



Reply to the attention of:

DEC 22 2016

MEMORANDUM FOR: REGIONAL ADMINISTRATORS

FROM:

  
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DEPUTY ASSISTANT SECRETARY

  
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DIRECTOR, DIRECTORATE OF ENFORCEMENT PROGRAMS

  
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SUBJECT: Enforcement of minimum approach distance requirements in 29 CFR 1910.269 and 29 CFR Part 1926, Subpart V

On April 11, 2014, OSHA promulgated a final rule revising the general industry and construction standards for work on electric power generation, transmission and distribution installations. On February 13, 2015, OSHA entered into a settlement agreement with the Edison Electric Institute, the Utility Line Clearance Coalition, and the Tree Care Industry Association resolving legal challenges to that final rule. As part of that settlement, OSHA issued a memorandum (dated February 18, 2015) with the subject line “29 CFR 1910.269 and 29 CFR Part 1926, Subpart V—Enforcement dates.” The memorandum adopted a delayed enforcement date for certain minimum approach distance requirements in 29 CFR 1910.269 and 29 CFR Part 1926, Subpart V. On January 20, 2016, OSHA issued a second memorandum (subject line, “29 CFR 1910.269 and 29 CFR Part 1926, Subpart V—Enforcement dates for minimum approach distances”) further delaying enforcement of those requirements. This memorandum further extends those enforcement dates as follows:

Until **June 30, 2017**, for voltages of 169.1 kilovolts and more: (i) no citations will be issued under 29 CFR 1910.269(l)(3)(ii) or 29 CFR 1926.960(c)(1)(ii), which require the employer to determine the maximum anticipated per-unit transient overvoltage; and (ii) OSHA will accept compliance with the minimum approach distances in Table 6 or Tables 10 to 13 in Appendix B to 29 CFR 1910.269 as compliance with 29 CFR 1910.269(l)(3)(i) and 29 CFR 1926.960(c)(1)(i).

Until **June 30, 2017**, for voltages of 72.6 to 169.0 kilovolts, no citations will be issued under 29 CFR 1910.269(l)(3)(ii) or 29 CFR 1926.960(c)(1)(ii), which require the employer to determine the maximum anticipated per-unit transient overvoltage, provided the employer assumes a maximum anticipated per-unit transient overvoltage, phase-to-ground, of 3.0 per unit.

OSHA does not expect to further extend these enforcement dates. OSHA is adopting the following policy for enforcement of the minimum approach distance requirements in 29 CFR 1910.269 and 29 CFR 1926.960 beginning on July 1, 2017:

For voltages over 72.5 kilovolts, 29 CFR 1910.269(l)(3)(ii) and 29 CFR 1926.960(c)(1)(ii) require the employer to 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 or Table V-8, respectively. On September 12, 2016, the Institute of Electrical and Electronics Engineers (IEEE) presented a paper titled, “Practical Approaches to Reducing Transient Overvoltage Factors for Live Work” at its ESMO 2016 conference in Columbus, OH. That paper describes practices that can be adopted<sup>1</sup> to reduce maximum transient overvoltages to “industry-accepted values” given in IEEE 516-2009<sup>2</sup> and shown in the following table:

**Table A--Industry Accepted Values of Maximum Per-Unit Transient Overvoltage**

<b>Voltage Range (kV)</b>	<b>Maximum per-unit transient overvoltage, phase-to-ground</b>
72.6 to 362	3.0
363 to 550	2.4
551 to 800	2.0

The IEEE committee responsible for developing this paper performed research to determine, based on sound engineering principles, what practices are necessary to limit transient overvoltages on electric power systems operating at over 72.5 kilovolts. As a result of this research, the committee developed recommendations that, if followed, limit maximum transient overvoltages to the values listed in Table A. OSHA has concluded that the paper constitutes an engineering analysis of electric power systems operating at over 72.5 kilovolts and that employers can follow the guidance in the paper to comply with 29 CFR 1910.269(l)(3)(ii) and 29 CFR 1926.960(c)(1)(ii). Consequently, for voltages exceeding 72.5 kilovolts, OSHA will accept compliance with minimum approach distances calculated in accordance with 29 CFR 1910.269 Table R-3 or 29 CFR Part 1926, Subpart V, Table V-2, as applicable, using values of maximum per-unit transient overvoltage, phase-to-ground, as listed in Table A of this memorandum provided all of the following conditions are in place:

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<sup>1</sup> In most cases, the entity that operates the system (typically an electric utility) will implement these practices. When a contract employer must comply with the minimum approach distance requirements in §§1910.269 and 1926.960, the entity operating the system would be the host employer. To apply the maximum transient overvoltages set in Table A, the host employer and contract employer will need to coordinate their work rules and procedures in accordance with 29 CFR 1910.269(a)(3)(iii) or 29 CFR 1926.950(c)(3), as applicable, so that the practices outlined in this memorandum are adhered to.

<sup>2</sup> IEEE Std 516–2009, *IEEE Guide for Maintenance Methods on Energized Power Lines*.

- The employer responsible for the circuit on which employees are working selects and maintains circuit breakers to minimize the probability of circuit breaker restrike;
- Live-line work is not performed while lightning is visible at the worksite;
- Reclosing is blocked on the circuit on which employees are working;
- Line switching is not performed on the circuit on which employees are working;
- Capacitor switching is disabled on the circuit on which employees are working; and
- When the work is on a line operating at 550.1 to 800.0 kilovolts, nominal, the line length is limited to 322 kilometers (200 miles).

Table B lists minimum approach distances calculated in accordance with 29 CFR 1910.269 Table R-3 and 29 CFR Part 1926, Subpart V, Table V-2 using values for maximum transient overvoltage, phase-to-ground, from Table A.<sup>3</sup> Employers may use the minimum approach distances in Table B, provided the conditions listed in this memorandum apply and the employer follows the notes to that table. Employers that do not meet these conditions must establish minimum approach distances in accordance with 29 CFR 1910.269(l)(3) or 29 CFR 1926.960(c)(1), as applicable.

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<sup>3</sup> OSHA developed Table B by extracting the values for the minimum approach distances for phase-to-ground and phase-to-phase exposures from Table 14 through Table 21 in Appendix B to 29 CFR 1910.269 (or the equivalent Table 7 through Table 14 in Appendix B to 29 CFR Part 1926, Subpart V) corresponding to the voltage range in Table B and the maximum transient overvoltage, phase-to-ground, from Table A. Note that Table B does not replace any of the tables in 29 CFR 1910.269 or 29 CFR Part 1926, Subpart V.

**Table B—Alternative Minimum Approach Distances  
for Voltages of More Than 72.5 kV<sup>\*†‡</sup>**

Voltage Range, Phase-to-Phase (kV)	Phase-to-Ground Exposure		Phase-to-Phase Exposure	
	m	ft (ft, in <sup>**</sup> )	m	ft (ft, in <sup>‡</sup> )
72.6 to 121.0	1.02	3.3 (3 ft, 4 in)	1.27	4.2 (4 ft, 3 in)
121.1 to 145.0	1.16	3.8 (3 ft, 10 in)	1.46	4.8 (4 ft, 10 in)
145.1 to 169.0	1.30	4.3 (4 ft, 4 in)	1.65	5.4 (5 ft, 5 in)
169.1 to 242.0	1.72	5.6 (5 ft, 8 in)	2.55	8.4 (8 ft, 5 in)
242.1 to 362.0	2.76	9.1 (9 ft, 2 in)	4.49	14.7 (14 ft, 9 in)
362.1 to 420.0	2.50	8.2 (8 ft, 3 in)	4.17	13.7 (13 ft, 9 in)
420.1 to 550.0	3.62	11.9 (11 ft, 11 in)	6.18	20.3 (20 ft, 4 in)
550.1 to 800.0	4.83	15.8 (15 ft, 10 in)	8.47	27.8 (27 ft, 10 in)

\* Employers may use the minimum approach distances in this table provided the worksite is at an elevation of 900 meters (3,000 feet) or less. If employees will be working at elevations greater than 900 meters (3,000 feet) above mean sea level, the employer may determine minimum approach distances by multiplying the distances in this table by the correction factor in 29 CFR 1910.269 Table R-5, or 29 CFR Part 1926, Subpart V, Table V-4, corresponding to the altitude of the work.

† Employers may use the phase-to-phase minimum approach distances in this table provided that no insulated tool spans the gap and no large conductive object is in the gap.

‡ The clear live-line tool distance must equal or exceed the values for the indicated voltage ranges.

\*\* OSHA is providing the distance in feet and inches, rounded up, for convenience only.