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**NOTE:** *This combined chapter shows all requirements for both Chapters 2-20 and 3-3, although section numbers reflect only the compound numbering for Chapter 2-20.*

## 2-20 BELOW-THE-HOOK LIFTING DEVICES

### 2-20.1 Scope

This Hanford Site Hoisting and Rigging Manual (HSHRM) chapter provides requirements that apply to the marking, construction, installation, inspection, testing, maintenance, and operation of Below-the-Hook (BTH) Lifting Devices for attaching loads to various hoists. The proper and safe use of BTH Lifting Devices is governed by the American Society of Mechanical Engineers (ASME) standards and the Occupational Safety and Health Administration (OSHA) regulations. This section implements required criteria from the following applicable national standards and/or mandatory federal specifications:

- ASME B30.20, *Below-the-Hook Lifting Devices*
- ASME BTH-1, *Design of Below-the-Hook Lifting Devices*
- ANSI N14.6, *Radioactive Materials – Special Lifting Devices for Shipping Containers Weighing 10,000 Pounds (4500 kg) or More*
- OSHA 29 CFR 1926.251, *Rigging Equipment for Material Handling*

### 2-20.2 Accessing Requirements

- a. To access ASME standards, choose one of the following options:
  - [IHS Engineering Standards, Regulations and Technical Specifications](#). The contractor must have paid for access to the specific standard.
  - Purchase standards directly from [ASME](#).
- b. To access OSHA standards, go to:
  - [OSHA 29 CFR 1926.251, Rigging Equipment for Material Handling](#)

### 2-20.3 Implementation

Contractors shall comply with OSHA, ASME, this HSHRM, and manufacturers' requirements. Users of this HSHRM are responsible to implement all applicable requirements. If standards conflict, the user shall adhere to the standard containing the most stringent requirements. In most cases, ASME standards provide the most comprehensive information.

Users should contact a Hanford Hoisting Rigging Committee (HHRC) representative or send an [email](#) requesting a formal interpretation. See Chapter 1-10, *Interpretations*, for the process to be followed. Notify the HHRC if any inconsistent standards are identified.

This HSHRM does not intend to require retrofitting of existing equipment. However, when any hoisting or rigging equipment is modified, its performance requirements shall be reviewed relative to the requirements within the current HSHRM. The need to meet the current requirements shall be evaluated by a qualified person selected by the owner (user).

In accordance with design requirements, the responsible engineer may invoke ANSI N14.6, *Radioactive Materials – Special Lifting Devices for Shipping Containers Weighing 10,000 Pounds (4500 kg) or More*, to a below the-hook device. ANSI N14.6 invokes criteria similar to, but not identical to ASME B30.20, *Below-the-Hook Lifting Devices*, and ASME BTH-1, *Design of Below-the-Hook Lifting Devices*.

#### 2-20.4 Inconsistent Standards

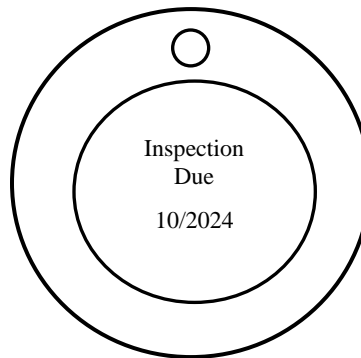
No inconsistencies between standards currently identified.

#### 2-20.5 Hanford Specific Requirements and Practices

BTH lifting devices used at Hanford shall be tagged by any one of the following methods to indicate next periodic inspection due date.

- a. Institute a comprehensive marking program (such as color coding) to indicate when the next inspection is required.
- b. Mark each BTH lifting device with a tag that indicates when the next periodic inspection is required. (See Figure 1 for an example.)

**Figure 1: Example Of A Periodic Inspection Tag**



##### 2-20.5.1 Load Testing

ASME B30.20, *Below-the-Hook Lifting Devices*, states load testing *should* be performed for BTH lifting devices. All new, repaired or altered BTH lifting devices used at Hanford *shall* be load and operational tested to the provisions of ASME B30.20. The testing shall be documented as defined in ASME B30.20 and the BTH lifting device tagged with the test date (for manufacturer load tested BTH lifting devices use in-service date).

**2-20.5.2 Load-Test Weight**

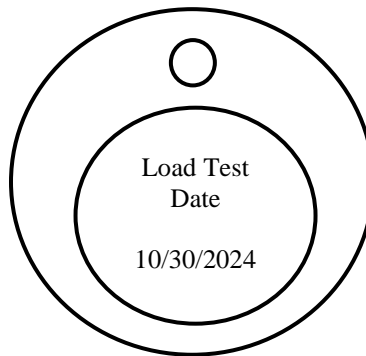
The load-test weight or testing device shall be traceable to a recognized standard or verified by engineering calculations. The load test shall never be less than minimum requirements defined in the applicable ASME B30 standard. Any one of the following options will meet this requirement:

- Use a calibrated Load-Indicating Device (LID) ( $\pm 2\%$  of the maximum rated load) during the load test
- Determine the test load with a calibrated LID before the test
- Calculate the test load based on known unit weights and dimensions of the test fixture. Dimensions and calculations shall be checked (signed and dated) by a qualified engineer

**2-20.5.3 Load Test Tag**

After the test is completed, the proof test (load-test) report shall be signed and dated by the person in charge of conducting the load test. The person in charge shall ensure that the test is placed in the BTH lifting device maintenance file. A tag indicating date of the load test may be affixed to the BTH lifting device for filed verification. (See Figure 2 for an example.)

**Figure 2: Example Of A Load Test Tag**



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