

 U.S. DEPARTMENT of ENERGY Office of Enterprise Assessments		Number: EA CRAD 32-17 Revision: 0 Effective Date: October 21, 2025
Cranes and Hoisting and Rigging Operations Criteria and Review Approach Document		
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1.0 PURPOSE

The mission of the U.S. Department of Energy (DOE) Office of Environment, Safety and Health Assessments (EA-30) is to assess the effectiveness of safety and emergency management systems and practices used by line and contractor organizations and to provide clear, concise, rigorous, and independent evaluation reports of performance in protecting workers, the public, and the environment from the hazards associated with DOE activities.

In addition to the general independent oversight requirements and responsibilities specified in DOE Order 227.1A, *Independent Oversight Program*, this criteria and review approach document (CRAD), in part, fulfills the responsibility assigned to EA in DOE O 226.1B, *Implementation of Department of Energy Oversight Policy*, and DOE O 440.1B, *Worker Protection Program for DOE (Including the National Nuclear Security Administration) Federal Employees*, to ensure federal line managers and contractors implement the requirements of 10 CFR 851, *Worker Safety and Health Program*, DOE O 450.2, *Integrated Safety Management*, and DOE Policy (P) 450.4-1C, *Integrated Safety Management Policy*.

The CRADs are available to DOE line and contractor assessment personnel to aid them in developing effective DOE oversight, contractor self-assessment, and corrective action processes. The current revisions of EA’s CRADs are available at <https://www.energy.gov/ea/criteria-and-review-approach-documents>.

2.0 APPLICABILITY

The following CRAD is approved for use by the Office of Worker Safety and Health Assessments.

3.0 FEEDBACK

Comments and suggestions for improvements to this CRAD can be directed to the Director, Office of Environment, Safety and Health Assessments.

4.0 CRITERIA AND REVIEW APPROACH

The review of crane and hoisting and rigging operations assesses the effectiveness of programs and processes for implementation of a comprehensive hoisting and rigging program. The *Integrated Safety Management Policy* (ISMP), DOE P 450.4A, establishes the Department's policy for work to be conducted safely and efficiently and in a manner that ensures protection of workers, the public, and the environment. To achieve this, the implementation of integrated safety management (ISM) requirements is established through directives, and for contractor organizations through contract clauses. This includes the process of defining the scope of work, identification of existing and potential workplace hazards and assessment of risk, development and implementation of hazard controls, assurance that work is performed within established hazard controls, and implementation of a formal mechanism and process to gather feedback and implement continual improvement by the site contractor. Additionally, assessments can include an evaluation of the DOE field element's process to assess the adequacy of procedures and implementation of the contractor's hoisting and rigging program. The DOE field office, DOE contractors, and all subcontractors (including construction subcontractors) are required to implement and manage a program that assures crane operations, rigging of loads and hoisting material are conducted by trained and qualified individuals in a manner consistent with the potential hazards. (See DOE O 440.1B, Chg. 4, sections 4.m.(1), (5) and attachment 1, paragraph 1, *Construction Safety*; and 10 CFR 851, *Worker Safety and Health Program*.)

The objectives and lines of inquiry outlined below are supported by the following regulations and orders:

- 10 CFR 851, *Worker Safety and Health Program*
- 29 CFR 1910.147, *The Control of Hazardous Energy (Lockout/Tagout)*
- 29 CFR 1910, subpart D, *Walking-Working Surfaces*
- 29 CFR 1910.179, *Overhead and Gantry Cranes*
- 29 CFR 1910.180, *Crawler Locomotive and Truck Cranes*
- 29 CFR 1910.181, *Derricks*
- 29 CFR 1910.184, *Slings*
- 29 CFR 1926.406, *Specific Purpose Equipment and Installations*
- 29 CFR 1926, subpart CC, *Cranes and Derricks in Construction*
- 48 CFR 970.5223-1, *Integration of Environment, Safety, and Health into Work Planning and Execution*
- DOE O 210.2A, *DOE Corporate Operating Experience Program*
- DOE O 226.1B, *Implementation of Department of Energy Oversight Policy*
- DOE O 450.2, *Integrated Safety Management*
- DOE P 450.4-1C, *Integrated Safety Management Policy*

Note: DOE-STD-1090-2020, *Hoisting and Rigging*, or previous versions that are referenced in contract language becomes a requirement for the contractor. Ensure the correct edition is referenced during an assessment. The standard invokes applicable Occupational Safety and Health Administration (OSHA), American Society of Mechanical Engineers (ASME), American National Standards Institute (ANSI), and national consensus standards, but also defines more stringent provisions necessary to accomplish the complex, diversified, critical, and oftentimes hazardous hoisting and rigging work found within the DOE complex.

The following objectives are designed as stand-alone sections to be used in any combination based on the need of the specific assessment.

OBJECTIVES

HR1: The hoisting and rigging program is technically adequate and implements OSHA requirements, DOE Hoisting and Rigging Manual (DOE-STD-1090), relevant ASME B30 consensus standards and DOE O 450.2, *Integrated Safety Management*, requirements as applicable.

Criteria:

1. The hoisting and rigging program includes applicable hoisting and rigging procedures that clearly describe the processes that are to be followed by employees.

Lines of Inquiry

- Do the documented hoisting and rigging procedures appropriately address required topics such as:
 - Classification of lifts (ordinary lifts, lifts that require special consideration, critical lifts)
 - Planning of ordinary lifts (48 CFR 970.5223-1 and 29 CFR 1926.1432)
 - Planning and documenting critical lifts (DOE-STD-1090-2020, 2.1.3, 2.1.8)
 - Planning and documenting personnel lifts (29 CFR 1926.1431 and ASME B30.23)
 - Appointment of a lift director or person in charge (29 CFR 1926.32(f) and DOE-STD-1090-2020, 2.2.2)
 - Requirements for oversight of critical lifts, which should include a competent person and qualified rigging engineer during performance of lifts (DOE-STD-1090-2020, 2.2.8)
 - Rigging sketches that include, as applicable, identification and rated capacity of slings, lifting bars, rigging accessories, and below-the-hook lifting devices (DOE-STD-1090-2020, 1.3.3.4 and 2.2.3.C)
 - Operating requirements and special operating instructions, including rigging precautions and safety measures to be implemented (29 CFR 1910.184, 29 CFR 1926.251, and ASME B30.9, *Slings*)
 - Copies of proof documents for all rigging components below-the-hook demonstrate that the rigging components have been proof tested (29 CFR 1926.251(f)(2))
 - Procedures are developed that include a pre-lift meeting to ensure that all personnel are aware of the operations, potential hazards and work practices required to do the job safely (29 CFR 1926.1431(m))
 - Working in or within the reach of the crane (the area 360 degrees around the crane equipment, up to the crane equipment's maximum erected/fully extended boom length) the specified clearance of power lines (29 CFR 1926.1407-1411 or ASME B30.5(2018)).

Criteria:

2. Contractor procedures require appropriate training for personnel involved in hoisting and rigging activities.

Lines of Inquiry

- Are competent and qualified personnel/SMEs who develop, manage, and implement hoisting and rigging procedures/documents/program appropriately trained and knowledgeable? (10 CFR 851.25(c))
- Are documented procedures established and implemented to address training, retraining, certifications, and licenses for equipment operators, crew members, signal persons, riggers, and spotters associated with hoisting and rigging?

HR.2: The flow down of the contract hoisting and rigging requirements to all subcontracts at any tier is accomplished to the extent necessary to ensure the contractor's compliance with the requirements. (10 CFR 851, 48 CFR 970.5223-1(h), DOE O 231.1B, Contractor Requirements Document (CRD), DOE O 232.2A, CRD, and DOE O 442.1B, attachment 1, (CRD))

Criteria:

1. Each sub-tier contract contains all the prime contract crane operation and hoisting and rigging requirements and/or clearly describes how each sub-tier contractor will assure that regulatory or prime contract requirements are implemented for all work performed by sub-tier contractors where hoisting and rigging operations are present.

Lines of inquiry:

- Do work contracts for maintenance, construction, and demolition, where hoisting and rigging may be performed, adequately include requirements to implement Integrated Safety Management System (ISMS) descriptions and 10 CFR 851 worker safety and health programs (WSHPs)?
 - Do sub-tier contractors implement the contractor's DOE-approved ISMS description and WSHPs?
 - Do sub-tier contractors develop their own ISMS description and WSHPs for DOE approval?
 - If the contractor subcontracts out hoisting and rigging services, does the work contract specify which contractor's ISMS description and WSHP implementing procedures are to be flowed down to sub-tier contractors to be implemented for work?

HR.3: Feedback and improvement processes are effective in addressing and preventing the recurrence of issues with the hoisting and rigging program. (DOE O 226.1B, and DOE O 450.2)

Criteria:

1. A formal process is established and implemented to gather feedback and implement continuous improvement of the hoisting and rigging program elements, implementation, and controls. (See DOE O 210.2A, attachment 1, CRD, section 1.a; DOE O 226.1B, attachment 1,2.b.(5); DOE O 450.2; 48 CFR 970.5223-1(c)(5); and 10 CFR 851.26(b)(2).)

Lines of Inquiry:

- Do the contractor's programs and procedures include written plans and schedules for planned assessments, focus areas for operational oversight, and reviews of the contractor's self-assessment of processes and systems?
- Does the contractor have a process or system to track and collect trends for input into their feedback system?
- Does the contractor assurance system include credible self-assessments, and feedback and improvement activities?
- How does management communicate the results of these assessments to all affected management and workers?
- What are the procedures for the development of corrective actions?
- How does management ensure the corrective actions are implemented, and effective?
- How does management incorporate lessons learned into future work planning, activities, and training for continuous improvement?
- Does the contractor develop lessons learned that focus on preventing adverse events, trends, and reliability related events, and on performance improvement?

- Does the contractor screen, distribute, and review DOE Corporate Operating Experience Program documents and external operating experience documents for site specific relevance, risks, and vulnerabilities, and take appropriate actions?
- Does the contractor incorporate operating experience into their activities and processes?

REVIEW APPROACH

Record Review:

- Contractor hoisting and rigging WSHP
- Subcontractor hoisting and rigging WSHP
- Completed critical lift plans, procedures, worksheets, and calculations
- Other documented lift plans i.e. "special", "moderate" lifts
- Training records and certification cards for crane operators, signal persons, and riggers
- Documentation of operator evaluations
- Records of frequent and periodic inspections
- A checklist or reference for conducting daily inspections
- Job hazard reviews for hoisting/lifting or equivalent
- Issues management records pertaining to hoisting and rigging
- Lessons learned pertaining to hoisting and rigging

Interviews:

- Maintenance/construction/operations manager
- Maintenance/construction/operations supervisors
- Facility Manager
- Hoisting and Rigging Manager
- Hoisting and rigging SMEs
- Foreman/front line supervisor
- Operators
- Riggers
- Signal persons
- EHS personnel and others who conduct the job hazard analysis
- CAS/issues management manager or supervisors

Observations:

- Pre-job and pre-lift briefings
- Rigging operations
- Hoisting operations
- Ordinary lifts
- Other documented lifts
- Critical lifts
- Crane assembly and disassembly
- Inspections/maintenance of cranes, hoisting and rigging devices
- Post job briefings
- Job hazard analysis and/or reviews of JHAs

ATTACHMENT A
Construction

References: 29 CFR 1926, sub part CC, <i>Cranes and Derricks in Construction</i>				
Additional Resources: ASME B30.2, <i>Overhead and Gantry Cranes</i> (1926.1438) AMSE B30.3, <i>Tower Cranes</i> (1926.1435) ASME B30.5, <i>Mobile and Locomotive Cranes</i> (1926.1402-1434) ASME B30.6, <i>Derricks</i> (1926.1436) ASME B30.8, <i>Floating Cranes and Floating Derricks</i> (1926.1437) ASME B30.9, <i>Slings</i> ASME B30.10, <i>Hooks</i> ASME B30.14, <i>Side boom Tractors</i> (1926.1440) ASME B30.20, <i>Below the Hook Lifting Devices</i> OSHA Instruction CPL 02-01-063, <i>Compliance Directive for Cranes and Derricks in Construction Standard</i> , February 11, 2022				
Applicability: Title 10 CFR 851.23, <i>Safety and health standards</i> , states that contractors must comply with safety and health standards that are applicable to the hazards at their covered workplace, including Title 29 CFR, Part 1926, <i>Safety and Health Regulations for Construction</i> . Title 29 CFR 1926, sub part CC, establishes minimum requirements for the use, inspection, testing, and maintenance of cranes and derricks in construction that contractors and government owned government operated (GOGO) sites must meet. This attachment applies to equipment used in construction work that hoist, lower, and horizontally move suspended loads, in accordance with sub part CC.				
Objective 1: Crane and derrick safety procedures are established and implemented to ensure the equipment is properly selected, ground conditions are evaluated for safe equipment set-up and operation, and equipment assembly and disassembly operations are conducted by competent-qualified personnel.				
Criteria: Documented safety procedures shall be established and implemented that addresses the risk associated with equipment preparation, set-up, assembly, and disassembly.				
Lines of Inquiry:				
	YES	NO	N/A	Comments
Ground Conditions and Site Location				
Pre-Planning and Machine Selection				
<ul style="list-style-type: none"> Are load weights, dimensions, lift radii, lift heights, number/frequency of lifts, type of lift, crane mobility, and clearances properly analyzed before crane selection? Is the crane set-up and operating location properly prepared? 				

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<p>Access and Barricading</p> <ul style="list-style-type: none"> • Are satisfactory access roads available for crane mobilization? • Are access roads blocked or controlled to prevent unauthorized entry? • Are barricades erected around the crane set-up and lift area? 				
<p>Set-Up Space and Hazards</p> <ul style="list-style-type: none"> • Is there sufficient room to erect the crane and boom safely? • Is the operating location free from trenches, tanks, shoring, or buried utility lines that could compromise stability? • Are such subsurface hazards identified in site documents (e.g., drawings, utility maps)? <i>(1926.1402(c)(2))</i> 				
<p>Ground Stability and Bearing Capacity</p> <ul style="list-style-type: none"> • Are ground conditions suitable to support crane operations? <i>(1926.1402)</i> • Does the surface provide sufficient stability and bearing capacity for all lifted loads? • Do site conditions meet the manufacturer’s specifications for adequate support and leveling of the equipment? 				
<p>Crane Assembly and Disassembly</p>				
<p>Procedures and Compliance</p> <ul style="list-style-type: none"> • Are manufacturer or contractor assembly/disassembly procedures available and followed? <i>(1926.1403)</i> • If contractor procedures are used, do they comply with manufacturer recommendations and prohibitions? <i>(1926.1403)</i> 				
<p>Personnel Qualifications</p> <ul style="list-style-type: none"> • Is crane assembly/disassembly performed by a competent and qualified person? <i>(1926.1404(a)(1))</i> 				

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<ul style="list-style-type: none"> • Are workers trained in their tasks and the hazards of assembly/disassembly (including working out of view of the operator and under the boom, jib, or components)? (1926.1404(d), (e), (f)) 				
<p>Hazard Controls</p> <ul style="list-style-type: none"> • Are hazards associated with assembly/disassembly properly identified and controlled? (1926.1404(h)) • Are equipment components and configurations properly selected for the work? (1926.1404(m)(1); 1926.1434) 				
<p>Outriggers and Stabilizers</p> <ul style="list-style-type: none"> • Are outriggers and/or stabilizers fully extended or deployed in accordance with the load chart and visible to the operator or signal person? (1926.1404(q)(1)) • Are floats properly attached to outriggers or stabilizers? (1926.1404(q)(3)) • Is blocking sufficient to: <ul style="list-style-type: none"> ○ Sustain loads, ○ Maintain stability, ○ Protect equipment structural integrity, and ○ Prevent dangerous movement or collapse? (1926.1404(q)(5)) 				
<p>Power Line Safety</p>				
<p>Work Zone Definition</p> <ul style="list-style-type: none"> • Is the work zone defined before operations begin? (1926.1408(a)(1)) • Are boundaries (e.g., flags, barricades, markings) in place to prevent equipment operation beyond those boundaries? (1926.1408(a)(1)) 				

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<p>Encroachment and Clearances</p> <ul style="list-style-type: none"> • If equipment will be within 20 ft of power lines (up to 350 kV) during assembly, disassembly, or operation: <ul style="list-style-type: none"> ○ Are power lines deenergized and grounded? (1926.1407(a)(1); 1926.1408(a)(2)(i)) ○ If not deenergized, are minimum clearance distances maintained per Table A? (1926.1407(a)(3); 1926.1408(a)(2)(iii)) <p>[Note: Clearance distance increases to 50 ft for lines \geq 1000 kV.]</p>				
<p>Engineering Determination</p> <ul style="list-style-type: none"> • If power lines are closer than minimum clearance distances, has a qualified registered professional engineer or power line owner/operator determined the minimum clearance distance required? (1926.1410(c)(1)) 				
<p>Warning Signage</p> <ul style="list-style-type: none"> • Are electrocution hazard warnings posted: <ul style="list-style-type: none"> ○ Inside the cab and in clear view of the operator? ○ Outside of the equipment? (1926.1407(g)) <p>[Exception: Overhead gantry and tower cranes.]</p>				
<p>Travel Under/Near Power Lines</p> <ul style="list-style-type: none"> • When equipment travels under or near power lines with no load, are precautions implemented? (1926.1411(b)) <ul style="list-style-type: none"> ○ Boom/mast lowered sufficiently ○ Minimum clearance distances per Table T maintained ○ Speed and terrain hazards addressed ○ Dedicated spotter assigned, especially during poor visibility 				

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Objective 2: Crane inspection, testing, and maintenance procedures are established and implemented to ensure their safety and reliability, and to detect potential hazards that could contribute to worker injuries and accidents.				
Criteria: Crane inspection, testing, and maintenance of equipment parts are performed by qualified personnel at intervals recommended by the manufacturer.				
Lines of Inquiry	YES	NO	N/A	Comments
Crane Inspections <ul style="list-style-type: none"> • Are inspection, testing, and maintenance activities performed by qualified personnel? <i>(1926.1412)</i> • Are inspections and maintenance conducted at intervals specified by the manufacturer's recommendations? <i>(1926.1412(f))</i> • Are inspection findings documented, and deficiencies corrected before further use? • Are load, structural, and safety-critical components included in inspection scope? 				
Objective 3: Work is performed in accordance with approved work instructions for all crane work activities and operations.				
Criteria: Management ensures that all work activities are conducted in accordance with approved work instructions and necessary precautions are taken to perform work safely.				
Lines of Inquiry	YES	NO	N/A	Comments
Operating Procedures and Precautions <p>Work Instructions & Procedures</p> <ul style="list-style-type: none"> • Are manufacturer procedures for equipment operations available in the cab for operator use (e.g., load charts, operational speeds, hazard warnings, instructions, operator's manual)? <i>(1926.1417(c))</i> • Is the operator at the controls whenever the load is suspended? <i>(1926.1417(e))</i> <p>[Exceptions: <i>(1926.1417(e)(1))</i>]</p>				

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<p>Out-of-Service Conditions</p> <ul style="list-style-type: none"> When equipment is out of service for servicing or maintenance, is a tag placed in the cab in a conspicuous location indicating that it must not be used? <i>(1926.1417(f)(1))</i> 				
<p>Safety Devices & Aids</p> <ul style="list-style-type: none"> Are required safety devices and operational aids provided and in proper working order? <i>(1926.1415(a), 1926.1415(b))</i> <p>[Exceptions: level indicators (portal cranes, floating cranes/derricks), boom stops (derricks, hydraulic booms), jib stops (derricks). Alternative measures may apply per manufacturer dates.]</p>				
<p>Load Handling & Capacity</p> <ul style="list-style-type: none"> Is the weight of the load verified to ensure the crane operates within rated capacity ($\leq 75\%$ of maximum rated capacity at the longest radius)? <i>(1926.1417(o))</i> When traveling with a load is authorized, is a competent person supervising? <i>(1926.1417(u)(2))</i> Is equipment operated with counterweights or ballast as specified by the manufacturer? <i>(1926.1417(aa))</i> 				
<p>Communication & Signaling</p> <ul style="list-style-type: none"> Is a signal person provided when the operator's view is obstructed? <i>(1926.1419(a))</i> 				
<p>Access & Fall Protection</p> <ul style="list-style-type: none"> Does the equipment have safe access/egress features (platforms, walkways, steps, ladders, handholds, guardrails, etc.)? <i>(1926.1423(b), (c))</i> Are personal fall arrest systems provided: <ul style="list-style-type: none"> For employees ≥ 6 ft above a lower level (non-assembly/disassembly work)? 				

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<ul style="list-style-type: none"> ○ For employees \geq 15 ft above a lower level (assembly/disassembly work)? (1926.1423(d), (e), (f)) 				
<p>Work Area Controls</p> <ul style="list-style-type: none"> • Is the swing radius properly controlled with training, warning lines, or barriers to prevent employee exposure? (1926.1424(a)) • Are employees kept clear of suspended loads except when hooking, unhooking, guiding, or initially attaching the load to a component or structure? (1926.1425(b)) 				
<p>Objective 4: Employee qualifications and certifications provide assurances that the employee is properly trained, understands safety requirements, and is familiar with the specific type of equipment being used or operation being performed.</p>				
<p>Criteria: Supporting documentation and/or training records are provided to demonstrate that employees are appropriately qualified and certified to perform tasks associated with their respective roles.</p>				
Lines of Inquiry	YES	NO	N/A	Comments
<p>Operators</p> <ul style="list-style-type: none"> • Are equipment operators properly qualified, certified, and evaluated? (1926.1427; 1926.1430(c)) <p>[Note: Operators-in-training may operate equipment only if specific requirements are met.]</p>				
<p>Signal Persons</p> <ul style="list-style-type: none"> • Are signal persons properly qualified? (1926.1428) • Are qualifications documented for the signaling methods used (e.g., hand signals, radio/voice signals)? 				
<p>Maintenance, Inspection, and Repair Personnel</p> <ul style="list-style-type: none"> • Are personnel performing maintenance, inspection, or repair only allowed to operate equipment under the supervision of a qualified/certified operator? (1926.1429(a)(2)) 				

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<p>Riggers</p> <ul style="list-style-type: none"> • Is rigging work performed by a qualified rigger? <i>(1926.1404(r)(1); 1926.1425(c)(3))</i> 				
<p>Specialized Training</p> <ul style="list-style-type: none"> • Are employees trained in power line safety? <i>(1926.1430(a))</i> • Are dedicated spotters properly trained for their roles? <i>(1926.1408(g)(2); 1926.1430)</i> • Are competent and qualified persons trained in the areas related to their respective responsibilities? <i>(1926.1430(d))</i> • Are employees authorized to energize or operate equipment trained in equipment tag-out and start-up procedures? <i>(1926.1430(f))</i> 				

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References:

29 CFR 1910, Subpart D, *Walking-Working Surfaces*
 29 CFR 1919.147, *Control of Hazardous Energy*
 29 CFR 1910.179, *Overhead and Gantry Cranes*
 29 CFR 1910.180, *Crawler, Locomotive and Truck Cranes*
 29 CFR 1910.181, *Derricks*
 29 CFR 1910.184, *Slings*

Additional Resources:

ASME B30.2, *Overhead and Gantry Cranes* (1926.1438)
 AMSE B30.3, *Tower Cranes* (1926.1435)
 ASME B30.5, *Mobile and Locomotive Cranes* (1926.1402-1434)
 ASME B30.6, *Derricks* (1926.1436)
 ASME B30.8, *Floating Cranes and Floating Derricks* (1926.1437)
 ASME B30.9, *Slings*
 ASME B30.10, *Hooks*
 ASME B30.14, *Side boom Tractors* (1926.1440)
 ASME B30.20, *Below the Hook Lifting Devices*
 OSHA Instruction CPL 02-01-063, *Compliance Directive for Cranes and Derricks in Construction Standard*, February 11, 2022.

Applicability:

Title 10 CFR 851.23, *Safety and health standards*, states that contractors must comply with safety and health standards that are applicable to the hazards at their covered workplace, including Title 29 CFR, Part 1910, Subpart N, *Materials Handling and Storage*, that contractors and GOGOs must meet. This Attachment applies to equipment used in general industry applications by operations or maintenance personnel to hoist, lower, and horizontally move suspended loads.

Objective 1:

Procedures are developed for inspecting hoisting and rigging equipment and inspections are performed timely and with rigor.

Criteria:

Frequent and periodic inspections are performed timely and with rigor. Inspections are performed by a competent or qualified person, designated by the employer or an appointed or authorized person. Inspection certification records are produced and are readily accessible.

Lines of Inquiry	YES	NO	N/A	Comments
<p>Initial and Daily Inspections</p> <ul style="list-style-type: none"> Prior to initial use, has all new, repaired, or modified hoisting and rigging equipment been inspected by a qualified person for 				

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<p>compliance with applicable standards? <i>(1910.179(j)(1); 1910.180(d)(1); 1910.181(d)(1); 1910.184(d))</i></p> <ul style="list-style-type: none"> • Are slings, fastenings, and attachments inspected each day before use? <i>(1910.184(d))</i> • Are damaged or defective slings immediately removed from service? <i>(1910.184(d))</i> 				
<p>Periodic and Ongoing Inspections</p> <ul style="list-style-type: none"> • Are additional inspections performed on slings during use to ensure continued serviceability? <i>(1910.184(d))</i> • Are alloy steel chains inspected at least once every 12 months and in accordance with requirements? <i>(1910.184(e)(3))</i> • Are frequent inspections of cranes, crawler and locomotive trucks, and derricks conducted daily to monthly, per OSHA requirements? <i>(1910.179(j)(2); 1910.180(d)(3); 1910.181(d)(2))</i> • Are periodic inspections of cranes, crawler and locomotive trucks, and derricks conducted monthly to annually, per OSHA requirements? <i>(1910.179(j)(3); 1910.180(d)(4); 1910.181(d)(3))</i> 				
<p>Inspection Records</p> <ul style="list-style-type: none"> • Are inspection certification records produced for applicable equipment (e.g., hooks, hoist chains, ropes, brakes, idle ropes, alloy steel chains)? <i>(1910.179(m)(1-2); 1910.180(d)(6); 1910.180(g); 1910.181(g); 1910.184(e)(3)(ii))</i> • Do certification records contain at least the following information? <ul style="list-style-type: none"> ○ Date of inspection ○ Signature of the person performing the inspection ○ Serial number or other identifier of the equipment inspected 				
<p>Objective 2: Load rating requirements are established and maintained to ensure that hoisting and rigging equipment is used within safe working limits.</p>				

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Criteria: Does hoisting and rigging equipment have permanently affixed and legible identification markings that indicate the safe working load? (29 CFR 1910.184 (c)(13 & 14))				
Lines of Inquiry	YES	NO	N/A	Comments
<p>Modifications and Re-Rating</p> <ul style="list-style-type: none"> • Are equipment modifications and supporting structure changes thoroughly checked and rerated by a qualified engineer or the manufacturer? (1910.179(b)(3)) • Are load tests and reratings conducted in accordance with OSHA requirements? (1910.180(e)(2)) • Are written reports of test procedures and rerating readily available? (1910.180(e)(2)) 				
<p>Load Markings – Cranes</p> <ul style="list-style-type: none"> • Is the load rating clearly marked on each side of the crane? (1910.179(b)(5)) • If multiple hoists are present, are rated load markings shown on each hoist and/or load block? (1910.179(b)(5)) • Are load-rated markings visible from the ground or floor level? (1910.179(b)(5)) • Do procedures for load ratings of cranes and crane mountings follow OSHA provisions and tables? (1910.180(c)) <ul style="list-style-type: none"> ○ Are conditions such as wind, ground stability, free-suspended loads, tire conditions, and operating speeds considered when determining stability? (1910.180(c)(1)(iv)) • Are load rating charts securely fixed in the crane cab and easily visible to the operator? (1910.180(c)(2)) 				
<p>Load Charts – Derricks</p> <ul style="list-style-type: none"> • For permanently installed derricks, do rating load charts include: (1910.181(c)) 				

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<ul style="list-style-type: none"> ○ Manufacturer-approved load ratings at corresponding boom angles or radii ○ Specific lengths of components used in determining ratings ○ Required parts for hoist reeving ● Are manufacturer capacity charts available at the derrick or jobsite office? <i>(1910.181(c)(2))</i> 				
<p>Slings and Attachments</p> <ul style="list-style-type: none"> ● Do slings have permanently affixed, legible identification markings with rated load information? <i>(1910.184(c)(13-14); 1910.184(f)(1); 1910.184(g)(1); 1910.184(i)(1))</i> ● Are working-load limits of chains and slings adjusted to account for operating temperatures and hazardous conditions, per manufacturer recommendations? <i>(1910.184(e)(6); 1910.184(g)(7); 1910.184(h)(2); 1910.184(i)(7))</i> 				
<p>Objective 3: Maintenance and precautions are established to ensure that cranes and derricks are serviced safely and in compliance with regulatory requirements.</p>				
<p>Criteria: Management ensures that all required preventative maintenance activities are conducted in accordance with approved work instructions and necessary precautions are taken to perform work safely.</p>				
Lines of Inquiry	YES	NO	N/A	Comments
<p>Control of Hazardous Energy</p> <ul style="list-style-type: none"> ● Are control of hazardous energy procedures followed during maintenance for cranes and derricks? <i>(1910.147)</i> 				
<p>Preventative Maintenance</p> <ul style="list-style-type: none"> ● Are preventative maintenance programs for cranes and derricks based on manufacturer recommendations? <i>(1910.179(l)(1); 1910.181(f)(1))</i> 				

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<p>Maintenance Procedures – Cranes (1910.179(l)(2))</p> <ul style="list-style-type: none"> • During crane repairs, are the following precautions observed? <ul style="list-style-type: none"> ○ Crane is moved to a location where it causes the least interference with other operations. ○ All controllers are placed in the “off” position. ○ Main or emergency switch is opened and locked in the open position. ○ Warning or “out of order” signs are posted on the crane, and on the floor beneath or on the hook where visible from the floor. ○ Where other cranes operate on the same runway, rail stops or other suitable means are provided to prevent interference with the idle crane. 			
<p>Maintenance Procedures – Derricks (1910.181(f)(2))</p> <ul style="list-style-type: none"> • During derrick repairs, are the following precautions observed? <ul style="list-style-type: none"> ○ Derrick is arranged to minimize interference with other operations. ○ All hoist drum dogs are engaged. ○ Main or emergency switch is locked in the open position if an electric hoist is used. ○ Warning or “out of order” signs are posted on the derrick and hoist. ○ Boom repairs are made only when booms are lowered and adequately supported or safely tied off. ○ A communication system is established between the hoist operator and the appointed individual in charge before work begins. 			

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<p>Post-Maintenance Requirements</p> <ul style="list-style-type: none"> After adjustments or repairs, are all guards reinstalled, safety devices reactivated, and maintenance equipment removed before operation resumes? <i>(1910.179(l)(2)(ii); 1910.180(f); 1910.181(f)(2)(ii))</i> 				
<p>Objective 4: Loads are handled in accordance with established safety procedures for all mobile, overhead, and gantry cranes and derrick work activities and operations.</p>				
<p>Criteria: All work activities are performed in accordance with approved work instructions and manufacturer’s recommendations.</p>				
<p>Lines of Inquiry</p>	<p>YES</p>	<p>NO</p>	<p>N/A</p>	<p>Comments</p>
<p>Load Rating and Stability</p> <ul style="list-style-type: none"> Is the equipment rated load appropriate for the size of the load being handled? <i>(1910.179(n)(1); 1910.180(h)(1); 1910.181(i)(1))</i> Is the mobile crane leveled and provided with sufficient blocking material to sustain the load and maintain stability? <i>(1910.180(h)(3)(i)(a))</i> 				
<p>Load Securement</p> <ul style="list-style-type: none"> Is the load properly secured and balanced in the sling or lifting device? <i>(1910.180(h)(3)(i)(b))</i> 				
<p>Load Movement Precautions <i>(1910.180(h))</i></p> <ul style="list-style-type: none"> While moving the load, are the following precautions observed? <ul style="list-style-type: none"> Loads are not dragged sideways. Loads are not carried over people. No employee rides the load or hook. Outriggers are used properly in accordance with manufacturer’s instructions. 				

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<p>Operational Controls</p> <ul style="list-style-type: none"> • Is a qualified person designated to make safety determinations before the crane travels with the load? <i>(1910.180(h)(3)(xiv))</i> • Is the operator at the controls while the load is suspended? <i>(1910.180(h)(4)(i))</i> 				
<p>Access & Fall Protection</p> <ul style="list-style-type: none"> • Where applicable, do access and work areas (platforms, walkways, steps, ladders, handholds, guardrails, etc.) meet the requirements of 29 CFR 1910, Subpart D, <i>Walking-Working Surfaces?</i> <i>(1910 Subpart D)</i> 				
<p>Objective 5: Slings safe operating practices are followed in accordance with OSHA 1910.184(c)(1–14).</p>				
<p>Criteria: Management ensures that slings are used in accordance with approved work instructions and necessary precautions are taken to perform work safely.</p>				
<p>Lines of Inquiry</p>	<p>YES</p>	<p>NO</p>	<p>N/A</p>	<p>Comments</p>
<p>Condition and Integrity</p> <ul style="list-style-type: none"> • Are slings in good condition, free of damage or defects? <i>(1910.184(c)(1))</i> • Are sling legs free of kinks? <i>(1910.184(c)(4))</i> • Do slings in use have permanently affixed and legible identification markings? <i>(1910.184(c)(13–14))</i> 				
<p>Proper Use</p> <ul style="list-style-type: none"> • Are knots, bolts, or other makeshift devices prohibited from being used to shorten a sling? <i>(1910.184(c)(2))</i> • Is the load within the rated capacity of the sling? <i>(1910.184(c)(3))</i> • Is the load balanced to prevent slippage when using slings in a basket hitch? <i>(1910.184(c)(5))</i> • Are slings securely attached to their loads? <i>(1910.184(c)(6))</i> 				

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<ul style="list-style-type: none"> • Are slings padded or otherwise protected from sharp edges of their loads? <i>(1910.184(c)(9))</i> • Is shock loading prohibited? <i>(1910.184(c)(11))</i> • Is the load within the sling’s manufacturer-recommended safe working load as prescribed on the identification markings? <i>(1910.184(c)(14))</i> 				
<p>Safe Work Practices</p> <ul style="list-style-type: none"> • Are suspended loads kept clear of all obstructions? <i>(1910.184(c)(7))</i> • Are employees kept clear of loads about to be lifted and of suspended loads? <i>(1910.184(c)(8))</i> • Are hands and fingers kept away from the sling/load pinch points while tightening? <i>(1910.184(c)(10))</i> • Are slings prevented from being pulled from under a load when the load is resting on the sling? <i>(1910.184(c)(12))</i> 				

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DOE-STD-1090-2020, *Hoisting and Rigging*

References: DOE-STD-1090-2020 DOE-STD-1090-2011 DOE-STD-1090-2007 DOE-STD-1090-2004				
Applicability: The lines of inquiry below are developed from requirements in DOE-STD-1090-2020 which are not requirements unless specified in the company hoisting and rigging program or contract. Where an older standard is adopted by contract or procedure, refer to the appropriate older standard to ensure specific requirements are applicable and met.				
Objective 1: A documented hoisting and rigging program is in place to implement key elements of DOE-STD-1090, <i>Hoisting and Rigging</i> .				
Criteria: The documented hoisting and rigging program appropriately addresses ordinary lifts, critical lifts, personnel lifts, and personnel qualifications.				
Lines of Inquiry	YES	NO	N/A	Comments
Program Adoption				
<ul style="list-style-type: none"> • Which version of DOE-STD-1090 is adopted by the contract or company procedure? 				
Ordinary Lifts				
<ul style="list-style-type: none"> • Does the program require a management representative to classify the lift as ordinary and appoint a lift director? (<i>DOE-STD-1090-2020, 1.1.1</i>) • Does the program specify that a written ordinary lift plan is required when: <ul style="list-style-type: none"> ○ Transferring a load in mid-air, ○ The center of gravity may relocate, or ○ Multiple load line operations are used? (<i>DOE-STD-1090-2020, 1.3 and 1.3.4</i>) 				

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<p>Critical Lifts</p> <ul style="list-style-type: none"> • Does the program require a management representative to classify the lift as critical before planning begins? (<i>DOE-STD-1090-2020, 2.1.1</i>) • Does the program classify a lift as critical when: <ul style="list-style-type: none"> ○ The load item is unique and vital to a system, ○ The load cost or delay in operations would negatively impact safety or mission, ○ A steel erection lift exceeds 75% of the rated crane/derrick capacity, or ○ More than one crane is used? (<i>DOE-STD-1090-2020, 2.1.2</i>) • Does the program include site-specific criteria for classifying critical lifts? 				
<p>Personnel Lifts</p> <ul style="list-style-type: none"> • Does the program require personnel lift planning to meet ASME B30.23? (<i>DOE-STD-1090-2020, 2.1.5</i>) 				
<p>Pre-Engineered Production Lifts</p> <ul style="list-style-type: none"> • Does the program contain provisions for pre-engineered production lifts (repetitive lifts performed in assembly/disassembly where detailed planning, equipment selection, and lift-specific training may substitute for qualifications)? (<i>DOE-STD-1090-2020, 3.1</i>) • Have step-by-step procedures been developed and approved by appropriately trained personnel for each pre-engineered production lift? (<i>DOE-STD-1090-2020, 3.3.1</i>) 				

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<p>Hostile Work Environments</p> <ul style="list-style-type: none"> Does the program contain provisions for lifts in hostile environments where standard procedures cannot be followed due to hazards (e.g., radiation, contamination, toxic chemicals, extreme temperatures)? <i>(DOE-STD-1090-2020, 4.1)</i> Has a hostile environment plan been prepared by a management representative covering operations, equipment, inspection, testing, and maintenance? <i>(DOE-STD-1090-2020, 4.2)</i> 				
<p>Personnel Qualifications and Certifications</p> <ul style="list-style-type: none"> Are personnel performing hoisting and rigging activities qualified per OSHA and national consensus standards? <i>(DOE-STD-1090-2020, 5.2.1)</i> Are certifications issued by a nationally recognized certifying organization or a state/local agency recognized by OSHA accepted as meeting basic qualification requirements for construction and general industry? <i>(DOE-STD-1090-2020, 5.2.3)</i> Is a practical operating skill evaluation conducted for the specific equipment type or assigned function? <i>(DOE-STD-1090-2020, 5.3.2)</i> Are qualification and certification records for hoisting and rigging personnel kept on file and readily available? <i>(DOE-STD-1090-2020, 5.4)</i> 				
<p>Objective 2: Performance of work. Lifts are planned and performed safely.</p>				
<p>Criteria 1: Ordinary lifts are planned, documented when required, performed under the supervision of a lift director, and are performed safely.</p>				
<p>Lines of Inquiry</p>	<p>YES</p>	<p>NO</p>	<p>N/A</p>	<p>Comments</p>
<p>Lift Director</p> <ul style="list-style-type: none"> Was a lift director appointed for lift operations? <i>(DOE-STD-1090-2020, 1.1.1)</i> 				

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<ul style="list-style-type: none"> • Is the lift director present at the lift site during the entire lifting operation? (<i>DOE-STD-1090-2020, 1.1.2</i>) • Does the lift director have the necessary knowledge and experience of the specific equipment type and assigned lifting operations? (<i>DOE-STD-1090-2020, 1.1.2</i>) 				
<p>Load Evaluation</p> <ul style="list-style-type: none"> • Was the item to be moved evaluated for: (<i>DOE-STD-1090-2020, 1.3.3.1</i>) <ul style="list-style-type: none"> ○ Intrinsic characteristics (e.g., load integrity, loose materials, liquids), ○ Weight and dimensions, ○ Center of gravity, ○ Ability to support imposed lifting forces (load and lift points), ○ Hazardous or toxic material content? 				
<p>Path and Equipment Evaluation</p> <ul style="list-style-type: none"> • Were the load path and clearances evaluated? (<i>DOE-STD-1090-2020, 1.3.3.2</i>) • Was lifting equipment and rigging identified by type and rated capacity? (<i>DOE-STD-1090-2020, 1.3.3.3</i>) • Was the work area evaluated for crane setup conditions, including: (<i>DOE-STD-1090-2020, 1.3.3.5</i>) <ul style="list-style-type: none"> ○ Weather, ○ Soil bearing capacity, ○ Underground utilities, ○ Clearances to power lines and other structures? 				
<p>Procedures and Documentation</p> <ul style="list-style-type: none"> • Are site-specific operating procedures and special instructions followed? (<i>DOE-STD-1090-2020, 1.3.3.6</i>) 				

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<ul style="list-style-type: none"> • Is a written ordinary lift plan used when: (<i>DOE-STD-1090-2020, 1.3 & 1.3.4</i>) <ul style="list-style-type: none"> ○ Transferring a load in mid-air ○ The center of gravity may relocate ○ Using multiple lifting devices (<i>29 CFR 1926.1432</i>), ○ Working within specified clearance of power lines (<i>29 CFR 1926.1407–1411; ASME B30.5-2018</i>), ○ Performing multiple load line operations (<i>29 CFR 1926.1432</i>), ○ Conducting personnel lifts (<i>29 CFR 1926.1431; ASME B30.23</i>) 				
<p>Work Observation</p> <ul style="list-style-type: none"> • Was the observed work performed safely? 				
<p>Criteria 2: Critical lifts are planned, documented, performed under the supervision of a lift director, and are performed safely.</p>				
Lines of Inquiry	YES	NO	N/A	Comments
<p>Lift Director and Oversight</p> <ul style="list-style-type: none"> • Was a Competent/Qualified Person or Lift Director appointed and present at the lift site during the entire lifting operation? (<i>29 CFR 1926.32(f); DOE-STD-1090-2020, 2.2.2</i>) • Was responsible oversight provided, including a competent safety person and qualified rigging engineer, before the lift was made? (<i>DOE-STD-1090-2020, 2.1.8</i>) 				
<p>Classification of Critical Lifts</p> <ul style="list-style-type: none"> • Was the lift classified as critical prior to planning? (<i>DOE-STD-1090-2020, 2.1.1</i>) • Was the lift classified as critical under any of the following conditions? (<i>DOE-STD-1090-2020, 2.1.2</i>) <ul style="list-style-type: none"> ○ Load damage or upset would release hazardous/radioactive material above permissible limits. 				

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<ul style="list-style-type: none"> ○ Load is unique, irreplaceable, or vital to a system, facility, or project. ○ Load damage or delay would negatively impact facility operations. ○ Mishandling or dropping the load would endanger nearby facilities, structures, systems, or equipment. ● For steel erection, was the lift classified as critical if: (<i>DOE-STD-1090-2020, 2.1.2</i>) <ul style="list-style-type: none"> ○ The lift exceeded 75% of the rated crane/derrick capacity, or ○ The lift required use of more than one crane or derrick (§ 851.23). ● Was the lift classified as critical under site-specific or project safety basis criteria? (<i>DOE-STD-1090-2020, 2.1.2</i>) 				
<p>Personnel Qualifications</p> <ul style="list-style-type: none"> ● Were experienced operators assigned who are trained and qualified on the specific equipment? (<i>DOE-STD-1090-2020, 2.1.6</i>) ● Was all rigging equipment used in the critical lift (slings, below-the-hook devices, rigging hardware) proof load tested per ASME standards? (<i>DOE-STD-1090-2020, 2.2.5</i>) 				
<p>Critical Lift Plan</p> <ul style="list-style-type: none"> ● Did the documented critical lift plan (prepared by a competent/qualified person) include: (<i>DOE-STD-1090-2020, 2.1.3</i>) <ul style="list-style-type: none"> ○ Item to be moved, ○ Equipment type and rated capacity, ○ Identification and capacity of rigging accessories, ○ Rated capacity calculations, ○ Load-indicating devices, load vectors, lifting points, sling angles, 				

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<ul style="list-style-type: none"> ○ Required equipment movements and methods of attachment, ○ Crane orientations, ○ Other capacity factors (e.g., load path sketch, key heights, soil/floor bearing capacity)? • Were the critical lift plan and rigging sketches reviewed and approved by: <ul style="list-style-type: none"> ○ The lift director, ○ A qualified person (technical authority), and ○ The responsible manager? (<i>DOE-STD-1090-2020, 2.1.8</i>) • Did a qualified person verify that the as-installed rigging matched the approved configuration before the lift? (<i>DOE-STD-1090-2020, 2.1.10</i>) • Was the critical lift plan followed in sequence as written? (<i>DOE-STD-1090-2020, 2.1.4</i>) • For multi-use critical lift plans, was the plan revised and reapproved when equipment or rigging changed? (<i>DOE-STD-1090-2020, 2.2.12</i>) 				
<p>Pre-Lift Activities</p> <ul style="list-style-type: none"> • Was a pre-lift meeting conducted with all participating personnel? (<i>DOE-STD-1090-2020, 2.1.9</i>) • Was the critical lift plan/procedure reviewed, and all questions resolved before work began? (<i>DOE-STD-1090-2020, 2.1.9</i>) 				