

U.S. Department of Energy
Washington, D.C.

ORDER

DOE 5480.25

11-3-92

SUBJECT: SAFETY OF ACCELERATOR FACILITIES

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1. PURPOSE. To establish safety program requirements specific to accelerator facilities that:
 - a. Provide a level of safety comparable to that required of nuclear facilities by Orders DOE 5480.5 and DOE 5480.20 and Successor Orders, rules, and regulations of the Department; and
 - b. Supplement or amplify requirements of Order DOE 5480.1B and other Department of Energy (DOE) safety and health Orders as necessary to further assure that accelerator facilities give full consideration to the potential safety and health impacts in their design, operation, modification and maintenance and are in compliance with those Orders and applicable Federal and state statutes.
 2. SCOPE. Except for the exclusions in paragraph 4 following, the provisions of this Order apply to all Departmental Elements involved, either directly or through a covered contractor, with the operation of an accelerator.
 3. APPLICATION TO CONTRACTS. Except for the exclusions in paragraph 4 following, the provisions of this Order are to be applied to covered contractors to the extent implemented under a contract or other agreement. A covered contractor is a seller of supplies or services involving the operation of an accelerator at a DOE-owned or -leased facility and awarded a procurement contract or subcontract which contains, or should contain, one of two clauses as follows: Safety and Health (Government-owned or -leased) [DEAR 970.5204-2], or Radiation Protection and Nuclear Criticality [DEAR 952.223-72]. All paragraphs of this Order are to be applied to covered contractors except 7 [the RESPONSIBILITIES AND AUTHORITIES paragraph].
 4. EXCLUSIONS.
 - a. Unmodified commercially available units such as electron microscopes, ion implant devices, and x-ray generators which are acceptable for industrial applications;
 - b. Accelerator facilities not capable of creating a radiological area; and
 - c. Naval Nuclear Propulsion Program accelerators which are separately covered under Executive Order 12344 (42 U.S.C. 7158. Note).

DISTRIBUTION:
All Departmental Elements

INITIATED BY:
Office of Energy Research

11-3-92

5. REFERENCES.

- a. DOE 4700.1, PROJECT MANAGEMENT SYSTEM, of 3-6-87, which sets forth the principles and requirements governing the development, approval, and execution of DOE's outlay program acquisitions.
- b. DOE 5480.1B, ENVIRONMENT, SAFETY, AND HEALTH PROGRAM FOR DEPARTMENT OF ENERGY OPERATIONS, of 9-23-86, which sets forth the responsibilities and requirements for an environment, safety and health program for all DOE activities.
- c. DOE 5480.5, SAFETY OF NUCLEAR FACILITIES, of 9-23-86, which establishes the Department's non-reactor nuclear facility safety program.
- d. DOE 5480.11, RADIATION PROTECTION FOR OCCUPATIONAL WORKERS, of 12-21-88, and DOE RADIOLOGICAL CONTROL MANUAL, DOE/EH-0256T, which establish DOE's radiation protection program requirements.
- e. DOE 5480.15, DEPARTMENT OF ENERGY LABORATORY ACCREDITATION PROGRAM FOR PERSONNEL DOSIMETRY, of 12-14-87, which defines requirements for participation in the DOE Laboratory Accreditation Program.
- f. DOE 5480.20, PERSONNEL SELECTION QUALIFICATION, TRAINING AND STAFFING REQUIREMENTS AT DOE REACTORS AND NON-REACTOR NUCLEAR FACILITIES, of 2-20-91, which establishes qualification and training requirements for key personnel at reactor and non-reactor nuclear facilities in the Department of Energy.
- g. DOE 5481.1B, SAFETY ANALYSIS AND REVIEW SYSTEM, of 9-23-86, which establishes uniform requirements for the preparation and review of safety analyses.
- h. DOE 6430.1A, GENERAL DESIGN CRITERIA, of 4-6-89, which provides criteria for the design of all DOE facilities.

6. DEFINITIONS.

- a. Accelerator is a device employing electrostatic or electromagnetic fields to impart kinetic energy to molecular, atomic or sub-atomic particles and, for purposes of this Order, capable of creating a radiological area.
- b. Accelerator Facility is the accelerator and associated plant and equipment utilizing, or supporting the production of, accelerated particle beams to which access is controlled to protect the safety and health of persons. It includes experimental enclosures and experimental apparatus utilizing the accelerator, regardless of where that apparatus may have been designed, fabricated, or constructed.
- c. Accelerator Readiness Review is a structured method for verifying that hardware, personnel, and procedures associated with Commissioning or Routine Operation are ready to permit the activity to be undertaken safely.

11-3-92

- d. Accelerator Safety Envelope is a set of physical and administrative conditions that define the bounding conditions for safe operation at an accelerator facility.
- e. Approve means to confirm that a proposed contractor activity has acceptable safety and health implications.
- f. Authorize means to give a right to undertake an activity; as applied to contractor activities, this action is reserved for the DOE Contracting Officer.
- g. Commissioning is the process of testing an accelerator facility, or portion thereof, to establish the performance characteristics. It starts with the first introduction of a particle beam into the system.
- h. Experimenters means all persons directly involved in experimental efforts at the accelerator facility, including visiting scientists, students and others who may not be employees of the operating contractor.
- i. Hazard means a source of danger (i.e., material, energy source, or operation) with the potential to cause illness, injury, or death to personnel or damage to a facility or to the environment (without regard for the likelihood of a harmful event occurring or of consequence mitigation). As established in DOE 5481.1B (September 23, 1986), hazards are classified by types and magnitudes as Routinely Accepted, Low, Moderate, and High.
- j. Maintenance personnel means not only those in the specialized crafts generally associated with maintenance activities, but also accelerator operations personnel and experimenters to the extent that they undertake to repair, maintain, or improve safety related equipment.
- k. Program Secretarial Officer (PSO) is a senior outlay program official and includes: the Assistant Secretaries for Conservation and Renewable Energy; Defense Programs; Environmental Restoration and Waste Management; Fossil Energy; and Nuclear Energy; and the Directors of Civilian Radioactive Waste Management; and Energy Research.
- l. Radiological Area means any area requiring posting as a radiation area or an airborne radioactivity area as these terms are defined by the Radiological Control Manual implementing the radiological control requirements of DOE 5480.11.
- m. Risk is a quantitative or qualitative expression of possible harm which considers both the probability that a hazard will cause harm and the amount of harm.

11-3-92

- n. Routine Operation of an accelerator commences at that point where DOE authorization has been granted either (1) because the Commissioning effort is sufficiently complete to provide confidence that the risks are both understood and acceptable and the operation has appropriate safety bounds, or (2) to permit the re-introduction of a particle beam after being directed to cease operation by DOE because of an environmental, safety, or health concern.
- o. Safety Analysis is a documented process to systematically identify the hazards of a given operation; describe and analyze the adequacy of measures taken to eliminate, control, or mitigate the hazards and risks of normal operation; and identify and analyze potential accidents and their associated risks.
- p. Safety Assessment Document is the document containing the results of a safety analysis for an accelerator facility pertinent to understanding the risks of the proposed undertaking
- q. An Unreviewed Safety Issue exists if a proposed change, modification or experiment will:
 - (1) Significantly increase the probability of occurrence (through reduction in the margin of safety or otherwise) or the consequences of an accident or malfunction of equipment important to safety from that evaluated previously by safety analysis; or
 - (2) Introduce an accident or malfunction of a different type than any evaluated previously by safety analysis which could result in significant safety consequences.

7. RESPONSIBILITIES AND AUTHORITIES.

- a. Program Secretarial Officers (PSOs) shall:
 - (1) Provide written guidance, including oversight, to line management for implementing the requirements of this Order;
 - (2) Designate the hazard class for the accelerator facility;
 - (3) Accept for DOE the risks of operating high-and moderate-hazard accelerator facilities by approving the start of activities upon making the findings specified on page 10, paragraph 11a or b;
 - (4) Approve resumption of an activity at an accelerator facility after a PSO-ordered shutdown because of a safety concern, or after a DOE Field Office-ordered shutdown of a high-hazard class facility;
 - (5) Establish, as called for on page 8, paragraph 9e, an independent panel to review the provisions being made for personnel safety and health in the design of the accelerator facility;

11-3-92

- (6) Approve, as deviations to be made by contracting officers to applicable contracts, exemptions from specific provisions of this Order in individual cases when justified by analysis after coordination with the Office of the Assistant Secretary for Environment, Safety and Health for approval of any occupational safety and health variance request that is associated with an exemption requested under this Order, and after coordination with the Office of Nuclear Safety for any request involving relief from a nuclear safety requirement that is associated with an exemption requested under this Order; and
- (7) Inform the Assistant Secretary for Environment, Safety and Health and the Director of Nuclear Safety of PSO approvals given for accelerator facility activities and of exemptions issued.

b. Managers of DOE Field Offices shall:

- (1) Monitor contractor operation of accelerator facilities, including contractor training efforts, in accordance with the requirements of this Order, and promptly bring deficiencies found to the attention of the contractor and the responsible PSO.
- (2) Advise the responsible PSO on the adequacy of safety documents requiring Headquarters action, based on reviews by Field Office staff of such scope and depth as may be requested by the PSO.
- (3) Accept for DOE the risks of operating low-hazard accelerator facilities by approving the start of activities upon making the findings specified on page 10, paragraph IIa or b.
- (4) Approve resumption of an activity shut down by the DOE Field Office because of a safety concern (except at high-hazard accelerator facilities, where PSO approval is required) when satisfied that all necessary corrective measures have been taken.
- (5) Authorize the contractor, when satisfied that the conditions specified on page 11, paragraph II f and/or g, have been met, to commence activities involving Commissioning, Routine Operation, and resumption of an activity ordered stopped by DOE because of a safety concern.
- (6) Approve Accelerator Safety Envelopes for facilities having only routinely accepted hazards to ensure their operation continues to involve hazards only of that type.
- (7) Identify to contractors, after consultation with the cognizant PSO, specific types of safety-related documentation to be submitted for DOE's information as it is generated because of a requirement in this Order.

11-3-92

- (8) Identify to contractors the appropriate points of contact within the field office for the submission of all safety documentation required to be provided to DOE by this Order.
 - (9) Review and accept for DOE, after consultation with the PSO, the implementation plan required on page 15, paragraph 14.
 - (10) Ensure, for each procurement requiring the application of this Order, that the contracting officer receives a procurement request that: identifies the Order; identifies the specific requirements with which a contractor or other awardee is to comply, or, if this is not practicable, identifies specific paragraphs or other portions of this Order with which a contractor or other awardee is to comply, or, if this is not practicable, identifies specific paragraphs or other portions of this Order with which a contractor or other awardee is to comply; and gives requirements for the flowdown of provisions of this Order to any' subcontract or subaward. For application to awarded management and operating contracts, this information may be set forth in a written communication to the contracting officer rather than in a procurement request package within 90 days of the date of this Order.
- c. Assistant Secretary for Environment, Safety and Health, acting as the independent element responsible for nonnuclear and occupational safety and health oversight of the line organizations for the Department, shall monitor and audit all aspects of the implementation of this Order related to nonnuclear and occupational safety and health, including line and field organization and contractor performance for these areas.
 - d. The Director, Office of Nuclear Safety, acting as the independent element responsible for nuclear safety oversight of line organizations for the Department, shall monitor and audit all aspects of the implementation of this Order related to nuclear safety, including DOE line and field organization and contractor performance.
 - e. Authorities assigned in paragraphs 7a and b above can be delegated to persons under the direct control of the responsible official provided this is done in writing and specifies the extent of redelegation permitted.
8. GENERAL REQUIREMENTS.
- a. This Order does not supersede other safety and health Orders that are contractually imposed on a contractor's nonnuclear activities.
 - b. Each accelerator facility shall be assigned a hazard class using the guidance on classes and their categorization provided in DOE 5481.1B.

11-3-92

- c. Accelerator facilities shall be Commissioned and Routinely Operated only after authorization by DOE based on a determination by DOE that the risk is acceptable.
- d. Each facility shall be required to confine its activities within a prescribed Accelerator Safety Envelope; contractors shall be required to immediately stop any activity violating the Accelerator Safety Envelope and inform DOE.
- e. Activities shall not be performed that involve an Unreviewed Safety Issue.
- f. Only trained and qualified individuals shall be assigned to perform tasks which could affect safety and health conditions at the facility.
- g. The specific requirements of this Order shall be implemented through a graded approach that recognizes that the measures put in place are to be commensurate with the magnitudes of the hazards being protected against.
- h. Proposed exemptions from any requirement of this Order shall be justified in the Safety Assessment Document.

9. ACCELERATOR FACILITY DESIGN AND OPERATION REQUIREMENTS.

- a. Each accelerator facility shall have a reasoned combination of active, passive, and administrative measures appropriately designed and used to:
 - (1) Maintain personnel exposure to prompt ionizing radiation well below radiological standards and as low as reasonably achievable; and
 - (2) Permit bypassing in whole or in part only by means that are stringently controlled.
- b. The operator of each accelerator facility shall be required to document and implement a plan for control of access to the facility during Commissioning, during operations, and while non-operational.
- c. To provide for the protection of personnel, the contractor shall be required at each accelerator facility to:
 - (1) Use physical barriers and/or radiation detectors, interlocked with the particle beam or other protective features as feasible, to prevent exposure of personnel in excess of the most current DOE standards for ionizing and non-ionizing radiation and other injurious environments.
 - (2) Escort all persons entering the facility unless they have received those portions of the general safety orientation (see page 12, paragraph 12a(1)) and facility-specific training (see page 13, paragraphs 12b-d) necessary to ensure they can safely accomplish their missions.

11-3-92

- (3) Have a written statement of it., shielding policy for ionizing and non-ionizing radiation.
 - (4) Have a documented personnel dosimetry program, as required by DOE 5480.11, which follows the practices specified in DOE's Radiological Control Manual, and which specifically addresses those radiations and energies encountered in facility operation that are not covered by DOE 5480.15.
 - (5) Characterize, post, periodically monitor, and document the hazardous environments in and around the facility.
 - (6) Determine and document the adequacy of the shielding and other components of the personnel protection system prior to initial use, and after significant modifications. This requirement shall include the capability of the system to handle the effects of errant particle beams and physical interceptions of the beam.
- d. The contractor shall be required to submit to DOE a hazard class determination evaluation Of the accelerator facility, or any module thereof, that is suitable for DOE's deliberations leading to a designation of the hazard class of the proposed operation. This evaluation is to be submitted as early as feasible in the design phase.
 - e. An independent review of the provisions for personnel safety and health shall be conducted by a DOE-appointed ad hoc panel of technical experts during the design phase of each new accelerator facility of moderate- or high-hazard class, and during the design of significant modifications to all existing accelerator facilities. Such reviews do not relieve the contractor of its responsibilities on page 14, paragraph 13a(5).
 - f. Accelerators shall be required to be operated in accordance with written procedures that cover activities that could adversely affect the safety and health of persons or the safe operation of equipment. The procedures shall be kept current. and shall be approved by the most senior line manager in the contractor's organization who has knowledge of the day-to-day operation of the accelerator. The procedures shall be critically reviewed prior to approval, and at intervals not to exceed 3 years thereafter to reaffirm their continued validity.
 - g. Routine Operation of accelerators shall be executed only by trained and qualified operators, or by trainees under the direct supervision of a qualified operator.
 - h. During Commissioning of an accelerator and during development programs employing an accelerator, the particle beam shall be controlled only by trained and qualified operators or duly designated accelerator specialists and physicists.

11-3-92

- i. Experimenters at accelerator facilities shall be required to adhere to written and approved safety procedures appropriate to address the environmental, safety and health concerns identified by a safety analysis. These safety procedures shall be approved by designated senior managers in the accelerator operating organization and the research organization, and shall be reviewed annually to reaffirm their continued validity.
- j. Accelerator development programs that have a potential to exceed the approved Accelerator Safety Envelope shall be permitted only after a review conducted and documented by the contractor has found the proposed safety and health precautions to be taken during the development activities are adequate, and an exemption from specific requirements of this Order has been issued by the responsible PSO as provided on page 5, paragraph 7a(6).

10. SAFETY ANALYSIS REQUIREMENTS.

- a. The contractor shall be required to fulfill the DOE 5481.1B requirement for documented safety analysis by preparing Safety Assessment Documents for accelerator facilities. The entire facility can be addressed in one document, or in several covering discrete modules. Those documents shall contain sufficient descriptive information and analytical results pertaining to specific hazards and risks identified during the safety analysis process to provide an understanding of risks presented by the proposed operation, with attention to egress, cryogenic, and electrical issues.
- b. Where the risks of operating an accelerator facility are adequately addressed in the documented safety analysis of another operation because of its integrated contribution to that operation, a separate Safety Assessment Document shall not be required.
- c. The contractor shall be required to submit the Safety Assessment Document to the cognizant DOE Field Office Manager to support its request for DOE authorization to initiate Commissioning.
- d. The contractor shall be required to derive Accelerator Safety Envelope(s), based on the safety analysis, within which the contractor proposes to constrain the operational, developmental, and experimental activities.
- e. The contractor shall be instructed to submit the Safety Assessment Document and Accelerator Safety Envelope(s) to DOE only after the contractor has considered the comments generated by its internal safety review system.
- f. Safety standards for experimental apparatus, and criteria for performing a safety review prior to the apparatus being interfaced with the accelerator, shall be required to be established by the contractor.

11-3-92

- g. The contractor shall be required to establish a system for reviewing individual proposed experiments to ensure that the hazards of each experiment have been adequately analyzed in a Safety Assessment Document, and that the experiment includes adequate controls to ensure that the applicable Accelerator Safety Envelope will not be violated during the performance of the experiment.
- h. A safety analysis shall be made if a planned modification at an accelerator facility introduces a previously unevaluated safety or health condition that meets the conditions for an Unreviewed Safety Issue.
- i. Any safety analysis performed subsequent to the issuance of the Safety Assessment Document shall be made an addendum to that document until it can be integrated into the next revision.
- j. The contractor shall be required, for any accelerator facility or modification thereto qualifying as a Major System Acquisition or Major Project in accordance with DOE 4700.1, to also prepare a Preliminary Safety Assessment Document to support deliberations leading to approval by the Acquisition Executive (at key decision #3) to initiate construction.

11. RISK ACCEPTANCE PROCESS REQUIREMENTS.

- a. Approval to initiate Commissioning efforts shall be based on:
 - (1) A finding that the risks as analyzed in the Safety Assessment Document are acceptable when conducted within a specified Accelerator Safety Envelope; and
 - (2) A finding that the contractor has performed an Accelerator Readiness Review of appropriate scope and depth.
- b. Approval to commence Routine Operation shall be based on:
 - (1) A finding that the risks for the operation are acceptable;
 - (2) A finding that the Accelerator Safety Envelope will appropriately bound Routine Operation; and
 - (3) A finding that an appropriate Accelerator Readiness Review was conducted.
- c. The basis upon which each decision was made to approve Commissioning or Routine Operation shall be documented by the approving organization.

11-3-92

- d. The contractor shall be required to conduct Accelerator Readiness Reviews, and submit the reports thereof to the cognizant Field Office Manager, in support of requests for approval to:
 - (1) Initiate Commissioning efforts;
 - (2) Commence Routine Operation; and
 - (3) Resume an activity ordered stopped by DOE because of a safety concern.
- e. Where Commissioning is to be accomplished in discrete modules, the Accelerator Readiness Review shall also be performed incrementally. Each commissioning module shall require separate DOE authorization, per the requirements of paragraph 11f below, before it is initiated unless a commissioning program plan has been submitted to the DOE Field Office Manager, and is found to be acceptable and approved. The commissioning program plan shall:
 - (1) Describe the content of each module;
 - (2) Identify any additional administrative and technical controls and contingency plans to be used;
 - (3) Describe the substance of that portion of the Accelerator Readiness Review that is needed for each module; and
 - (4) Provide the schedule for each module.
- f. Authorization to initiate Commissioning shall be based on:
 - (1) Prior PS0 designation of the hazard class of the operation;
 - (2) Receipt of approval to Commission in accordance with pages 4 and 5, paragraph 7a(3) and 7b(3);
 - (3) A commissioning program plan (if applicable) which specifies any additional administrative and technical controls and the contingency plans to be used;
 - (4) The existence of contractor-approved testing procedures; and
 - (5) The resolution of issues from an Accelerator Readiness Review.
- g. Authorization to undertake Routine Operation shall be based on:
 - (1) Receipt of approval in accordance with page 4, paragraph 7;
 - (2) The existence of contractor approved operating procedures; and

11-3-92

- (3) The resolution of issues from an Accelerator Readiness Review that included reviewing the Commissioning program results.
- h. When the hazard classification of a proposed operation has been designated "routinely accepted". DOE authorization of that operation shall not be required.
- i. Minimum action levels for risk acceptance and approval of operation shall be based on the hazard class assigned: these levels are summarized in the Attachment to this Order.

12. PERSONNEL TRAINING AND QUALIFICATION REQUIREMENTS.

- a. General. Training and subsequent evaluation of proficiency are required for each individual at an accelerator facility whose activities could affect safety and health conditions, or whose safety and health could be affected by facility activities, To these ends:
 - (1) A general safety orientation shall be provided for all personnel assigned to or using the facility (including emergency response personnel), to provide a level of understanding, consistent with their involvement, of the hazards present, the safety and health practices, and the emergency plans;
 - (2) Qualification requirements shall be established for operations, maintenance and support personnel, for experimenters, and for such other positions identified in the Safety Assessment Document as requiring specific education, training, and experience to carry out their responsibilities safely;
 - (3) Standards and processes shall be established for granting exceptions to specific areas of the training program based on education and experience. In all cases, requisite examinations to establish qualification shall be administered to each individual for whom an exception is to be granted, and examination results recorded;
 - (4) Requirements and processes for measuring proficiency shall be established that provide the minimum levels of demonstrated proficiency for qualification to perform duties safely without direct supervision, and that describe how acquired proficiency will be maintained;
 - (5) Qualification shall be granted by a designated contractor management official only after verification that requirements have been met. Qualification shall be valid for a specified time established by the contractor for each position, by which time the person must be requalified in accordance with requalification requirements established by the contractor in order to continue to perform in that position;

11-3-92

- (6) An auditable record, including training received, examination results, and qualifications acknowledged, shall be maintained for each individual to demonstrate achievement of the training objectives; and
- (7) The overall training program shall be approved by a designated contractor senior management official and evaluated periodically for its continued relevance.

b. Accelerator Operations Personnel

- (1) Required elements in the training program for operations personnel shall include task-specific training and facility-specific safety training.
- (2) Training shall emphasize understanding of the basic physics underlying key operations, and the development of diagnostic skills for early recognition of abnormal equipment performance.
- (3) Distinction shall be made between knowledge and skills required for supervisors and for operators.

c. Maintenance and Support Personnel

- (1) The scope of the training program for these personnel shall include safety-related accelerator structures, systems and components identified in the Safety Assessment Document, and experimental components and systems that are important to worker safety and health or protection of the environment.
- (2) The content of the training shall be determined by the tasks the individual is to perform, and the degree of supervision provided.

d. Experimenters

- (1) As a minimum, the training program for experimenters shall address the safety aspects of the facility and relevant safety and health requirements and practices.
- (2) Experimenters must demonstrate appropriate knowledge of the hazards of the experimental systems with which they are involved, the design features and controls which minimize the risks from those hazards, and the associated Accelerator Safety Envelope, before being permitted to engage independently in experimental work at the facility.

11-3-92

13. CONTRACTOR INTERNAL SAFETY REVIEW SYSTEM REQUIREMENTS.

- a. The contractor shall be required to establish and maintain an internal safety review system for accelerator facilities, based on one or more standing and/or ad hoc committees, that:
 - (1) Is clearly defined and delineated in writing (e.g., purposes, objectives, functions, authority, responsibility, composition, quorum, and documentation and reporting of results in sufficient detail to permit the performance of the system to be audited);
 - (2) Functions primarily in an advisory capacity to a designated manager having authority to direct that action be taken on the advice received;
 - (3) Employs an approach commensurate with the magnitude of the potential safety impacts of the system being addressed;
 - (4) Provides technical competence in the areas being reviewed, and provides for interaction between reviewers on all but the more routine matters;
 - (5) Provides for objective review of:
 - (a) The safety and environmental aspects of the design of the accelerator facility prior to the start of construction;
 - (b) Safety Assessment Documents during their development;
 - (c) Proposed modifications to the accelerator facility, its operation, or its equipment which have potential safety implications, and safety analyses thereof;
 - (d) Accelerator facility procedures related to safe and environmentally sound operation;
 - (e) Proposed Accelerator safety Envelopes for the accelerator facility;
 - (f) Identified causes of any violation of Accelerator Safety Envelopes;
 - (g) Corrective actions proposed in response to a shutdown directed by DOE because of safety concerns; and
 - (h) The content of safety training programs;
 - (6) Provides independent evaluations of whether proposed activities involve an Unreviewed Safety Issue, are outside the Accelerator Safety Envelope, or otherwise require DOE authorization; and

11-3-92

- (7) Provides an audit at least biennially of the safety of the operation of each accelerator facility, including the physical condition of the facility, recordkeeping, facility compliance with the requirements of this Order, and the performance of the safety training programs.
- b. Actions taken on any recommendations resulting from reviews or audits under this system shall be recorded.
- c. The performance of the internal safety review system shall be formally reviewed by management at least every 5 years.

14. IMPLEMENTATION REQUIREMENTS.

- a. For each accelerator facility existing when this Order is issued, the contractor shall be required to submit an implementation plan for meeting the requirements of this Order to the cognizant Field Office Manager within 6 months after receipt of guidance from the responsible Program Secretarial Officer (PSO) on complying with this Order. This plan shall:
 - (1) Provide a concise description of the approach, resources, and time period proposed for implementing each major element;
 - (2) Assign responsibilities for implementing the provisions of the plan; and
 - (3) Serve as a primary mechanism for obtaining agreement with DOE on how an approach is intended to be applied.
- b. The implementation plan shall specifically address:
 - (1) The adequacy of current documented safety analyses of systems that pose significant potential hazards at the accelerator facility, called for on page 9, paragraph 10a, and the schedule for completing any additional evaluations required;
 - (2) A schedule that achieves full implementation of the personnel training requirements on page 12, paragraph 12, within 18 months of the receipt of guidance from the PSO; and
 - (3) The adequacy of existing evaluations of the facility against current DOE requirements in DOE 6430.1A regarding wind, flood, and earthquake design criteria, and an expeditious schedule for completing any further evaluations needed.

11-3-92

- (4) Those measures in place, or proposed, which the contractor believes provide, or have demonstrated, an equivalent level of safety to that imposed by a specific requirement of this Order.

BY ORDER OF THE SECRETARY OF ENERGY:



DOLORES L. ROZZI
Director of Administration
and Management

ATTACHMENT

KEY MINIMUM ACTION LEVELS

<u>Action</u>	<u>Hazard Class</u> ^{1/}			
	<u>Routinely Accepted</u>	<u>Low</u>	<u>Moderate</u>	<u>High</u>
Designate Hazard Classification	PSO	PSO	PSO	PSO
Approve Implementation Plan	FO	FO	FO	FO
Approve Accelerator Safety Envelope	FO	FO	PSO	PSO
Conduct Readiness Review for:				
Start of Commissioning	Contractor	Contractor	Contractor	Contractor
Routine Operation	Contractor	Contractor	Contractor	Contractor
Approve Commissioning ^{2/}	Not Required	FO	PSO	PSO
Approve Routine Operation ^{2/}	Not Required	FO	PSO	PSO
Approve Resumption of Activity ^{3/}				
Shutdown by: Contractor	Contractor	Contractor	Contractor	Contractor
FO	FO	FO	FO	PSO
PSO	PSO	PSO	PSO	PSO
Authorize Start of Activities	Not Required	FO	FO	FO

1/ Routinely Accepted - the activity only has ordinary or customary hazards of types and magnitudes routinely encountered and accepted by the general public (e.g., cafeteria operations, office space, cars for personal transportation, and machine shops which do not handle hazardous materials).

Low - other than routinely accepted hazards, the activity has only hazards with the potential for no more than minor on-site and negligible off-site impacts to people or the environment.

Moderate - the activity has hazards which have the potential for presenting considerable onsite impacts to people or the environment, but at most only minor offsite impacts.

High - the activity has hazards with the potential for onsite or offsite impacts to large numbers of people or for major impacts to the environment.

2/ Based on: accepting risk levels, approving Accelerator Safety Envelope, and verifying acceptability of Readiness Review conducted.

3/ Subsequent to activity being ordered stopped because of a safety concern.