

Spallation Neutron Source

Acceptance Strategy



Page 1 of ___ WBS Number _____

() opt. AS # within WBS

QA Level ___ (opt) Rev. ___

Title BPM/phase system

Description _____

Originator _____ Lab _____

(originator may list his/her part of the total strategy and request others to add to the list, but the final version must be approved)

#	Expectation	Location	Responsibility	Verified by	Date
0	<p>Background information</p> <p>The BPM system consists of four major components:</p> <ul style="list-style-type: none"> a) The beamline devices (electrode assemblies) b) Cabling c) Network attached devices (NAD) consisting of a PC and associated mounting hardware, analog and digital boards, link interface, power connection via RABBITS, auxiliary electronics (i.e. RF reference chassis) and software (device drivers, LabVIEW VIs, dlls, channel access software, BIST software, gate array image, initialization files, etc). d) As-built documentation: schematics, block diagrams, PCB/BOM files, commented source code, gate array code, system configuration and initialization data, ICD, user manual, test procedures and software, troubleshooting guide, installation procedure, Test Reports/ QA records (Traveler), turn-on/set-up procedures, cable data, vendor-provided documentation. <p><i>Notes on responsibility:</i> LANL has responsibility for the overall system design. Responsibility for the components is as follows:</p> <ul style="list-style-type: none"> • MEBT electrodes: LBNL • DTL/CCL electrodes: LANL • SCL electrodes: LANL with additional tests by Jlab • HEBT electrodes: BNL • Cabling: MEBT/DTL/CCL/HEBT cables: LANL. Ring/RTBT cables: BNL. • NADs, including LabVIEW VIs and client access software:: MEBT/DTL/CCL/SCL/HEBT: LANL (includes content from LBNL). Ring/RTBT: BNL. • Cable plant testing and verification: ORNL. • Electronics racks installation and preparation: ORNL. • RABBITS and network cabling: ORNL. • User interface software: ORNL. • Documentation: The partner lab responsible for each component provides as-built documentation for that component. System documentation (user manual, cabling data, etc) is provided by LANL as a first article and then maintained by ORNL on the project website and Oracle database. Cabling data including specification, length, termination, and 				



	routing. ORNL will provide barcode labels for major components.				
1	<p>Final design review(s) complete. Final design documents are available on website along with Diagnostic Advisory Committee report/response. The following acceptance criteria are detailed in these documents:</p> <ul style="list-style-type: none"> - Minimum and target performance requirements - Qualification test procedure: vertical integration tests that demonstrate potential to achieve target performance. - Component acceptance test procedures: tests of individual components that confirm minimum performance. 	TBD	LANL	ORNL	
2	<p>Design Verification Vertical integration tests are performed on the bench at LANL and optionally, in parallel at ORNL. In addition, tests with beam are performed during MEFT commissioning at LBNL. Testing of individual components is also performed at the responsible labs. Additional testing of the SCL electrodes is required at JLab. These tests use pre-production components and must demonstrate that the system design is fundamentally capable of achieving the target performance requirements.</p>	LANL/ ORNL/ BNL/ LBNL/ JLab	LBNL LANL BNL JLab	ORNL	
3	<p>First Article Acceptance Each first article component will be received and tested by the lab that designed it. The responsibilities are summarized in item 0, Design Verification. ORNL staff will participate in the tests at these labs and perform some tests in parallel at the RATS building. The purpose of this parallel activity is to prepare the RATS facilities for production acceptance tests.</p> <p>Electrodes: Electrical performance of each electrode type will be measured. Visual and vacuum integrity of the item is successfully verified based on the final, as built documentation.</p> <p>Cable: Cable assemblies will be tested with the electronics. Layout of the racks will be confirmed by ORNL.</p> <p>NADS: First article NAD (including beta software) will be tested. The test environment includes simulated beam signals, final cable types, event/RTDL inputs, and channel access client software. Testing will be performed under simulated SNS physical environmental conditions, network traffic, event rates, and client loads. Seamless integration with the EPICS control system will be demonstrated. System must run for more than 10 days without intervention.</p> <p>Documentation:</p>	LBNL LANL Jlab BNL ORNL	LBNL LANL BNL	ORNL	

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	As built documentation is released.			
4	<p>Production Unit Acceptance</p> <p>All production units are received and acceptance tested at RATS by ORNL personnel. The only known exception is the SCL electrode assemblies that will be accepted at Jlab. All vendors' warranties are transferred to ORNL. Partner lab personnel will be available for consulting and will maintain test facilities at their site. If required, the responsible partner lab will repair units that fail acceptance tests. Test and repair can take place at RATS or at the partner lab. The handoff will be declared complete when the last article passes acceptance tests at ORNL.</p> <p>Electrodes SCL electrodes accepted at Jlab. All other electrodes accepted at RATS as part of an integrated assembly.</p> <p>Cables: Accepted from vendor at RATS.</p> <p>NADs: Accepted at RATS. 48 hours of successful burn-in where applicable.</p> <p>Documentation: After the first article acceptance, ORNL staff will revise documentation as required. Partner lab staff will consult in this process.</p>	ORNL	ORNL	LBNL LANL JLab BNL

Role	Name (originator may suggest approvers)
SNS Division	Craig Deibele
	Tom Shea
	Norbert Holtkamp
LANL	John Power
	Mike Plum, Diagnostics WPM
	Mark Gardner, QA Representative
	Will Fox, Project Office
	Don Rej, Division Director

Plan Approval Signature	Date
<i>Craig Deibele</i>	11/9/01
<i>Tom Shea</i>	11-9-01
<i>Norbert Holtkamp</i>	11-9-01
<i>M.A. Plum for JP</i>	9/20/01
<i>M.A. Plum</i>	4/12/01
<i>W.F.</i>	11/06/01
<i>Will F. Fox</i>	11/06/01
<i>D. Rej</i>	11/6/01

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Systems		
Integration		
SNS ES&H		
SNS QA		

Items/System Accepted at SNS
Installation Manager or designee

Printed Name

Signature

Date: