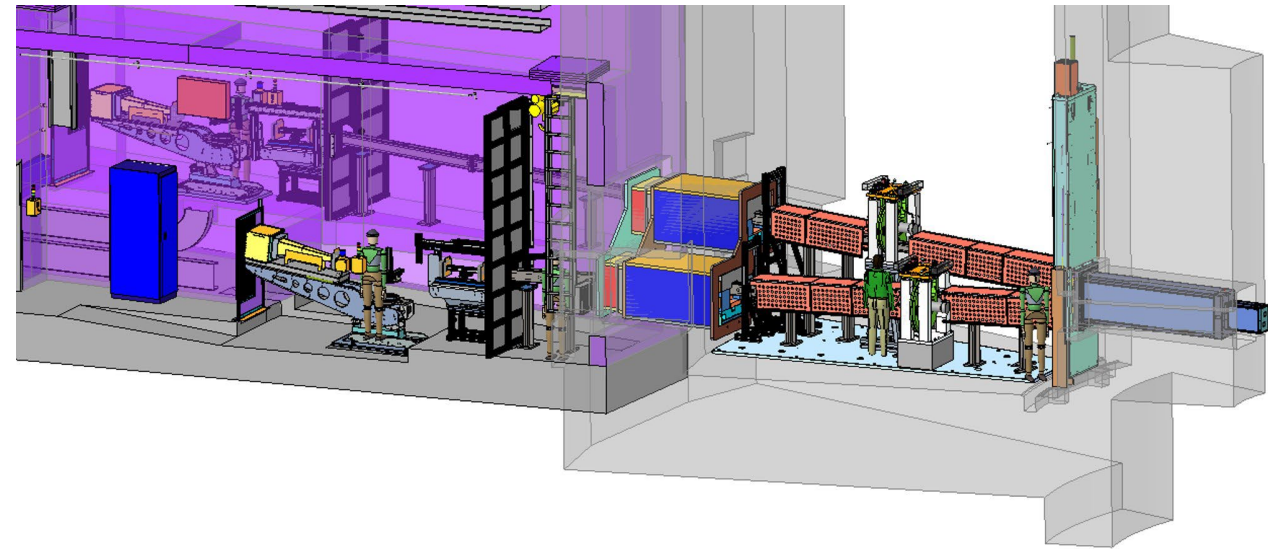
Van Graves
STS Instrument Systems Engineering Manager

November 6, 2024

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Why are we here?

- Preliminary design review of the Quite Intense Kinetics Reflectometer (QIKR) motion systems
- QIKR has two end stations to view liquid-liquid interfaces from two directions
 - Functionally identical with some geometric differences
 - Only the downward sloping end station is currently in project scope
- There are many axes of motion in the QIKR beamlines, and those moving components and subsystems are the subject of this review
- Safety aspects of shutters and maintenance shields not in review scope



STS Instrument Suite

North Hall
(ST10-ST18)

Monolith Region

Proton Beam
→

Target Bay

South Hall
(ST01-ST09)

ST01
EXPANSE

ST02
QIKR

ST03
CUIP2D

ST04
BWAVES

ST05
CHESS

ST06
Future

ST07
VERDI

ST08
PIONEER

ST09
CENTAUR

Presenters	
John Ankner	QIKR Scientist
Danielle Wilson	QIKR Lead Engineer
Rudy Thermer	STS Instruments Motion Engineer
Review Committee	
Andre Parizzi (chair)	SNS Neutron Scattering Division
Lukas Bearden	STS Target Systems Engineering
Tim Charlton	SNS Neutron Scattering Division
Mike Hoffmann	SNS Neutron Technologies Division
James McLaurin	STS Accelerator Systems Engineering
Observers	
Van Graves	STS Instrument Systems Engineering
Leighton Coates	STS Instrument Systems Management
Saurabh Kabra	STS Instrument Systems Science
Matt Pearson	STS Integrated Control Systems Engineering
David Anderson	STS Systems Engineering
Tim Gregory	STS Quality Assurance

Supporting Documents

- Requirements Documents
- Configuration and Quality Level Document
- Interface Documents and Drawings
- Design, Analyses & Calculations (DAC) info is contained within the presentation material
- Failure Models and Effects Analysis
- Many are released, others are still draft

Overview
Agenda
Participant List
Directions to Meeting
Supporting Documents
Presentations

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Supporting Documents

STS FMEA QIKR Motion Components

S04080600-QAI10000-R00 QIKR Motion Configuration and Quality Level

S04080100-SRD10000-R02 QIKR Requirements Document

S04010100-SR0001-R00 Instrument Systems Requirements Document

S04010000-TD010000-R00 Instrument Systems Seismic Design Guidelines

S01020500-IST0118-R00 Interface Sheet for Instrument Motion Systems and ICS Process Controls

107030201-DCD10000-R00 Motion Control System Base Requirements

S04080600-SRD10000 QIKR Motion Systems Requirements

S04010100-C8U-8800-A10000-R05 Interface Control Drawing Instrument Pits

Agenda

STS Instrument Systems QIKR Motion PDR

November 6, 2024
Building 1520, Room 202

Time (EDT)	Event/Activity	Presenting
Wednesday, November 6, 2024		
8:00am – 8:15am	Welcome and Introduction	Van Graves
8:15am – 9:15am	Science Overview of QIKR and its Motion Needs	John Ankner
9:15am – 9:30am	Coffee Break, Q&A	
9:30am – 10:30am	Implementation of Motion Needs, Overview	Danielle Wilson
10:30am – 12:00pm	Incident Table Design Details	Rudy Thermer
12:00pm – 1:00pm	Working Lunch – Lessons Learned from the SNS Reflectometer	John Ankner
1:00pm – 2:30pm	Detector and Sample Table Design Details	Rudy Thermer
2:30pm – 4:00pm	Committee deliberations	
4:00pm – 4:30pm	Committee closeout	
4:30pm	Adjourn	

Review Charges

1. Have system requirements been defined, and are they complete and adequate to ensure acceptable system performance?
2. Can the proposed system designs meet their functional and performance requirements?
3. Are the cost estimates and acquisition strategies reasonable?
4. Are the proposed preliminary designs sufficiently mature to proceed to final design?

Deliverables: close-out presentation with comments and recommendations followed by a written report within 2 weeks.