

WAC 296-32-22578 Control of hazardous energy. This section establishes protection for employees who work directly in the hazardous vicinity of telecommunication facilities, sites, or towers having the following energy:

- Radio frequency radiation (RFR);
- Laser, see WAC 296-62-09005(4);
- Microwave;
- AM or FM;
- High intensity electromagnetic fields.

Note: Employees exposed to all other types of hazardous energy are required to follow chapter 296-803 WAC.

(1) Employees working in the telecommunication industry that may be exposed to RFR as well as other hazardous energy, the employer must ensure their safety by following this chapter for RFR as well as chapter 296-803 WAC for other hazardous energy.

(2) The employer must effectively control all forms of hazardous energy under this section by:

- (a) Elimination;
- (b) Isolation;

(c) Reduction to permissible exposure limits, otherwise known as alternative effective means (see WAC 296-32-22574 for maximum permissible exposure limits (MPE limits)).

(d) If a source of energy is controlled by alternative effective means, it must be tagged out.

(e) If a source of energy is eliminated or isolated but cannot be locked out, it must be tagged out.

(3) The host employer or the FCC license holder in control of the energy source must establish a control of hazardous energy program that is effective for 30-300 mhz and UHF broadcast bands; see WAC 296-32-22511 for additional requirements relating to host/contractor responsibilities.

(4) The employer must ensure that site specific energy source data and contact information is available and current at each telecommunication site/facility.

(5) The employer must establish and implement a hazardous energy control program to prevent the accidental or purposeful increase or release of energy if employees are to work in the hazardous vicinity of any telecommunication sites/facilities where employees could be exposed to any of the following energies:

- (a) RFR (30-300 mhz) and UHF broadcast bands;
- (b) Laser;
- (c) Microwave;
- (d) AM or FM;
- (e) High intensity electromagnetic fields.

Note: Additional information is located in WAC 296-62-09005.

(6) The employer must ensure that undetermined or unknown levels of energy shall be considered hazardous until they are clearly verified.

(7) The employer must ensure the hazardous energy control program consists of all the following elements:

(a) Host/contractor employer responsibilities as described in WAC 296-32-22511 of this chapter;

(b) Energy control procedures as described in subsections (11) through (13) of this section;

(c) Approved test procedures determined by the Federal Communications Commission (FCC) OET65 used to ensure that the area is safe for human presence;

- (d) Training as described in subsections (14) through (17) of this section;
 - (e) Annual reviews as described in subsection (19) of this section;
 - (f) Tower and worksite evaluations as described in subsection (20) of this section;
 - (g) Procedures for removing an authorized person(s) lockout or tagout device;
 - (h) Procedures for alternative effective means and application/removal of tagout devices.
- (8) The employer must make sure energy control procedures clearly and specifically outline:
- (a) The scope, purpose, authorization, rules, and techniques to shut down or reduce hazardous energy to within the MPE limits before working within a hazardous vicinity; and
 - (b) How you will ensure employees follow the procedures.
- (9) The employer must keep written energy control procedures and records of energy levels, for the elimination, isolation or effectively reducing hazardous energy to within MPE limits for the duration of each job being performed for twelve months.
- (10) Employers able to increase amplification of energy must make themselves familiar of this chapter and comply with protections afforded to personnel while work is being completed under the scope of this chapter. Employers able to and responsible for increasing amplification must follow the requirements located in WAC 296-32-22511, and those employers with employees being exposed to hazardous energy.
- (11) The employer of the affected and authorized employees must notify the employer of the controlling energy source and employers able to and responsible for increasing amplification when they will be on-site and the need for the controlling energy source to be reduced to a safe level or turned off.
- (12) The employer of the controlling energy source must notify the employer of the affected and authorized employees that the controlling energy source has been reduced to within the MPE limits or turned off completely before work begins.
- (13) The employer must ensure affected and authorized employees must test to ensure the energy source has been reduced to within the MPE limits or isolated or eliminated by testing and verification through approved methods and equipment.
- (14) The employer must ensure that written energy control procedures are in a language comprehensible by each employee working on or around the hazardous vicinity of a telecommunication site/facility.
- (15) The employer must make sure energy control procedures specifically identify at least the following: (This includes remote control sites/facilities and remote worksites.)
- (a) What personnel are considered affected or authorized, and how to contact;
 - (b) What location and equipment the procedure is verified for;
 - (c) When the procedure must be used;
 - (d) How the procedure is verified to be up-to-date and accurate;
 - (e) What the specific procedural steps are for:
 - (i) Notifying employers able to increase amplification;
 - (ii) Notifying all affected personnel;
 - (iii) Shutting down or reduction to within the MPE limits;
 - (iv) Eliminating or isolating the energy source;
 - (v) Securing the energy source;

(vi) Placing, removing, and transferring lockout/tagout devices and who is responsible for them;

(vii) How to test the machine or equipment to verify the effectiveness of lockout devices, reduction to MPE limits, and other energy control measures.

(16) The employer must ensure that when reducing hazardous energy to within the MPE limits (alternative effective means) the employees in hazardous areas must be trained to all requirements in this section.

(17) Training.

(a) You must effectively train employees and establish proficiency on this chapter and your site specific hazards to ensure they:

(i) Understand the purpose and function of the energy control program; and

(ii) Have the knowledge and skills necessary to carry out their responsibilities safely.

Note: Additional and supplemental training for other forms of hazardous energy are covered under chapter 296-803 WAC.

(b) You must establish proficiency for each employee in a language comprehensible in all of the following:

(i) Identification of the type(s) and magnitude of energy available on a telecommunication site/facility.

(ii) Recognizing hazardous energy sources that are potential and present.

(iii) Methods to eliminate, isolate or reduce to within the MPE limits:

(A) Which type of control (elimination, isolation or reducing to within the MPE limits) affords the best protection to the employee; and

(B) What steps must be supplemented with additional safeguards when using alternative effective means under (c) of this subsection.

(iv) The purpose and use of the energy control procedures listed in this chapter;

(v) Lockout, tagout and alternate effective means systems, devices, procedures and processes to be used;

(vi) Control of hazardous energy procedures to be used;

(vii) Prohibition against attempting to restart, reenergize, amplify or touch a machine or equipment that has been locked out or controlled through alternate effective means;

(viii) That lockout is the primary method of energy control, and that other means do not provide equal protection;

(ix) Means and methods of communication with the employers responsible for and able to increase amplification.

(c) Required supplementary training for alternative effective means. You must establish additional proficiency if you use alternate effective means as energy control. This additional preparation must include the following:

(i) When the employer is permitted to reduce the energy to within the MPE limits only if it is infeasible to lockout the energy source;

(ii) The process for contacting all employers who have potential to increase amplification on any equipment, component, transmitter or receiver on the telecommunication site/facility which creates a hazardous vicinity;

(iii) The process for documentation of the methods required for reducing to within the MPE limits;

(iv) That alternate effective means are not as effective as lockout;

- (v) That alternate effective means rely upon someone else for your protection;
- (vi) That alternate effective means give a false sense of security;
- (vii) Authorization for use of alternate effective means must:
 - (A) Be in a language comprehensible by all affected and authorized employees;
 - (B) Be documented by authorized employees;
 - (C) Be documented by employers responsible for and able to increase amplification.
- (viii) Selection and use of personnel RFR metering/monitoring devices;
- (ix) Emergency procedures and contact requirements in the event of energy control failure;
- (x) Personal protective equipment and RFR suits/etc. used for protection:
 - (A) Donning and doffing procedures;
 - (B) Specifications/inspection/life expectancy;
 - (C) Cleaning;
 - (D) Wear and tear.
- (d) You must document that employee training has been completed and kept up to date according to WAC 296-32-22525. It must be supplemented with the additional requirements, including all documents/videos/supporting information used in the training.

Note: Training records may be electronic.

(18) Retraining.

- (a) Retraining shall be provided for all authorized and affected employees whenever there is a change in their job assignments, a change in machines, equipment, or processes that present a new hazard or whenever there is a change in the energy control procedures.
- (b) Retraining shall also be conducted whenever a periodic inspection reveals, or whenever the employer has reason to believe, that there are deviations from or inadequacies in an employee's knowledge or use of the energy control procedures.
- (c) The retraining shall reestablish employee proficiency and shall introduce new or revised control methods and procedures, as necessary.
- (d) The employer shall certify that employee training has been accomplished and is being kept up to date. The certification shall contain each employee's name and dates of training.

(19) Annual inspection/review.

- (a) The controlling employer of the energy source must conduct an inspection/review of the equipment shut-down or alternative effective means' procedures at least annually to:
 - (i) Make sure employees know and have been applying the energy control procedures appropriate for the work and hazards;
 - (ii) Correct any deviations or inadequacies identified as well as identify unique hazards;
 - (iii) Inform all contractors, leasees, subcontractors of retraining that needs to occur due to changes, modifications or additions.
- (b) The controlling employer of the energy source must perform an annual inspection/review:
 - (i) The annual inspection/review shall be performed by an authorized employee who is not using the energy control procedures being inspected;

(ii) The employer of the exposed and affected employees conducting work on the communication site/facility must ensure that the annual inspection/review has been performed by the controlling employer of the energy source.

(c) The employer must ensure that the annual inspection/review is documented and that the documentation includes all of the following:

(i) Equipment energy control procedures for the devices and components which possess hazardous energy potential that are to be eliminated, isolated, or reduced to within MPE limits;

(ii) Date of the inspection/review;

(iii) Employees included that have performed the procedures for the previous year;

(iv) Person doing the inspection/review.

(d) The annual inspection/review and any deviations must be kept on-site for one year. All forms of documentation must be kept for life of the equipment or twenty years, whichever comes first.

(20) Site/facility evaluations.

(a) The employer of the controlling energy source must conduct, document and retain telecommunication site/facility location evaluations.

(b) The employer of the controlling energy source must ensure that telecommunication sites/facilities location evaluations required under WAC 296-32-24005 (5), (6), (7) are supplemented with:

(i) A topographic map of the exact field location and any site/facility within a predicted worst-case power density distance as outlined in the FCC Office of Engineering of Technology, Bulletin 65, Edition 97-01;

(ii) A comprehensive cross sectional diagram of the structure, and where antennas, transmitting devices and other apparatuses are located;

(iii) A comprehensive cross sectional diagram of the structure's hazardous energy and hazardous vicinity associated with each of the sources;

(iv) The host employer/contractor responsible (carrier, leasee or renter) party's contact information for each of the antennas, transmitters, and/or apparatus;

(v) Contact information for any employer who is able to increase amplification on the telecommunication site/facility being worked on, or any site/facility within the hazardous vicinity or able to transmit hazardous energy to employees at the job site's location;

(vi) Contact information of the site/facility owner;

(vii) A listing of work completed on the site/facility in the last twelve months.

(c) Information in the telecommunication site/facility location evaluations must be easily comprehensible by any employee conducting work on, or within the hazardous vicinity of the site.

(21) Energy control and devices.

(a) The employer must provide appropriate means to control energy through elimination, isolation, or alternative effective means from energy sources.

(b) The employer must make sure lockout and tagout devices meet all of the following:

(i) Create no additional hazards;

(ii) Have a distinctive design or appearance;

(iii) Are the only devices used for controlling energy;

(iv) Are not used for any other purpose;

- (v) Are durable enough to withstand the environment they are used in for the maximum time they are expected to be used;
 - (vi) Are standardized within the site by color, shape or size;
 - (vii) Identify the specific person who is protected by the lockout or tagout device.
- (c) The employer must make sure lockout devices are strong enough so that removing them by other than the normal unlocking method requires:
- (i) Excessive force; or
 - (ii) Unusual techniques such as the use of bolt cutters or other metal cutting tools.
- (d) The employer must make sure tagout devices meet these additional requirements:
- (i) Make sure all tags:
 - (A) Meet the format and design criteria of danger/warning tags located in ANSI Z535.5, 2011;
 - (B) Use the same print and format within a site/facility;
 - (C) Are constructed and printed so they will not deteriorate and the message on the tag remains legible when:
 - (I) Exposed to weather;
 - (II) Used in wet or damp locations;
 - (III) Used in a corrosive environment such as areas where acid or alkali chemicals are handled or stored.
 - (D) Have a warning about not energizing or increasing the power to the machine, equipment or component.
 - (ii) Make sure tagout devices are strong enough to prevent unintentional or accidental removal.
 - (iii) Make sure the means used to attach the tag to the energy-isolating device meets all of the following:
 - (A) Is not reusable;
 - (B) Is self-locking;
 - (C) Can be attached by hand;
 - (D) Cannot be released with a force of less than fifty pounds;
 - (E) Is similar in design and basic characteristics to a one-piece, all-environment-tolerant, nylon cable tie.
 - (e) The employer must provide appropriate testing/monitoring equipment to assess the potential types and magnitude of energy available at the telecommunication site/facility.
- (22) Use of energy control.
- (a) The employer must use energy control procedures in this section to protect employees from potentially hazardous energy.
 - (b) The employer must use a lockout system if it is feasible and the energy source can be locked out.
 - (i) If a lockout system is used, it must be applied at each source of energy and only by the authorized employee who may be exposed to the hazardous energy;
 - (ii) If multiple employers/authorized personnel are to work on a telecommunication site/facility, group energy shall afford the same protection as individual lockout.
 - (c) The employer must use a tagout system only if an energy source cannot be locked out. If it is infeasible to lock out an energy source, you may be permitted to reduce the energy source exposure to within the MPE limits. If it is feasible to lock out a source of energy, you must do so. If the source cannot be locked, you must use tagout.
 - (d) You must make sure lockout devices hold the energy-isolating device in a "safe" or "off" position.

(e) You must meet these additional requirements when applying a tagout device:

(i) Make sure a tagout device is put on an energy-isolating device so it clearly shows that moving the energy-isolating device from the "safe" or "off" position is prohibited;

(ii) Make sure a tagout device, when used with an energy-isolating device that can be locked out, is fastened to the device at the same point a lock would have been attached;

(iii) Make sure a tagout device that cannot be attached directly to an energy-isolating device is located:

(A) As close as safely possible to the energy-isolating device; and

(B) In a position that is immediately obvious to anyone attempting to operate the energy-isolating device.

(23) Reducing to within the maximum permissible exposure limits (MPE limits) - Authorization steps.

(a) The employer must meet these additional requirements when applying a tagout device for alternative effective means protection to receive authorization to work:

(i) The authorized employee must coordinate with a qualified transmitter engineer/operator to ensure energy control procedures are being followed;

(ii) The authorized employee must have on-their-person testing devices capable of monitoring all potential energy output and alarming if an increase occurs in any component, device or equipment;

(iii) The qualified transmitter engineer/operator must contact all employers responsible for amplifying power within the hazardous vicinity of the affected and authorized employees on the site and ensure the following:

(A) The individual applying the tag gives their name, title and manager's number to the qualified transmitter engineer/operator;

(B) The individual applying the tag notifies the qualified transmitter engineer/operator that they know and understand their responsibilities and requirements of this section;

(C) The individual applying the tag reduces the energy to the specified amount, as determined by the qualified transmitter engineer/operator, and allowed by the PEL;

(D) This energy reduction is verified by the qualified transmitter engineer/operator on-site;

(E) A tagout device is secured on the dial, knob, terminal, switch or device used to increase or decrease power for each transmitter, component and equipment capable of introducing hazardous energy;

(F) The qualified transmitter engineer/operator documents the name, date, and time of contact as well as what energy was controlled at the time;

(G) The qualified transmitter engineer/operator contacts the authorized persons on-site, and ensures that they verify the power is reduced to acceptable levels according to the MPE limits.

(iv) When the authorized employee has completed their job, and outside of the hazardous vicinity, they will inform the qualified transmitter engineer/operator on-site;

(v) The qualified transmitter engineer/operator on-site will verify no employees are within the hazardous vicinity;

(vi) The qualified transmitter engineer/operator will contact all employers capable of amplifying power and have the tagout devices removed. The qualified transmitter engineer/operator will document the person they spoke to, the time, and the date the tagout was "closed";

(vii) The qualified transmitter engineer/operator will return the equipment back to normal power.

(b) The employer must protect employees from the hazards of potential, stored, residual or active hazardous energy by:

(i) Making sure all potentially hazardous stored and residual energy is relieved, discharged, disconnected, restrained, or otherwise rendered safe after the lockout or tagout devices have been put on the energy-isolating devices;

(ii) Continuous verification of the control of machines, equipment, transmitters, receivers or that could reaccumulate stored energy to a hazardous level until:

(A) Service or maintenance is completed; or

(B) The possibility of accumulating hazardous energy does not exist.

(c) The employer must make sure each authorized employee verifies that the machine, equipment, transmitter, receiver or antenna that has been locked, tagged or reduced to within the MPE limits is safe to work around before starting work.

(d) The employer must ensure that before lockout/tagout devices are removed and the energy is restored to machine or equipment, procedures shall be followed and actions taken by the authorized employees to ensure the following:

(i) The work area shall be inspected to ensure that nonessential items have been removed and that machine or equipment components are operationally intact;

(ii) The work area shall be checked and verified to ensure that all employees have been notified, safely positioned or removed;

(iii) The employer of the affected employees must notify the employer of the controlling energy source that it is safe to restore the energy source;

(iv) After (a) through (c) of this subsection have been completed, locks and/or tags can be removed and energy restored to regular power:

(A) If the type of control was elimination or isolation and was locked or tagged out, the lock or tag must be removed by the authorized person who applied it.

(B) If the type of control was reduction to MPE limits or alternative effective means, the tag can be removed by the individual who applied it.

(v) In the case of elimination or isolation the employer may have the lockout or tagout device removed by someone other than the authorized employee who applied it if all of the following conditions are met:

(A) The energy control program has a documented, specific procedure and training for this situation.

(B) You can show that the specific procedures used are as safe as having the device removed by the authorized employee who applied it.

(C) The specific procedures include at least the following:

(I) Verifying the authorized employee who applied the device is not at the site/facility;

(II) Making all reasonable efforts to contact and inform the authorized employee that the lockout or tagout device is being removed;

(III) Making sure the authorized employee is informed, before resuming work at the site/facility, that the lockout or tagout device has been removed.

(e) The employer must meet these requirements if it is necessary to temporarily energize a machine, equipment or component for testing or positioning:

(i) Ensure all authorized or affected personnel are notified and out of hazardous vicinities where exposure to hazardous energy could injure them;

(ii) Follow the energy control program procedures to:

(A) Have all affected and authorized personnel and employees move outside the hazardous vicinity;

(B) Have the authorized individual remove the lockout or tagout device or alternative effective means device;

(C) Contact the employer able to increase or amplify power and have them remove the lockout or tagout device;

(D) Energize or increase power to the machine, equipment or component;

(E) Conduct testing or positioning;

(F) Isolate, eliminate or reduce the power to within the MPE limits;

(G) Reapply the lockout or tagout device when testing or positioning is completed;

(H) Ensure proper protection is afforded through alternative effective means;

(I) Use metering, monitoring or testing devices to determine levels of energy are safe to reenter the area.

(f) The employer must make sure each authorized employee:

(i) Puts a personal lockout or tagout device on the isolation device, group lockout device, lockbox, or comparable mechanism before beginning work;

(ii) Does not remove it until they have finished work on the machine or equipment; and

(iii) Using an energy control alternative effective means, must have a means to contact the employer who has the ability to increase amplification, and how a tagout device will be applied and removed.

(24) Group lockout/tagout and shift changes.

(a)(i) The employer must protect employees during shift or personnel changes by doing the following:

(ii) Use specific procedures for shift or personnel changes to:

(A) Make sure there is continuous lockout or tagout protection during the change; and

(B) Provide for the orderly transfer of lockout or tagout device protection between employees.

(b) The employer must make sure your group energy control procedures provide each member of a crew, craft, department, or other group with the same level of protection as that provided by an individual lockout or tagout device.

(c) The employer must assign a primary authorized employee during group energy control who:

(i) Has overall responsibility for the service or maintenance;

(ii) Attaches their lockout or tagout device to the energy-isolating device when the equipment is deenergized and before any work begins;

(iii) Ensures all employees have been notified and removed from the hazardous vicinity; and

(iv) Is the last person to remove their lockout or tagout device when the job is completed.

(d) The employer must do all of the following if more than one group works on a machine, equipment, transmitter or receiver that has to be locked, tagged or reduced to within the MPE limits:

(i) Assign an authorized person as the group coordinator with overall responsibility to:

(A) Coordinate the different work groups; and

(B) Maintain continuous lockout, tagout or reduction to within the MPE limits protection.

(ii) Assign a primary authorized employee in each group who has:

(A) Responsibility for the group of employees who are protected by a group lockout or tagout device; and

(B) A way to determine which employees of the group are exposed to the machine or equipment that is locked or tagged out.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, 49.17.060, and chapter 49.17 RCW. WSR 17-20-069, § 296-32-22578, filed 10/2/17, effective 1/1/18.]