

# ARGONNE NATIONAL LABORATORY

## HIGH ENERGY PHYSICS DIVISION

# AWA

## ARGONNE WAKEFIELD ACCELERATOR

### QUALITY ASSURANCE PLAN

### PARTICIPATION BY THE ACCELERATOR R&D GROUP

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## ***QA PLAN PARTICIPATION BY THE ACCELERATOR R&D GROUP***

### Introduction

The HEPD Accelerator R&D Group's research program is focused on the physics and technology of high energy/high current electron accelerators and related areas. This research is carried out in experimental, theoretical, and experimental areas. The major emphasis of the Group's experimental program is the Argonne Wakefield Accelerator (AWA) an experimental high current photoinjector-based electron linac. This QA plan covers research at the AWA as well as all other projects, which may be undertaken by the Group.

The following types of activity are covered:

1. Develop advanced concepts for accelerating and diagnosing particle beams.
2. Develop concepts for experimental apparatus and other devices.
3. Apply physics, engineering, and computational expertise to evaluate technical concepts.
4. Generate hardware designs and specifications.
5. Control and monitor the purchase, fabrication, and acceptance of hardware.
6. Apply appropriate corrective action in the case of nonconforming hardware.
7. Document adequately to provide a clear record of the group's work.
8. Assure that records of drawings, specifications, and design criteria are properly maintained.
9. Obtain external evaluation of the group's work through the process of peer review.

As noted below, some of these activities will typically involve other HEPD organizations.

The following ten-quality assurance criteria parallel those described in the HEPD QA Plan which is attached to this document. The Division QA Plan is assumed to be followed; the points below expand upon the Division plan to the particular circumstances of the Accelerator R&D program.

***Criterion 1--Program***

The Accelerator Group is relatively small, consisting of four pH staff members and one permanently assigned scientific associate. The Group may also host Ph.D. students and visiting scientists (at present there is one of each).

Specific QA responsibilities in the Accelerator Group are designated by the Accelerator Group Leader, who has overall responsibility for quality, cost effectiveness, and safety aspects of the program. The Group Leader's place in the HEP Division organization is shown on the chart in the attached HEPD QA plan.

***Criterion 2--Personnel Qualifications and Training***

In addition to the general ANL training requirements, additional AWA-specific training may be required for specific facility tasks and responsibilities. These areas currently include Rf/Operator certification, Laser Operator certification and AWA vault access training.

***Criterion 3--Quality Improvement***

Follows the HEPD QAP.

***Criterion 4--Documents and Records***

The primary record of experimental and day-to-day ESH activities at the AWA is the facility logbook kept in the control room. Experimental results are communicated via refereed publications, conference proceedings, Wakefield/Accelerator Group notes, and the World Wide Web through the Group's official web site as designated by the Group Leader.

***Criterion 5--Work Processes***

Follows the HEPD QAP.

***Criterion 6--Design***

Follows the HEPD QAP.

***Criterion 7--Procurement***

Follows the HEPD QAP.

***Criterion 8--Inspection and Testing***

Follows the HEPD QAP.

***Criterion 9--Management Assessment***

Follows the HEPD QAP.

***Criterion 10--Independent Assessment***

Follows the HEPD QAP.