

ARGONNE NATIONAL LABORATORY

HIGH ENERGY PHYSICS DIVISION

AWA

ARGONNE WAKEFIELD ACCELERATOR

AWA OPERATION ASSESSMENT PROCESS

Version 2

Approved:

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Date: 3/19/09

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Date: 3/19/09

AWA OPERATION Assessment Process

Version 2

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Introduction

This document describes the procedure by which new experiments at the AWA are determined to be safe to perform. Also covered by this document are modifications to AWA accelerators or beamline configuration. The AWA SAD included an analysis of the main wakefield experiments (dielectric structures and plasmas) to be performed at the facility. Unlike most other accelerators at ANL, the AWA accelerator is itself an experimental device. The SAD was written to reflect the philosophy that all experiments were covered under the SAD and can be found in the AWA Safety and Operating Procedure Manual located in the AWA control room and in the office of the Division Safety Administrator. This document simply clarifies and formalizes procedures already in existence. All the experiments covered by this document fall within the AWA Safety Envelope as described in the SAD.

Classification of Experiments/Facility Modifications

(Hereafter, experiments/facility modifications will be referred to simply as experiments.)

- 1 No special approval is necessary for experiments that are clearly within the scope of experiments described in the SAD.
- 2 For experiments which are within the intent of the SAD but are not explicitly described, the Division Safety Officer (DSO) should provide documented advice and interpretation, such as with a Unreviewed Safety Issue (USI).
- 3 Experiments which are not clearly within the intent of the SAD should be referred to the review committee, with the approval authority being the Division Director (DD) or an individual to whom the DD has

formally delegated that authority (typically the facility manager).

The group leader will perform determination of the classification of an experiment after consultation with other scientific and engineering staff members of the project. The vast majority of experiments will fall under category (1) and will require no special approval by the Division Safety Committee. Documentation of the experiment should be made in the operating logbook. Any experiment, which does not clearly conform to the safety envelope, should be treated as would a modification to the facility, and will be subject to a formal Unreviewed Safety Issue (USI) determination.

Approval of New Experiments in Category 2

Before the experiment is run, the group leader or his designate will send a brief memorandum to the Divisional Safety Officer describing the new experiment and its potential hazards. The Divisional Safety Officer (and at the DSO's discretion, members of the Division Safety Committee) will review the memorandum and inspect the new experiment. The DSO will then identify any deficiencies to be corrected and then send a memo of approval to the group leader and the Division Director once the deficiencies have been corrected. In addition, this information should be entered into the AWA facility logbook by the AWA Group Leader.

During the initial operation of the new experiment involving potential radiation levels outside the AWA vault, Health Physics will be notified in advance to send a technician to monitor levels in occupied areas. The results of this survey will be entered into the AWA logbook. It is not anticipated that any new experiment will produce unusual levels in occupied areas. If this P. Schoessow AWA Experiment Review Page 3

should occur, administrative controls on machine rep rate, beam intensity, or area occupancy will be instituted to maintain acceptable maximum dose levels.

Category (3) involves major changes to the facility requiring a formal review and may require modifications to the Safety Envelope. The review committee will be convened by the DSO and will consist of at least some personnel from outside the HEP Division. The AWA Group Leader will send a memorandum to the DSO, copying the Division Director, describing the changes in the facility and provide whatever other materials are required by the committee. The committee will send its findings to the HEP Division Director. The Division Director will approve operation of the experiment once any deficiencies are corrected by sending a memo to the AWA Group Leader with copies to the ALD and Division Safety Officer.

The attached flow chart illustrates the process that occurs for each experiment classified by the AWA Group Leader.