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## 1.0 INTRODUCTION

### 1.1 PURPOSE

This Manual describes the operation, inspection, maintenance, and repair requirements for cranes, hoists, fork trucks, slings, rigging hardware, and hoisting equipment at the U.S. Department of Energy's (DOE) Hanford Site. Occasionally lifting is performed with equipment other than cranes, hoists, and fork trucks; when using any equipment for material handling, follow the equipment manufacturer's instructions.

**EXAMPLE:** Excavation equipment, such as a backhoe, may have a hook installed on the bucket. It is acceptable to use such equipment for hoisting and rigging if the manufacturer provides instructions for such use. The manufacturer's instructions should include load capacity information.

See footnote 1 for examples of equipment not within the scope of this Manual.<sup>1</sup> When using rigging devices/hardware in conjunction with the equipment not covered by this Manual for the purpose of raising, lowering, or otherwise lifting material, the rigging devices/hardware and their use shall comply with the applicable sections of this Manual.

### 1.2 SCOPE

This Manual supports the objectives of the DOE, Richland Operations Office (RL) and Office of River Protection (ORP), by controlling hoisting and rigging (H&R) activities in a safe and cost-effective manner.

It is the responsibility of the user of this Manual to implement all of the requirements from listed sources. When two standards set forth inconsistent requirements, the user shall adhere to the standard containing the most stringent requirements. The American Society of Mechanical Engineers (ASME) standards provide the most comprehensive information.

This Manual is intended to be a user's guide to requirements, codes, laws, regulations, standards, and practices that apply to DOE contractors at the Hanford Site. This manual, or any part of this manual, is applicable to subcontractors that handle/lift government owned, furnished, or fabricated items for the Hanford Site as invoked by contract documents.

Hoisting and rigging work is required by law and DOE to be in compliance with the *Occupational Safety and Health Act of 1970* (OSHA) (29 Code of Federal Regulations [CFR] 1910 or 29 CFR 1926 Subpart CC) and ASME B30 Standards. Work involving critical and special/engineered lifts shall follow this Manual. As a minimum, acceptability of equipment and rigging shall be verified by the RL/ORP contractor and critical lift procedures shall be reviewed and approved by the responsible RL/ORP contractor.

**NOTE:** Refer to 29 CFR 1926, Subpart R, for special hoisting and rigging requirements relating to steel erection.

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<sup>1</sup>For example, the following types of equipment are not within the scope of this manual: elevators, dumbwaiters, escalators, moving walks, conveyor systems, drill and pump setting rigs, tree trimming and tree removal work, manipulators, specially insulated hoists for handling high-voltage lines, door- and hatch-opening equipment, vehicle-mounted elevating and rotating aerial devices, elevating work platforms, aerial lifts, and earth-moving and excavation equipment. Although not within the scope of this Manual, this equipment shall be maintained in a safe condition (reference OSHA General Duty Clause). Consult applicable equipment manufacturer information, OSHA, and/or ASME standards to ensure safe condition and use of the equipment.

The following ASME B30 standards shall be implemented as applicable. The underlined standards are addressed in chapters of this manual.

- ASME B30.1-2015      Jacks, Industrial Rollers, Air Casters, and Hydraulic Gantries
- ASME B30.2-2011      Overhead and Gantry Cranes (Top Running Bridge, Single or Multiple Girder, Top Running Trolley Hoist)
- ASME B30.3-2012      Tower Cranes
- ASME B30.4-2015      Portal and Pedestal Cranes
- ASME B30.5-2014      Mobile and Locomotive Cranes
- ASME B30.6-2015      Derricks
- ASME B30.7-2011      Winches
- ASME B30.8-2015      Floating Cranes and Floating Derricks
- ASME B30.9-2014      Slings
- ASME B30.10-2014     Hooks
- ASME B30.11-2010     Monorails and Underhung Cranes
- ASME B30.12-2011     Handling Loads Suspended from Rotorcraft
- ASME B30.13-2011     Storage/Retrieval (S/R) Machines and Associated Equipment
- ASME B30.14-2010     Side Boom Tractors
- ASME B30.16-2012     Overhead Hoists (Underhung)
- ASME B30.17-2006(R2012) Overhead and Gantry Cranes (Top Running Bridge, Single Girder, Underhung Hoist)
- ASME B30.18-2011     Stacker Cranes (Top or Under Running Bridge, Multiple Girder with Top or Under Running Trolley Hoist)
- ASME B30.19-2011     Cableways
- ASME B30.20-2013     Below-the-Hook Lifting Devices
- ASME B30.21-2014     Lever Hoists
- ASME B30.22-2010     Articulating Boom Cranes
- ASME B30.23-2011     Personnel Lifting Systems
- ASME B30.24-2013     Container Cranes
- ASME B30.25-2013     Scrap and Material Handlers
- ASME B30.26-2015     Rigging Hardware
- ASME B30.27-2014     Material Placement Systems
- ASME B30.28-2015     Balanced Lifting Units
- ASME B30.29-2012     Self-Erecting Tower Cranes

The following ASME standards are specifically addressed in chapters of this manual, and shall be implemented as applicable:

ASME BTH-1-2014, Design of Below-the-Hook Lifting Devices

ASME Portable Automotive Safety Equipment 2014 (PASE)

Other equipment not specifically addressed in this manual, may be within the scope of this manual (see Chapter 19, *OSHA 29 CFR 1926, Subpart CC*).

Forklifts, when equipped with a hoist or a hook and a rotating upper structure, fall within the requirements of a mobile crane.

Rigging equipment addressed in this manual shall comply with the applicable ASME and OSHA requirements. When equipment is used in a manner other than intended by the manufacturer, written authorization/approval shall be obtained from the manufacturer. The equipment shall be labeled for its intended use and the statement “Not to be used for lifting service” shall be attached to the device. The equipment shall be maintained and inspected per the manufacturer’s instructions. Rigging equipment used for other purposes than its original design shall not be returned to lifting service.

### **1.3 BACKGROUND**

This Manual is a rewrite of the original *Hanford Hoisting and Rigging Manual* (WHC-CM-6-4), issued in August 1988 for RL contractors. Similar to that original manual, this Manual was prepared with input from the Hanford H&R Committee with representatives from various RL contractors and trade unions, with overview by RL. Unlike the original *Hanford Hoisting and Rigging Manual*, this Manual is issued by the RL.

Any lack of clarity, errors, omissions, or discrepancies should be submitted either to RL or a member of the Hanford H&R Committee.<sup>2</sup>

### **1.4 MANUAL ORGANIZATION**

This is a “user’s manual.” It designates areas of responsibility regarding H&R activities, specifies qualification and training requirements, and stipulates operation, maintenance, and repair requirements for H&R equipment and components. Topics have been grouped to make the Manual user friendly and to minimize “jumping around” within the manual. While selected design considerations are included in this Manual, primarily as information to operators and inspectors, this Manual is a user’s manual, not a design manual.

### **1.5 MANDATORY AND ADVISORY RULES**

Mandatory rules are characterized by use of the word *shall*. If a provision is of an advisory nature, it is indicated by use of the word *should* and is to be considered; its advisability depends on the facts in each situation.

### **1.6 MANUAL REVISIONS**

Any user may prepare written requests for Manual revision. Revision requests shall be submitted to a member of the Hanford H&R Committee or to the RL H&R Program Manager.

### **1.7 VARIANCES, EXEMPTIONS, WAIVERS, AND INTERPRETATIONS**

#### **1.7.1 Variances, Exemptions, and Waivers**

Variances and exemptions are frequently referred to as “waivers,” however, it is appropriate to recognize that a waiver is really a variance or an exemption. The difference between a variance and an exemption and their approval processes are as follows:

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<sup>2</sup>Comments, questions, or revision requests may be sent via e-mail to: Hanford\_Hoisting\_and\_Rigging@rl.gov.

- a. A variance is an administrative decision that allows an employer to meet a requirement in a different manner than stated in the requirement or standard. To do this, the employer must show that the level of worker protection is “at least as effective” as that dictated by the requirement or standard.
- b. An exemption is an administrative decision that frees an employer from complying with a requirement. In other words, if an exemption from a requirement is granted, that requirement would not apply to the specific operation or facility in question.
- c. Usually, variance or exemption decisions concerning site-specific requirements can be made at the Hanford contractor or RL level. Requests concerning mandatory standards (such as OSHA, ANSI, ASME standards) will be elevated to DOE Headquarters for a decision.
- d. Requests for variances or exemptions shall be submitted to the responsible RL Contracting Officer in accordance with the contractor’s internal procedures. The contractor shall also send a copy of the request to the RL H&R Program Manager, for information purposes. Upon receipt of the request from the contractor, the RL Contracting Officer shall evaluate the request and, in coordination with the RL H&R Program Manager, determine if it can be decided at the local level or if it must be elevated to DOE Headquarters.
- e. Following approval or disapproval, the RL Contracting Officer shall respond to the contractor in writing. Costs incurred while awaiting administrative action typically will not be considered.

### 1.7.2 Interpretations

An “interpretation” asks the meaning of a requirement, or whether a proposed method fulfills a given requirement. See Chapter 17, *Interpretations*, for a description of the process used to request interpretations and to review previous interpretations.

If a request for interpretation is determined to actually be a request for a variance or exemption, process the request as outlined in paragraph 1.7.1(d).