

CHAPTER 5

HOSTILE ENVIRONMENTS

This chapter describes provisions for hoisting and rigging operations in hostile work environments.

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5.1 GENERAL

- a. This chapter contains the special provisions for hoisting and rigging operations and equipment in hostile environments where standard operating, maintenance, inspection, or test procedures cannot be followed as a result of radiation or radioactive contamination, toxic/hazardous chemicals or gases, or temperature extremes.
- b. Hoisting and rigging activities can usually be accomplished where the environment will allow normal operations with access for hands-on equipment contact. In those situations, operations, maintenance, inspections, and tests shall be done in accordance with regular provisions of this standard.
- c. Hoisting and rigging equipment or operations shall be reviewed by a designated person to determine compliance with the requirements of this standard. If it is determined to be impossible or unreasonable for the requirements of this standard to be met as a result of hostile environmental conditions, a hostile environment plan shall be prepared to document alternative compliance methods and procedures.
- d. All hoisting and rigging operations shall be consistent with DOE's policy of as-low-as-reasonably achievable (ALARA) radiation exposure.
- e. Safety of personnel shall remain the first priority.

5.2 HOSTILE ENVIRONMENT PLAN

- a. A hostile environment plan shall be prepared by a designated person and shall cover operations, equipment, inspection, testing, and maintenance. See Exhibit I, Hostile Environment Plan, at the end of this chapter.
- b. At a minimum, the plan shall be reviewed and approved by responsible management at the facility where the crane, hoist, or other equipment is located and by responsible management of an overview organization such as safety or quality assurance. While the site-specific organizational structure will determine other required reviews and approvals, approval by the following is recommended:
 - 1. Responsible operations manager.
 - 2. Equipment custodian.
 - 3. Cognizant engineer.
- c. The plan shall address only those actions or features that require deviation from the requirements of this standard due to a hostile environment. At a minimum, it shall contain the following information:
 - 1. The specific requirements that cannot be met.
 - 2. The difference between the requirement and actual conditions.
 - 3. Justification for not meeting this standard's requirements.
 - 4. A statement of actions or features to be used to compensate for the differences.
 - 5. Specific maintenance, inspections, and tests to be performed whenever access is possible.
 - 6. Replacement or retirement criteria for equipment that is designed to operate with little or no maintenance.
- d. Detailed operation, inspection, testing, and maintenance procedures that state specific requirements and acceptance criteria shall be prepared, based on the hostile environment plan.
- e. The responsible manager shall ensure that the approved hostile environment plan is distributed as follows:
 - 1. DOE Field Office or equivalent (for information).
 - 2. Equipment operators, maintenance organizations, and other organizations/personnel affected by the plan.
 - 3. Equipment history file.
- f. Hostile environment plans in the equipment history file shall be readily available to appointed personnel.

5.2.1 MARKING AND POSTING

Equipment the use of which is required by a hostile environment plan shall be posted with the following information: "Special Maintenance and Operating Instructions Required – see Hostile Environment Plan."

5.2.2 INSPECTION AND TESTING

- a. Handling fixtures and rigging accessories shall be qualified in accordance with Chapters 11, 12, and 14 ("Wire Rope and Slings," "Rigging Accessories," and "Below-the-Hook Lifting Devices," respectively) of this standard prior to being exposed to the hostile environment.
- b. Nylon (rope or webbing) slings should not be used in a radiation area unless absolutely necessary. When it is necessary to use a nylon or polyester sling in a radiation area, the responsible manager shall ensure that radiation exposure does not exceed 100,000 rad during the life of the sling.

EXHIBIT I

HOSTILE ENVIRONMENT PLAN

Building: _____ Location: _____

Type crane/hoist: _____
(e.g., overhead top-running bridge and trolley, top-running bridge with underhung hoist, jib crane, monorail hoist, overhead hoist)

Capacity: _____ (Auxiliary): _____

Power method: _____

Manufacturer: _____

1.a H&R standard requirement that will not be met
Section number: _____
(copy the applicable section)

1.b Difference between standard requirement and what is to be allowed by this plan:

1.c Justification for not meeting the standard requirement: _____

1.d Actions or features to compensate for differences: _____

Include information regarding replacement or retirement criteria for this equipment. Include information regarding any special design, maintenance, or test considerations that apply to this equipment.

APPROVAL (Signature/date)

*Facility Manager: _____ Date: _____

*Manager, Oversight Organization: _____ Date: _____

Other: _____ Date: _____

_____ Date: _____

_____ Date: _____

*means approval is mandatory

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