

Great Western Painting

Mechanical Equipment Operations Near Energized Lines

Mechanical Equipment

1910.269(p) of Electric Power Generation, Transmission, and Distribution

Note: The below information applies only to power generation, transmission, and distribution installations, including related equipment for the purpose of communication or metering that are accessible only to qualified employees; and

Other installations at an electric power generating station, as follows: fuel and ash handling and processing installations, such as coal conveyors, Water and steam installations, such as penstocks, pipelines, and tanks, providing a source of energy for electric generators, and Chlorine and hydrogen systems; test sites where employees perform electrical testing involving temporary measurements associated with electric power generation, transmission, and distribution in laboratories, in the field, in substations, and on lines, as opposed to metering, relaying, and routine line work; work on, or directly associated with, the installations noted above and line-clearance tree-trimming operations.

It does not apply to construction work or electrical installations, electrical safety-related work practices, or electrical maintenance considerations covered by 1910 Subpart S – Electrical.

General Requirements:

The critical safety components of mechanical elevating and rotating equipment shall receive a thorough visual inspection before use on each shift.

Note: Critical safety components of mechanical elevating and rotating equipment are components for which failure would result in free fall or free rotation of the boom.

No motor vehicle or earthmoving or compacting equipment having an obstructed view to the rear may be operated on off-highway jobsites where any employee is exposed to the hazards created by the moving vehicle, unless:

1. The vehicle has a reverse signal alarm audible above the surrounding noise level, or
2. The vehicle is backed up only when a designated employee signals that it is safe to do so.

Rubber-tired self-propelled scrapers, rubber-tired front-end loaders, rubber-tired dozers, wheel-type agricultural and industrial tractors, crawler-type tractors, crawler-type loaders, and motor graders, with or without attachments, shall have rollover protective structures that meet the requirements of Subpart W of Part 1926.

The operator of an electric line truck may not leave his or her position at the controls while a load is suspended, unless it can demonstrate that no employee (including the operator) is endangered.

Outriggers:

Mobile equipment, if provided with outriggers, shall be operated with the outriggers extended and firmly set.

Note: If the work area or the terrain precludes the use of outriggers, the equipment may be operated only within its maximum load ratings specified by the equipment manufacturer for the particular configuration of the equipment without outriggers.

Outriggers may not be extended or retracted outside of the clear view of the operator unless all employees are outside the range of possible equipment motion.

Applied loads:

Mechanical equipment used to lift or move lines or other material shall be used within its maximum load rating and other design limitations for the conditions under which the mechanical equipment is being used.

Operations near energized lines or equipment:

Mechanical equipment shall be operated so that the minimum approach distances no less than the distances computed by Table R-3 for ac systems or Table R-8 for dc systems are maintained from exposed energized lines and equipment. However, the insulated portion of an aerial lift operated by a qualified employee in the lift is exempt from this requirement.

Note: OSHA Definition of a Qualified Person: “One who, by possession of a recognized degree, certificate, or professional standing, or who by extensive knowledge, training, and experience, has successfully demonstrated his ability to solve or resolve problems relating to the subject matter, the work, or the project.”

Note: The following statement is extracted from the previous obsolete 1910.269(p)(4) which stated: “Operations near energized lines or equipment. (i) Mechanical equipment shall be operated so that the minimum approach distances of Table R-6 through Table R-10 are maintained from exposed energized lines and equipment. However, the insulated portion of an aerial lift operated by a qualified employee in the lift is exempt from this requirement if the applicable minimum approach distance is maintained between the uninsulated portions of the aerial lift and exposed objects at a different potential.”

Note: The current 1910.269, September 24, 2014, does not contain the above statement, and its provisions are obsolete.

A designated employee other than the equipment operator shall observe the approach distance to exposed lines and equipment and provide timely

warnings before the minimum approach distance is reached, unless it can demonstrate that the operator can accurately determine that the minimum approach distance is being maintained.

The energized lines or equipment exposed to contact shall be covered with insulating protective material that will withstand the type of contact that could be made during the operation.

The mechanical equipment shall be insulated for the voltage involved. The mechanical equipment shall be positioned so that its uninsulated portions cannot approach the energized lines or equipment any closer than the minimum approach distances.

Each employee shall be protected from hazards that could arise from mechanical equipment contact with energized lines or equipment. The measures used shall ensure that employees will not be exposed to hazardous differences in electric potential. Unless it can be demonstrated that the methods in use protect each employee from the hazards that could arise if the mechanical equipment contacts the energized line or equipment, the measures used shall include all of the following techniques:

1. Using the best available ground to minimize the time the lines or electric equipment remain energized,
2. Bonding mechanical equipment together to minimize potential differences,
3. Providing ground mats to extend areas of equipotential, and
4. Employing insulating protective equipment or barricades to guard against any remaining hazardous electrical potential differences.

Minimum approach distances:

“1910.269(l)3(i): The employer shall establish minimum approach distances no less than the distances computed by Table R-3 for ac systems or Table R-8 for dc systems.”

Note: No later than April 1, 2015, for voltages over 72.5 kilovolts, the employer shall determine the maximum anticipated per-unit transient overvoltage, phase-to-ground, through an engineering analysis or assume a maximum anticipated per-unit transient overvoltage, phase-to-ground, in accordance with Table R-9. When the employer uses portable protective gaps to control the maximum transient overvoltage, the value of the maximum anticipated per-unit transient overvoltage, phase-to-ground, must provide for five standard deviations between the statistical sparkover voltage of the gap and the statistical withstand voltage corresponding to the electrical component of the minimum approach distance. The employer shall make any engineering analysis conducted to determine maximum anticipated per unit transient overvoltage available upon request to employees and to the Assistant Secretary or designee for examination and copying.

Note: See 1910.269 Appendix B for information on how to calculate the maximum anticipated per-unit transient overvoltage, phase-to-ground, when the employer uses portable protective gaps to reduce maximum transient overvoltages.

Note: Legacy Minimum Approach Distance Table 6 through Table 13 found in Appendix B to 1910.269 may not be used as of April 1, 2015.

Table R-3 for ac systems and Table R-8 for dc systems require actual computations.