Welcome to Chapter 3, the final chapter. Unlike Chapters 1 and 2, this chapter is a formal rulebook, not a training deck or instructional guide. The rules are short and precise. The exam tests whether you know the exact requirements of each rule. Specific numbers including voltages, distances, time intervals, and frequencies, as well as prohibited conduct lists and conditional exceptions, are all heavily tested. The 50 rules are organized into nine sections by theme. Study one section at a time.
Before we get into the content, let's go over the call out boxes one more time. Recall, A CRITICAL call out is used for rules and definitions where the exact wording is likely to appear on the exam, or where a misunderstanding could cause serious injury. Treat these as non-negotiable. An EXAM TIP call out is used to highlight specific exam strategies, common test traps, and information about how a rule is typically tested. A CROSS-REFERENCE call out is used to show how a rule connects to other EUSR rules, or to the other two chapters of the curriculum, which are Line Clearing Operations and Arborists in Proximity. Many exam questions test these connections. And a NOTE call out is used for clarifying context, practical examples, and background information that supports the rule but is not the rule itself.

Section I, Definitions.

The following definitions appear in italics and bold throughout the EUSR rules. When a rule uses a defined term, it means exactly what the definition says, not the everyday meaning of the word. Many exam questions are built entirely around testing whether you know the defined meaning.

Exam tip: pay particular attention to: Authorized Worker, Charged, De-Energized, Energized, Isolated, Hold-Off, Work Permit, Proximity, Dedicated Observer, and the difference between Competent Person and Competent Worker. These are the most-tested definitions in the curriculum.

The Definitions.

"Alive" means see Energized. Alive and Energized are interchangeable in the EUSR.

"Apparatus" means all equipment pertaining to the generation, transmission, distribution, and use of electricity.

"Approved" means a device or method that has been evaluated and selected from alternatives that meet the specific requirements of the job.

"Approved Practice" means a trade skill or work procedure used in situations where isolation of energy sources is not used. It can only be used to provide safety for the person who is exercising the approved practice. Skills are developed from education, training and experience. Normally documented in training material, trade handbooks or work methods instructions.

"Approved Work Procedure or Procedures" means an approved, documented, step-by-step method that ensures the task can be performed safely.

"Arc Flash" means a dangerous condition associated with the release of energy caused by an electric arc.

"Arc Rated, or AR, and Flame Resistant, or FR" means the value attributed to materials that describes their performance to electric arc flash events. The property of a material whereby combustion is prevented, terminated, or inhibited following the application of a flaming or non-flaming source of ignition, with or without subsequent removal of the ignition source.

"Authorized Worker or Workers" means a worker who has been given formal permission by the owner and employer and is competent to perform work in proximity to energized apparatus.

"Bonded" means electrically connected to ensure that two or more objects are at the same potential.

"Bonding, electrical" means making a mechanically secure electrical connection between two or more objects to ensure they are at the same potential.

"Cable or Cables" means all insulated conductors used for transmitting or distributing electrical energy.

"Certified Insulated Aerial Device or Devices" means an aerial device that has successfully passed dielectric testing of the insulated portion of the boom, as prescribed by a testing facility.

"Charged" means isolated but not de-energized; containing stored energy. Electrical equipment not physically connected to a source of energy may still be charged through induction or capacitance.

"Competent Person" means a person who: (a), is qualified because of knowledge, training and experience to organize work and its performance; (b), is familiar with the OHSA and Regulations that apply to the work; and (c), has knowledge of any potential or actual danger to health or safety in the workplace.

"Competent Worker" means, in relation to specific work, a worker who: (a), is qualified because of knowledge, training and experience to perform the work; (b), is familiar with the OHSA and Regulations that apply to the work; and (c), has knowledge of all potential or actual danger to health or safety in the work.

"Conductor or Conductors" means that part of a cable, overhead line or apparatus intended to conduct the flow of electrical energy.

"Confined Space or Spaces" means a fully or partially enclosed space: (a), not both designed and constructed for continuous human occupancy; and (b), in which atmospheric hazards may occur because of its construction, location, contents or work done in it.

"Controlling Authority" means the person or persons responsible for the control of specific equipment and devices, including responsibility for performing, directing or authorizing changes in the conditions or position of the equipment or devices.

"Critical Hazard" means a condition that has the potential for unwanted energy flow that may result in an injury to a worker or the public.

"Dedicated Observer" means a worker competent in the tasks being performed and having no other duties while monitoring the work continuously.

"Dedicated Signal Person" means a competent worker designated as a signaller, having no other duties while monitoring the work continuously. Positioned in full view of the operator with a clear view of the energized electrical apparatus and of the vehicle or equipment.

"De-Energized" means where electrical energy has been discharged through a mechanically secure connection to an effective ground potential.

"Drop Zone" means the area where there is potential for electrical hazards or objects to fall to the ground while work is being performed aloft, creating a risk to workers or the public.

"Dynamically Alive" means connected, and not isolated, to a source of energy such as an electrical generator, storage battery, or other source of electrical energy.

"Emergency" means a situation requiring immediate action to prevent serious adverse effects on the health and safety of employees, the public or the environment.

"Emergency Response Plan" means a documented and communicated process designed to ensure a safe environment for all workers and the public when responding to a specific emergency.

"Employer or Employers" means a person who employs or contracts the services of one or more workers.

"Energized" means capable of delivering energy by reason of being dynamically alive or charged.

"Equipotential" means where no differences in electrical potential exist.

"Equipotential Zone" means a work area where no differences in electrical potential exist.

"FRP" means Fibre Reinforced Plastic.

"Grounded" means mechanically secure connection to an effective ground potential.

"Hazard or Hazards" means a source of energy that may affect the safe work area.

"Hold-Off or Hold-Offs" means a device having its operation restricted to previously agreed limits by the placement of a hold-off tag. Most commonly used to block the automatic reclosing or the manual re-energization of a line following an automatic trip. Hold-offs are for equipment protection and must not be used in place of a work permit.

"Holder" means the person who has accepted the work permit or Supporting Guarantee and therefore has attained working and or testing rights for the work group. Assigned responsibilities for ensuring that everyone in the work group is protected from the viewpoint of the Utility Work Protection Code.

"Induction" means voltage produced on a conductive object that is subjected to a changing magnetic field.

"Isolated" means separated from all sources of dynamic energy.

"Isolated Zone" means a section of line or portion of apparatus between isolation points, separated from all sources of dynamic energy.

"Job Plan, Revised 01/24" means a work plan agreed to and signed, electronically or written, by each worker involved that: identifies all known hazards; eliminates the hazards where practical; controls the hazards that cannot be eliminated; protects against injury if a hazard gets out of control; minimizes the severity of an injury if one takes place; and identifies each worker's responsibilities in the performance of the work.

"Lines" means all overhead conductors used for transmitting or distributing electrical energy.

"Line Clearing Operations" means removal of vegetation in proximity to energized electrical apparatus.

"Live Line Work" means work activities carried out by authorized workers on live conductors and associated apparatus, using special equipment and approved work procedures.

"Maintenance Chamber and or Vault" means a chamber or enclosure used in an underground electrical distribution system to house electrical apparatus or the entrance way thereto.

"Nominal Voltage" means the normal operating voltage measured phase-to-phase on multi-phase equipment, or phase to neutral on single-phase equipment.

"Non-Insulated Booms and Non-Insulated Portion of Aerial Devices" means an articulated or extendable lifting device with no tested electrical insulating qualities.

"Personal Protective Equipment" means approved safety equipment worn and used to reduce the risk of personal injury.

"Proximity" means within: (a), 3 metres, or 10 feet, of energized apparatus above 750 V to 150 kV; (b), 4.5 metres, or 15 feet, of energized apparatus above 150 kV to 250 kV; (c), 6 metres, or

20 feet, of energized apparatus above 250 kV. This does NOT apply to apparatus designed, built and installed to be intrinsically safe for human touch.

"Safe Limits of Approach" means a procedural barrier system for authorized workers or workers under the continuous direction of an authorized worker, intended to minimize the risk associated with working in proximity to exposed energized apparatus.

"Safe Work Area" means a specifically identified area for work where all known hazards have been eliminated or are controlled.

"Safety Interlock" means a device or system which prohibits the improper sequence of operations.

"Second Point of Contact" means anything at a potential other than that of the worker.

"Supervisor" means a person who has charge over a workplace or authority over a worker.

"Testing Facility, NEW in 2024" means a testing facility that tests in accordance with applicable standards, and has established specific testing standards for electrical equipment, tools, protective equipment and aerial devices.

"Utility Work Protection Code" means the written procedures to establish an isolated, tagged and or locked out condition for work. Approved and adopted by IHSA and Hydro One Inc.

"Worker or Workers" means a person who performs work or supplies services for monetary compensation.

"Work Permit, Revised 01/24" means a work permit is a written guarantee: that an isolated, or isolated and de-energized condition has been established for work, and will continue to exist, except for authorized tests.

"Workplace or Workplaces" means any land, premises, location or thing at, upon, in or near which a worker works.

Section I key facts to memorize: Alive is the same as Energized. Authorized Worker requires formal permission from owner AND employer plus competence. Charged means isolated but not de-energized and has stored energy. Competent Person organizes work and knows "any" potential danger. Competent Worker performs work and knows "all" potential danger. De-Energized means mechanically secure grounding to effective ground potential. Dedicated Observer has no other duties and monitors continuously. Energized means dynamically alive OR charged. FRP means Fibre Reinforced Plastic. Hold-Off is for equipment protection, the line is still energized, and it must NOT replace a work permit. Isolated means separated from dynamic energy sources only, and the apparatus may still be charged. Job Plan in 2024 must be agreed to and SIGNED, whether electronically or written, by each worker. Line Clearing Operations means removal of vegetation in proximity to energized electrical apparatus. Nominal Voltage is phase-to-phase for multi-phase equipment or phase-to-neutral for single-phase.

Proximity from 750 V to 150 kV is 3 m, or 10 ft. Proximity from greater than 150 kV to 250 kV is 4.5 m, or 15 ft. Proximity above 250 kV is 6 m, or 20 ft. Second Point of Contact is anything at a potential other than the worker's. Testing Facility is new in 2024 and is an accredited facility for testing tools, equipment, and aerial devices. UWPC means written procedures for isolated, tagged, and or locked-out work condition. Work Permit is a written guarantee of isolated or de-energized condition and protects people.

Section II, Foundations: Rules 100 through 105.

Rules 100 through 105 are the bedrock obligations that apply before any specific task begins: what the rules are for, who must follow them, how employers manage departures from them, what workers must know, how they must conduct themselves, and what personal limitations must be disclosed.

Rule 100, General.

Critical: Three Foundational Principles. Number 1: the first consideration by workers must be the safeguarding of life and the avoidance of personal injury. Number 2: these rules are mandatory and must be followed at all times. Number 3: in situations where a specific rule does not apply or is not wholly understood, obtain specific instructions from the supervisor before proceeding with work.

Exam tip: Rule 100 number 3 is tested with scenarios. "A worker encounters a situation not covered by any specific EUSR rule. What should they do?" The answer is: obtain instructions from the supervisor before proceeding.

Rule 101, Employer's Management of Rules.

The employer shall establish a written policy and procedure to manage these safety rules and to ensure they are correctly applied. The policy must deal with resolving disagreements on the interpretation of a rule.

Critical: Three requirements for a valid departure from the EUSR. Number 1: it must result in a level of safety equal to or greater than that provided by the EUSR. Number 2: it must be fully documented and approved by the employer. Number 3: it must be sent to the JHSC or Health and Safety Representative for the workplace.

Exam tip: all three requirements must be satisfied. You cannot depart from a rule because it is inconvenient, only if the alternative is equally or more safe.

Rule 102, Knowledge of Rules.

Critical: workers conducting work on or in proximity to exposed apparatus shall: (1), have a copy of these safety rules; (2), be trained in the application of the rules; and (3), follow all rules applicable to their duties AND to the duties of any employee they supervise.

Cross-reference: these are the same three requirements, being have, trained, and follow, that appear in AIP Section VI under "Knowledge of Rules." The third requirement extends supervisory responsibility upward.

Rule 103, Personal Conduct, Revised 01/24.

Critical: 103(1): a worker under the influence of any drug or intoxicant which may inhibit safe work performance shall not perform work or be permitted to work. 103(2): workers are not to engage in any pranks, contests, feats of strength, unnecessary running, or rough and boisterous conduct in the workplace, nor urge fellow workers to take unnecessary risks. 103(3): electronic devices must not be used in workplaces where it will affect the safety of work being performed.

Exam tip: Rule 103(2) adds one element not found in OHSA Section 28: "nor urge fellow workers to take unnecessary risks." This addition is unique to the EUSR and is frequently tested. Rule 103(1) is two-sided: the worker shall not perform work AND shall not be PERMITTED to work. Both the worker and the supervisor have obligations.

Rule 104, Physical and Other Limitations.

Critical: workers shall inform their supervisor of any mental, physical, personal, or other limitations that may reduce their ability to work safely.

Note: the obligation is on the worker to inform, not on the supervisor to ask. The list is open-ended: "other" covers anything not captured by mental, physical, or personal.

Rule 105, Jewelry and Long Hair.

Critical: 105(1): jewelry must not be worn where it would present an increased risk of injury. 105(2): long hair, including facial hair, must be suitably confined where it would present an increased risk of injury.

Note: both rules are conditional, meaning "where it would present an increased risk." In proximity work, the risk is always elevated. Metal jewelry is conductive and can arc, concentrate current, or puncture rubber gloves from inside.

Cross-reference: Rule 135(7) states "jewelry must not be worn while wearing rubber gloves." This is the specific proximity application of Rule 105.

Section II key facts to memorize: Rule 100 number 1 states first consideration is safeguarding of life and avoiding personal injury. Rule 100 number 2 states rules are mandatory at all times. Rule 100 number 3 states if a rule doesn't apply or is not understood, obtain instructions from supervisor BEFORE proceeding. Rule 101 departure requirements are three: (1) equal or

greater safety; (2) documented and employer-approved; (3) sent to JHSC or Health and Safety Representative. Rule 102 knowledge requirements are three: have a copy; trained in application; and follow rules for own duties AND duties of those supervised. Rule 103(1) covers drug and intoxicant: worker shall not perform work AND shall not be permitted to work. Rule 103(2) covers the prohibited conduct list plus the addition unique to the EUSR of urging others to take unnecessary risks. Rule 103(3) covers electronic devices: not used where they affect safety of work. Rule 104 requires disclosing mental, physical, personal, or other limitations to supervisor. Rule 105(1) states jewelry not worn where it presents increased risk of injury. Rule 105(2) states long and facial hair must be suitably confined where it presents increased risk.

Section III, Workplace Safety Framework: Rules 106 through 112.

Rules 106 through 112 establish the operational framework for how proximity work is organized and protected before a single tool is picked up. Rules 107 and 112 are the most heavily tested in this group.

Rule 106, Authorization for Work.

Critical: only authorized workers, or workers under the direction of an authorized worker, may perform work on or in proximity to exposed energized apparatus.

Cross-reference: AIP Section VI covers the two sources of authorization, being utility owner and employer, and the daily authorization cycle. Rule 133 extends this specifically to live line work.

Rule 107, Job Planning, Revised 01/24.

107(1), Planning, Communication, and Barriers. Critical: 107(1)(a): all work must be properly planned and communicated, taking into account all workers, the general public, approved work procedures, equipment, and the physical and environmental conditions. The purpose is to establish a safe work area by identifying job steps, hazards, and appropriate barriers. Emergency steps must also be documented. 107(1)(b), Barrier types: electrical hazard barriers must have adequate electrical insulation value; mechanical hazard barriers must have adequate strength; visual barriers must be used wherever practical to identify safe work areas and restrict access. 107(1)(c), Visual barrier requirements, four of them: (1), made of approved materials; (2), posted with appropriate warnings; (3), installed before work begins; and (4), respected as other safety barriers.

107(2), The Documented Job Plan. Critical: a documented job plan must be completed, agreed to, and SIGNED, electronically or written, by each worker BEFORE performance of all tasks: (a), on or in proximity to energized electrical equipment; (b), requiring establishment of work protection; and (c), involving critical hazards such as falling, hoisting, confined space, or hazardous substance.

Exam tip: the 2024 revision explicitly allows electronic signatures. Three triggers for a signed job plan are: proximity, work protection, and critical hazard.

107(3), Changes During the Job. Critical: if a change is encountered, work must STOP. The new hazard must be identified and eliminated or controlled. The revised job plan must be communicated, agreed to, and signed by each worker, and where necessary the controlling authority, before re-starting work.

107(4) and (5), Controlling Authority Notification and Communications. Critical: 107(4): the controlling authority shall be notified of work location AND duration when work is performed on or in proximity to apparatus energized above 750 V. 107(5): a means of communication shall be readily available at all times between the controlling authority and any work crews in proximity to apparatus above 750 V.

Rule 108, Weather Conditions.

Critical: 108(1): when weather conditions make the job unduly hazardous, work must be suspended immediately. 108(2): all work where a lightning strike may cause personal injury will be suspended immediately whenever deemed unsafe by the on-site supervisor or worker.

Exam tip: lightning suspension is decided by the on-site person, not a remote office. They don't need approval to stop work for lightning risk.

Rule 109, Operating Maps and Component Nomenclature.

Critical: 109(1): all electrical components must be identified and labelled with legible nomenclature, including non-utility generation. 109(2): up-to-date operating maps and diagrams must be readily available to workers at all locations where work is being performed.

Note: a circuit map under normal conditions is the only reliable way to know a line's nominal voltage. "Up-to-date" is critical, because outdated maps can be fatal.

Rule 110, First Aid, Revised 01/24.

Critical: Five first aid requirements. 110(1): employers must develop and maintain emergency response capability including training per WSIA and all applicable legislation. 110(2): a list of emergency contacts, including ambulance, hospitals, fire, police, and company, shall be provided at the work location. 110(3): first aid training must include the "Life Saving" module of CPR AND AED. 110(4): first aid kits meeting WSIA standards shall be maintained in all workplaces AND all vehicles. 110(5): AEDs must be provided and suitably located on site when 2 or more workers are working in an energized electrical environment.

Exam tip: four testable specifics are: (1), CPR AND AED, not just CPR; (2), kits in all workplaces AND all vehicles; (3), emergency contact list at the work location; and (4), AED threshold equals 2 or more workers in an energized environment.

Rule 111, Emergency Response.

Critical: 111(1): written emergency response plan; posted conspicuously at the workplace or project. 111(2): all workers instructed in the plan; practiced at regular intervals. 111(3): emergency deviation from rules is permitted, but the worker shall take every precaution reasonable to maintain a safe work environment. 111(4): emergency actions must be reported promptly to the supervisor, stating the action taken and reasons.

Exam tip: Rule 111(3) is the only sanctioned in-field deviation from EUSR rules. Compare with Rule 101, which covers planned employer-approved departures. Rule 111 equals emergency; Rule 101 equals planned.

Rule 112, Rescue Operations, Revised 01/24.

Critical: Five rescue requirements. 112(1): written policies and procedures; workers and supervisors familiar and competent; includes first aid, CPR, and AED. 112(2): employees who may perform rescue shall be trained in the appropriate rescue procedure for the work being performed. 112(3): minimum one practice session per year for each specific rescue procedure. 112(4): training and practice sessions documented; records kept. 112(5): synthetic rescue rope or mechanical device must be conspicuously located and readily available; designed for life-saving; minimum breaking strength 2,300 kg, or 5,000 lbs.

Exam tip: two key numbers in Rule 112: (1), at least once per year per specific rescue procedure; and (2), rescue rope minimum breaking strength is at least 2,300 kg, or 5,000 lbs.

Section III key facts to memorize: Rule 106 states only authorized workers, or workers under their direction, may work in proximity. Rule 107(1)(c) visual barrier requirements are four: approved materials; appropriate warnings; installed before work begins; and respected as other barriers. Rule 107(2) signed job plan triggers are three: proximity to energized equipment; work protection required; and critical hazard. Rule 107(2) electronic signatures are now permitted per the 2024 revision. Rule 107(3) requires stopping work if a change is encountered; revise and re-sign the plan; and restart only after all sign. Rule 107(4) requires notifying the controlling authority of work LOCATION and DURATION when near apparatus over 750 V. Rule 108(2) states for lightning, the on-site supervisor or worker decides and must suspend immediately. Rule 110(3) requires first aid training to include CPR AND AED. Rule 110(4) requires first aid kits in all workplaces AND all vehicles. Rule 110(5) requires AEDs when 2 or more workers are in an energized electrical environment. Rule 111(1) requires the emergency response plan to be written and posted conspicuously at the workplace. Rule 111(4) requires emergency actions to be reported promptly to supervisor, stating the action taken and reasons. Rule 112(3) requires rescue practice at least once per year per specific procedure. Rule 112(5) requires rescue rope with minimum breaking strength of at least 2,300 kg, or 5,000 lbs., conspicuously located and readily available.

Section IV, Protection Principles: Rules 113 through 116.

Rules 113 through 116 establish the core protection principles governing how work near energized apparatus is made safe. Rule 114 is the cornerstone, because it specifies the four methods by which safe conditions may be established.

Rule 113, Arc Rated and Flame Resistant Protective Equipment.

Rule 113(1), Five Clothing Requirements. Critical: when working on or in proximity to exposed energized apparatus: (a), AR and FR clothing and protective equipment must provide an adequate level of protection; (b), the outer layer must be AR and FR material; (c), clothing worn with AR and FR must not contribute to increased injury; (d), AR and FR clothing, foul-weather clothing, and protective equipment must meet current recognized industry standards; and (e), approved eye protection is required wherever there is a possibility of electrical flash or arc.

Exam tip: item (d) is often missed. Foul-weather clothing must also be AR and FR rated. A non-arc-rated rain jacket is not compliant even if the layers beneath are.

Rule 113(2), The AR and FR Exception. Critical: AR and FR clothing MAY NOT be required if ALL THREE conditions are met. Number 1: the worker is authorized. Number 2: the worker is appropriately trained in the work. Number 3: the worker establishes safe conditions of work per Rule 114. Missing even one condition means AR and FR is required.

Rule 114, Safe Conditions for Work, Revised 01/24.

Rule 114(1), UWPC Requirements. Critical: Three UWPC requirements from the 2024 revision. (a), all work requiring the UWPC must be strictly followed; (b), UWPC recertification must be completed every 27 months or earlier; and (c), all UWPC training given exclusively by Hydro One, IHSA, or IHSA Member Employers with Train the Trainer certification.

Exam tip: 27 months is a precise, unusual number that will be tested. UWPC training has only three approved providers.

Rule 114(2), The Four Methods for Safe Conditions. Critical: no work shall be done on electrical apparatus unless safe conditions are provided by one or more of: (a), apparatus isolated and de-energized in accordance with the UWPC; (b), worker protection provided by an approved isolation procedure as defined in the UWPC; (c), apparatus physically removed from the vicinity, no ready means of connection, and all stored energy discharged; or (d), worker protection provided by an approved practice; work performed by an authorized worker; and all limits of approach followed per Rule 129.

Let's look at those four methods in a bit more detail. Method (a) is standard work permit work. The key mechanism is isolation plus grounding per the UWPC, and there is no work on live apparatus. Method (b) is partial protection for testing. The key mechanism is isolation confirmed per the UWPC, and it applies to testing only. Method (c) is for portable and moveable apparatus. The key mechanism is physical removal plus energy discharge, and there is no work on live apparatus. Method (d) is live proximity work. The key mechanism is authorization plus approved practice plus LOA compliance, and yes, work on live apparatus is permitted.

Exam tip: Method (d) is the basis for all authorized proximity work without full isolation. It requires all three: approved practice plus authorized worker plus LOA compliance. Rule 122(2)(a) excludes Method (d) from the working-alone permission. Method (d) requires a second worker.

Rule 115, Work on Isolated Circuits.

Critical: 115(1): no work shall be performed on an isolated circuit until formal work protection is established AND the circuit de-energized in accordance with the UWPC. 115(2): all isolating, de-energizing, tagging, and locking of devices must comply with the UWPC.

Critical: isolated does not equal safe. Isolated plus de-energized per the UWPC equals safe to work on.

Cross-reference: AIP Section IX states "If it's not grounded, it's not dead!" Rule 119 governs the grounding process.

Rule 116, Work on Neutral Conductors, Buses, and Skywires.

Critical: 116(1): all work on neutral conductors, neutral buses, and skywires must be performed in accordance with Rule 128, which covers Apparatus to be Treated as Energized. 116(2): when cutting, splicing, or repairing a neutral conductor, neutral bus, or skywire, adequate jumpers to prevent a potential difference shall be used and installed and removed using approved work procedures.

Note: neutral conductors run alongside primary lines and are de-energized under normal conditions, but they carry return and fault current and can rise to phase voltage under certain fault conditions. They are NEVER assumed safe without formal protection.

Section IV key facts to memorize: Rule 113(1)(d) requires foul-weather clothing to also meet AR and FR standards. Rule 113(2) AR and FR exception requires three conditions: authorized plus appropriately trained plus safe conditions per Rule 114. Rule 114(1)(b) requires UWPC recertification every 27 months. Rule 114(1)(c) allows UWPC training from Hydro One, IHSA, or IHSA Member Employers with Train the Trainer only. Rule 114(2) Method (a) is isolation plus de-energization per UWPC, which is the safest method. Rule 114(2) Method (d) is approved practice plus authorized worker plus LOA, which is live proximity work and excludes working alone. Rule 115 states that for an isolated circuit, formal work protection plus de-energization per UWPC is required before work. Rule 116(1) states neutral conductors and skywires are treated as energized per Rule 128. Rule 116(2) states cutting or splicing a neutral requires adequate jumpers to prevent potential difference.

Section V, Energy Control: Rules 117 through 121.

Rules 117 through 121 deal with the control of hazardous energy. Rule 119 is the most detailed and heavily tested in this section, covering 12 sub-rules covering every aspect of temporary grounding.

Rule 117, Establishment of Hold-Offs.

Critical: a hold-off shall be established for equipment protection, and MUST NOT be used in place of a work permit, whenever: (a), live line work procedures are being performed; (b), stringing, sagging, raising, or lowering conductors or stringing ropes in proximity; (c), installing or removing poles within the LOA for non-insulated booms and aerial devices; (d), installing or removing loops of airbreak switches, load interrupters, loadbreak switches, or bypass tubes; (e), installing or removing live line openers; (f), moving energized cables over 750 V; and (g), the employer, supervisor, worker, or controlling authority considers it necessary, or it is determined during job planning.

Exam tip: trigger (g) is the most important for arborists, because any of the four workplace parties can call for a hold-off at any time. The constant reminder is that hold-offs are for equipment protection only. The line is STILL ENERGIZED.

Rule 118, Static Electricity and Induction.

Critical: workers must identify all sources of static electricity and induction. Approved grounding and bonding procedures must then be used to eliminate or control these hazards.

Note: a de-energized line running parallel to high-voltage transmission lines can have hundreds of volts induced onto it with no physical connection. Rule 118 is the control requirement; Rule 119 is how.

Rule 119, Use of Temporary Grounds, Revised 01/24.

Twelve sub-rules, all testable. Critical: 119(1): use per approved grounding and bonding procedures and the UWPC. 119(2): potential test FIRST, before applying any grounding or bonding equipment. 119(3): equipotential point-of-work grounding shall be the first choice for overhead circuits. 119(4): grounds must be of adequate current-carrying capacity for the maximum available fault currents. 119(5): grounds must be highly visible, using a coloured conductor jacket, marker, or flag. 119(6): clean and visually inspected daily before use. 119(7): tested annually; marked with legible expiry date. 119(8): applied and removed using live line tools and approved work procedures. 119(9): no work until safe work area has been established. 119(10): not removed until workers requiring them have completed their work, or approved testing requires it. 119(11): approved cable-spiking tool required for positive identification before cutting underground cable over 750 V. 119(12): conductors over 300 V not yet in service must remain de-energized until connected for service.

Exam tip: order of operations requires a potential test per Rule 119(2) BEFORE applying grounds per Rule 119(8). If you ground a live line, you cause an immediate fault. Live line tools are required for BOTH directions: applying AND removing grounds both require live line tools.

Three unique numbers to remember: (7) requires annual testing; (11) requires a spiking tool for underground cables over 750 V; and (12) requires pre-service de-energization for conductors over 300 V.

Rule 120, Electrical-Testing Devices.

Critical: 120(1): only certified and approved testing devices that have been verified as operational prior to use shall be used. 120(2): used in accordance with manufacturers' specifications and approved work procedures. 120(3): voltmeters, multimeters, and phase-rotation indicators rated up to 750 V AC using direct contact shall be equipped with fused leads. 120(4): all voltmeters and multimeters shall be designed and approved for outdoor distribution systems.

Exam tip: fused leads are required for direct-contact testing up to 750 V AC. Devices must be verified as operational prior to each use, not just once on purchase.

Rule 121, High-Voltage Testing.

Critical: 121(1): all high-voltage testing shall be conducted using approved work procedures; and where applicable in accordance with the UWPC. 121(2): all portable potential indicators used on voltages over 750 V must be re-certified yearly by a testing facility, or more often if necessary; marked with legible test and expiry date.

Cross-reference: portable potential indicators follow the same annual testing cycle as most Table 1 equipment in Rule 134.

Section V key facts to memorize: Rule 117 hold-off triggers are seven: live line work; stringing, sagging, raising, or lowering; poles near LOA; loops and LLOs; moving cables over 750 V; and whenever any party considers it necessary. Rule 117 reminder is that it provides equipment protection only, the line is still energized, and it must NOT replace a work permit. Rule 118 requires identifying static and induction sources and applying approved grounding and bonding. Rule 119(2) requires a potential test BEFORE applying any ground. Rule 119(3) states equipotential point-of-work grounding is the first choice. Rule 119(5) requires grounds to be highly visible using a coloured jacket, marker, or flag. Rule 119(7) requires grounds to be tested annually with a legible expiry date. Rule 119(8) requires applying AND removing grounds with live line tools. Rule 119(10) states grounds must not be removed until work is complete. Rule 119(11) requires a spiking tool for underground cable over 750 V before cutting. Rule 119(12) states conductors over 300 V not yet in service must remain de-energized. Rule 120(3) requires fused leads for voltmeters, multimeters, and phase-rotation indicators up to 750 V AC using direct contact. Rule 121(2) requires portable potential indicators over 750 V to be re-certified yearly with a legible expiry date.

Section VI, Working Methods: Rules 122 through 127.

Rules 122 through 127 cover how work is physically carried out near energized apparatus. Rule 122 on Working Alone and Rule 123 on Aerial Devices are the most heavily tested.

Rule 122, Working Alone, Revised 01/24.

122(1), When a Worker Must NOT Work Alone. Critical: a worker must not work alone when: (a), fall arrest, fall restricting, or travel restraint systems are required; (b), working aloft on a straight or extension ladder before it is secured; (c), working on a nominal voltage of 300 V or greater; (d), working in proximity to exposed energized apparatus, except when meeting Rule 122(2)(a); (e), switching in an underground electrical system involving elbows or exposed switching devices; (f), working in a confined space; (g), patrolling lines when weather makes it hazardous AND two-way communication cannot be maintained; and (h), working in a battery room, except when meeting Rule 122(2)(c).

Exam tip: the 300 V threshold in item (c) is lower than the 750 V threshold used in most other rules. Memorize it.

122(2), When Working Alone IS Permitted. Critical: working alone is permitted: (a), in proximity when ALL of these conditions are met: authorized, plus appropriately trained, plus safe conditions per Rule 114(a), (b), or (c), but NOT (d); (b), operating switches and replacing fuses on an overhead electrical system from the ground; (c), visual inspections in a battery room; and (d), any work where a hazard assessment determines no factors make it unsafe to work alone.

Critical: Rule 122(2)(a) excludes Method (d) from Rule 114. Working alone in proximity is NOT permitted when using only procedural and clearance protections, which is live line work. A second worker is required for Method (d).

122(3), (4), and (5), Hazards, Second Worker, and Confined Space. Critical: 122(3): if hazards are encountered while alone, or the worker is not competent to complete the work alone, work must not proceed until the concern is resolved. 122(4), when a second worker is required, they shall be: (a), knowledgeable in the hazards of the task; (b), a suitably equipped competent worker who can perform rescue including CPR and AED; and (c), available and positioned to SEE the working worker. 122(5), confined space second worker: positioned immediately outside the entrance; maintain constant two-way communication.

Exam tip: three requirements for the second worker are: knowledgeable in hazards; competent in CPR and AED; and positioned to SEE the worker. All three must be satisfied. Being available is not enough if they can't see.

Rule 123, Aerial Devices and Boom Trucks, Revised 01/24.

Core Operating Requirements. Critical: 123(1): aerial devices shall be operated within: (a), manufacturer's specifications; (b), current legislation; and (c), Safe Limits of Approach per Rule 129. 123(5): visually inspected for structural, mechanical, and hydraulic defects, including holding valve checks, each day prior to use, per manufacturer specifications, and the inspections must be documented. 123(6): aerial devices for live line work over 750 V must be

equipped with upper and lower controls; and the lower must positively override the upper. 123(9): bucket liners are required for rubber glove AND barehand techniques. 123(10): before work aloft, all boom and bucket covers must be completely removed.

Critical: 123(7): workers must NOT remain in the bucket during emergency lowering when hydraulic pressure is manually released. 123(8): boom trucks used as person-lifts must NOT be simultaneously used for hoisting unless specifically designed and certified. 123(11): rubber glove live line work above 15 kV is only permitted from units specifically designed and certified for that voltage. 123(13)(c): two aerial devices or boom trucks within 3 m of each other, where at least one lacks a certified lower boom insert, must be bonded together AND connected to effective ground. 123(14): the lower boom below the insulated portion when in proximity must be adequately grounded. 123(15): auxiliary hydraulic hoses in proximity must be dielectric, clearly identified, and meet approved standards. 123(16): rubber glove work above 15 kV requires a metered current leakage test immediately prior to work, and results must be recorded.

Exam tip: four 15 kV thresholds in Rule 123: (11) states above 15 kV requires a specially designed and certified unit; (12) states up to 15 kV requires maintaining the Restricted LOA between the worker's reach and the non-insulated boom; and (16) states above 15 kV requires a metered leakage test before work.

Rule 124, Raising and Lowering of Tools and Material, Revised 01/24.

Critical: 124(3): an approved handline must be used for raising and lowering; only approved tool bags may be used with it. 124(4): when in proximity, a safe work area must be established before raising or lowering equipment. 124(6): in proximity, a second worker must be positioned to prevent the rope from breaching the LOA, OR the rope must be securely attached to the structure at a location maintaining the LOA.

Cross-reference: ropes are semiconductors per AIP Section VIII. Rule 124(6) controls the specific risk of ropes entering the LOA during raising and lowering operations.

Rule 125, Switching Authorization.

Critical: workers must NOT perform switching operations without approval from the controlling authority, except as allowed by Rule 111, which covers Emergency Response. Emergency switching must be reported to the controlling authority as soon as reasonably possible.

Rule 126, Switching Operations.

Critical: core requirements. 126(1): all switching per the UWPC. 126(2): contact points on isolating switches must be visually checked as open; concealed contacts require a written alternative procedure. 126(3): all switches opened or closed must be checked visually or electronically to confirm proper operation. 126(6): ground gradient mats are required when standing on ground and operating airbreak switches, load interrupters, load-break switches, or motor-operated switches manually. 126(7): ground gradient mats are NOT required when FRP live line tools are being used.

Rubber glove requirements for switching vary by source. Under the IHSA Supplemental: up to 750 V nominal requires Class 0; above 750 V nominal requires Class 1; and reaching or falling distance above 5 kV requires Class 2. Under the Hydro One Supplemental: manual operation of switches at all voltages requires Class 2; underground switching devices require Class 2; within the Restricted Zone at 750 V or above requires Class 2; and switch sticks in damp or adverse weather require Class 2.

Rule 127, Guarding and Safety Interlocking.

Critical: 127(1): guards and safety interlocks must not be removed except for troubleshooting and testing with approved work procedures. 127(2): interlocks must not be bypassed unless: authorized by a competent worker; a documented job plan is communicated to all; and at least one member remains within view of the bypassed device. 127(3): must not bypass before a guaranteed isolation zone is established; and the interlock must be returned to service before isolation is surrendered.

Section VI key facts to memorize: Rule 122(1)(c) states must not work alone at 300 V or greater. Rule 122(2)(a) states working alone in proximity requires Rule 114(a), (b), or (c) only, and NOT (d). Rule 122(4) states the second worker must be knowledgeable in hazards; CPR and AED competent; and positioned to SEE the worker. Rule 122(5) states the confined space second worker must be positioned immediately outside the entrance and maintain constant two-way communication. Rule 123(5) requires daily aerial device inspection covering structural, mechanical, hydraulic, and holding valve checks, and must be documented. Rule 123(6) states live line work over 750 V requires upper plus lower controls with lower positively overriding upper. Rule 123(7) states emergency lowering means workers must NOT remain in the bucket. Rule 123(11) states rubber glove work above 15 kV is only from a specially designed and certified unit. Rule 123(13)(c) states two vehicles within 3 m must be bonded together and connected to effective ground. Rule 123(16) states rubber glove work above 15 kV requires a metered leakage test immediately prior with results recorded. Rule 124(6) states a rope in proximity requires a second worker to prevent LOA breach, or the rope must be secured to the structure. Rule 125(2) states no switching without controlling authority approval, except under Rule 111 emergency. Rule 126(6) versus (7): ground gradient mats are required for manual switch operation but are NOT required with FRP live line tools. Rule 126 IHSA supplemental switching gloves: 750 V or less requires Class 0; above 750 V requires Class 1; and reaching or falling distance above 5 kV requires Class 2. Rule 127(3) bypass sequencing requires establishing isolation first, and returning the interlock before surrendering isolation.

Section VII, The Core Electrical Safety Rules: Rules 128 through 130.

Rules 128, 129, and 130 are the three most important rules in the EUSR for utility arborists. Rule 129 is the centrepiece of the entire document, containing the full LOA table with clearances for every category of worker and equipment.

Rule 128, Apparatus to be Treated as Energized.

Critical: all electrical apparatus is to be considered ENERGIZED unless: (a), the apparatus is isolated and de-energized in accordance with the UWPC; or (b), the equipment is physically removed from the vicinity of any energy source; has no ready means of connection; and has had all stored energy discharged.

Critical: Rule 128 establishes the default assumption: everything is energized. The burden of proof is reversed. You assume dangerous until two specific conditions prove otherwise. Isolation alone is NOT sufficient. A switch can be open, meaning isolated, but the apparatus may still be charged through induction or capacitance.

Exam tip: a switch has been opened. Is the apparatus safe to work on? The answer is no. Isolation alone does not satisfy Rule 128. Both isolation AND de-energization per the UWPC are required for exception (a).

Cross-reference: Rule 116 states neutral conductors are treated as energized per this rule. AIP Section IV states "de-energized lines should never be considered 100% electrically safe."

Rule 129, Safe Limits of Approach, Revised 01/24.

Critical: opening statement: the limits are MINIMUM requirements. To obtain the safest work environment, workers must maintain maximum clearance and use equipment and procedures adequate to protect against electrical shock or burns.

The Full LOA Table. Let's go through each row. For voltages from 750 V to 15 kV: OHSA Minimum is greater than 3.0 m, or 10 ft.; Authorized Worker is greater than 0.9 m, or 3 ft.; Restricted Zone is 0.9 to 0.3 m, or 3 to 1 ft.; OHSA Equipment is greater than 3.0 m, or 10 ft.; Non-Insulated Boom is greater than 0.9 m, or 3 ft.; and Certified Insulated Aerial Device is greater than 0.3 m, or 1 ft.

For voltages greater than 15 kV to 35 kV: OHSA Minimum is greater than 3.0 m, or 10 ft.; Authorized Worker is greater than 0.9 m, or 3 ft.; Restricted Zone is 0.9 to 0.45 m, or 3 to 1.5 ft.; OHSA Equipment is greater than 3.0 m, or 10 ft.; Non-Insulated Boom is greater than 0.9 m, or 3 ft.; and Certified Insulated Aerial Device is greater than 0.45 m, or 1.5 ft.

For voltages greater than 35 kV to 50 kV: OHSA Minimum is greater than 3.0 m, or 10 ft.; Authorized Worker is greater than 1.2 m, or 4 ft.; Restricted Zone is 1.2 to 0.6 m, or 4 to 2 ft.; OHSA Equipment is greater than 3.0 m, or 10 ft.; Non-Insulated Boom is greater than 1.2 m, or 4 ft.; and Certified Insulated Aerial Device is greater than 0.6 m, or 2 ft.

For voltages greater than 50 kV to 150 kV: OHSA Minimum is greater than 3.0 m, or 10 ft.; Authorized Worker is greater than 1.5 m, or 5 ft.; Restricted Zone is 1.5 to 0.9 m, or 5 to 3 ft.; OHSA Equipment is greater than 3.0 m, or 10 ft.; Non-Insulated Boom is greater than 2.4 m, or 8 ft.; and Certified Insulated Aerial Device is greater than 0.9 m, or 3 ft.

For voltages greater than 150 kV to 250 kV: OHSA Minimum is greater than 4.5 m, or 15 ft.; Authorized Worker is greater than 2.1 m, or 7 ft.; Restricted Zone is 2.1 to 1.2 m, or 7 to 4 ft.; OHSA Equipment is greater than 4.5 m, or 15 ft.; Non-Insulated Boom is greater than 3.0 m, or 10 ft.; and Certified Insulated Aerial Device is greater than 1.2 m, or 4 ft.

For voltages greater than 250 kV to 550 kV: OHSA Minimum is greater than 6.0 m, or 20 ft.; Authorized Worker is greater than 3.7 m, or 12 ft.; Restricted Zone is 3.7 to 2.75 m, or 12 to 9 ft.; OHSA Equipment is greater than 6.0 m, or 20 ft.; Non-Insulated Boom is greater than 4.6 m, or 15 ft.; and Certified Insulated Aerial Device is greater than 2.75 m, or 9 ft.

Exam tip: Authorized Worker column memory aid in feet is: 3, 3, 4, 5, 7, 12. The pattern is 3-3-4-5-7-12, because the first two bands both use 3 ft. Non-Insulated Boom at greater than 50 to 150 kV is 2.4 m, or 8 ft., which is wider than the Authorized Worker clearance of 5 ft. at the same voltage. Non-insulated equipment needs more room. Note the 750 V to 35 kV split: there are two separate rows, being 750 V to 15 kV and greater than 15 kV to 35 kV, even though the Authorized Worker clearance is the same at 0.9 m. The Restricted Zone inner boundary differs, being 0.3 m versus 0.45 m.

Six Column Structure: OHSA Minimum applies to any worker, which is the default for everyone not specifically authorized. Authorized Worker applies to workers authorized under Rule 106 and trainees under continuous direction. Restricted Zone applies to authorized workers using live line procedures or approved cover-up, and this does NOT apply to utility arborists. OHSA Equipment applies to any mobile work equipment not specifically categorized. Non-Insulated Boom applies to cranes, power shovels, backhoes, mechanical brush cutters, hydrovac, RDBs, aerial ladders, and uncertified aerial devices. Certified Insulated Aerial Device applies to aerial devices that have passed dielectric testing per Rule 134.

Narrative Requirements. Critical: for Authorized Workers: (1), only authorized workers, or those under continuous direction, may approach, work, or allow material or conductive tools to approach to the limits stated; (2), planned movements of the worker's body, conductive tools, material, or vegetation must not encroach upon these limits; and (3), authorized workers shall NOT ascend or descend vegetation that is or has the potential to encroach the Restricted Zone.

Critical: for Work in the Restricted Zone, five conditions are required. Number 1: rubber gloves worn for all work up to 50 kV. Number 2: barriers and or cover-up installed where practical. Number 3: dedicated observer in place, who must be competent, have no other duties, and be monitoring continuously. Number 4: the worker OR dedicated observer has completed the 4th year of the formal Powerline Technician Apprenticeship or equivalent. Number 5: the worker's planned movements will not result in any encroachment. The minimum distance from barriers is 15 cm, or 6 inches. And the RESTRICTED ZONE IS NOT AVAILABLE TO UTILITY ARBORISTS. Arborists use the OHSA Minimum or Authorized Worker column only.

Critical: for Non-Insulated Booms, the distances apply to all parts of equipment including booms, hoisting cables, and the load. Additional clearance must allow for any change in boom angle,

swing of hoisting cable, and load movement. A dedicated signal person is required for hoisting and rigging in proximity.

Critical: for Certified Insulated Aerial Devices, for voltages up to and including 50 kV, approved barriers and or cover-up must be installed when minimum clearance cannot be maintained. For voltages where no approved barriers exist, the stated limits must never be reduced. A dedicated signal person is required for hoisting and rigging in proximity.

Rule 130, Items in Direct Contact with Energized Apparatus.

Critical: workers must NOT make contact with any pole, structure, VEGETATION, or non-insulated vehicle that is in direct contact with apparatus energized at voltages greater than 750 V.

Note: "Vegetation" is broader than "tree." Rule 130 covers vines, shrubs, brush, tall grass, and any plant material in contact with an energized conductor above 750 V.

Critical: items in direct contact with energized apparatus may ONLY be cleared by: (a), working from an insulated aerial device and using live line techniques; (b), using insulated FRP tools from the ground while wearing rubber gloves; or (c), by de-energizing the apparatus according to the Utility Work Protection Code.

Critical: branches contacting energized conductors or within 10 ft. of them may be removed ONLY through: a clean and dry fibreglass pole tool while wearing applicable PPE. "Clean" means contamination creates a conductive surface path along the pole. "Dry" means moisture creates a conductive film along the surface.

Exam tip: Rule 130's three permitted methods appear verbatim in AIP Section IX and LCO Rule 803. Three chapters, same lesson, guaranteed exam appearance. Know all three and what is NOT on the list, including climbing the vegetation, hand saws, ropes, and gas chainsaws.

Cross-reference: Rule 145 states all covered, jacketed, or insulated overhead conductors over 750 V are treated as bare. Rule 130 applies equally to covered conductors.

Section VII key facts to memorize: Rule 128 establishes the default that all apparatus is considered energized. Rule 128 Exception (a) requires isolated AND de-energized per UWPC, meaning both are required. Rule 128 Exception (b) requires physically removed plus no ready means of connection plus all stored energy discharged. Rule 129 table values are MINIMUMS, so maintain maximum clearance. Rule 129 OHSA Minimum is greater than 3.0 m, or 10 ft., for 750 V to 150 kV; greater than 4.5 m for greater than 150 to 250 kV; and greater than 6.0 m for greater than 250 to 550 kV. Rule 129 Authorized Worker from 750 V to 35 kV is 0.9 m, or 3 ft. Rule 129 Authorized Worker from greater than 35 to 50 kV is 1.2 m, or 4 ft. Rule 129 Authorized Worker from greater than 50 to 150 kV is 1.5 m, or 5 ft. Rule 129 Authorized Worker from greater than 150 to 250 kV is 2.1 m, or 7 ft. Rule 129 Authorized Worker from greater than 250 to 550 kV is 3.7 m, or 12 ft. Rule 129 Non-insulated boom from greater than 50 to 150 kV is 2.4 m, or 8 ft., which is wider than Authorized Worker. Rule 129 Restricted Zone is NOT available to

utility arborists, and requires 4th-year PLT apprenticeship. Rule 129 Restricted Zone minimum barrier distance is 15 cm, or 6 inches. Rule 129 vegetation in Restricted Zone means authorized workers must NOT ascend or descend such vegetation. Rule 129 dedicated signal person is required for hoisting and rigging in proximity for both non-insulated boom AND certified insulated aerial device. Rule 130 prohibition is that workers must NOT contact pole, structure, VEGETATION, or non-insulated vehicle in contact with apparatus over 750 V. Rule 130 permitted methods are three: (a) insulated aerial device plus live line; (b) insulated FRP tools from ground plus rubber gloves; and (c) de-energize per UWPC. Rule 130 for branches within 10 ft. requires a clean and dry fibreglass pole tool plus applicable PPE.

Section VIII, Tools, Equipment, and Rubber Gloves: Rules 131 through 135.

Rules 131 through 135 cover the tools, equipment, and protective gear that make proximity work possible. Rule 134 contains Table 1, which is the complete retesting schedule for all live-line equipment. Rule 135 is the most detailed rule in this section and one of the most heavily tested in the entire EUSR.

Rule 131, Painting, Revised 01/24.

Critical: 131(1): approved work procedures must be in place for painting operations in proximity. 131(2): painting must NOT be carried out where paint spray or a string of paint may reduce the Restricted Limits of Approach. 131(3): painting shall NOT be carried out within the Restricted Zone.

Note: wet paint, especially oil-based and metallic paint, is conductive. A stream of paint can bridge the gap between a worker and an energized conductor, conducting fatal current.

Rule 132, Work on or in Proximity to Energized Apparatus.

Critical: 132(1): a formal risk assessment shall be conducted and written procedures established and implemented to adequately protect workers from all electrical shock and burn. 132(2): before work, a review of the written procedure, or if not available, job steps listed directly on the documented job plan, must be communicated to all workers. 132(3): workers shall use protective equipment and barriers adequate to protect them from electrical shock or burn.

Exam tip: Rule 132(2) states that if no written procedure exists, the job steps must be listed on the job plan itself. Work cannot begin without either.

Rule 133, Authorization for Live Line Work.

Critical: live line work shall only be performed by authorized workers, or workers under the continuous direction of an authorized worker, while using approved work procedures.

Note: Rule 133 adds approved work procedures to the Rule 106 authorization requirement. Authorization alone is not enough for live line work.

Rule 134, Inspection, Testing and Selection of Live Line Tools, Protective Equipment and Aerial Devices.

Critical: 134(1): initial acceptance tests, regular inspections, retesting, and maintenance must be followed for all FRP live line tools and rubber or fibre and plastic protective equipment per Table 1. 134(2): testing shall be performed by a testing facility. 134(3): expiry date must be clearly shown; never used beyond it; if not visible, do not use and return for retesting. 134(4): pole pruners in live line applications shall be approved and equipped with an insulated insert in the rope. 134(5): motorized non-insulated pole pruners and pole saws shall NOT be used in proximity to apparatus over 750 V where there is a possibility of contact. 134(6): all live line tools, rubber gloves, and protective equipment must be clean and visually inspected each day, prior to use. 134(7): defects such as cracks, bruises, punctures, or other abnormalities mean the tool must be removed from service and returned to a testing facility. 134(8): only approved cover-up shall be used on voltages over 750 V. 134(9): cover-up must not remain on energized apparatus longer than absolutely necessary.

Cross-reference: AIP Section VIII states "If it's not tested and stickered, it's not insulated." Rule 134(3) is the formal EUSR basis for that principle.

Table 1, Complete Retesting Schedule. Critical: memorize the testing intervals, because this is one of the most tested tables in the EUSR. Rubber Gloves Class 00 have a maximum use voltage of 500 V and a retest frequency of 90 DAYS. Rubber Gloves Class 0 have a maximum use voltage of 1,000 V and a retest frequency of 90 DAYS. Rubber Gloves Class 1 have a maximum use voltage of 7,500 V and a retest frequency of 90 DAYS. Rubber Gloves Class 2 have a maximum use voltage of 17,000 V and a retest frequency of 90 DAYS. Rubber Gloves Class 3 have a maximum use voltage of 26,500 V and a retest frequency of 90 DAYS. Rubber Gloves Class 4 have a maximum use voltage of 36,000 V and a retest frequency of 90 DAYS. Rubber Blankets, Line Hose, Couplers, and Hoods for Classes 0 through 4 have a maximum use voltage of 1,000 V to 36,000 V and a retest frequency of 1 YEAR. Bypass Jumpers and Tubes for 15, 35, and 46 kV have a maximum use voltage of 15,000 V to 46,000 V and a retest frequency of 1 YEAR. Fibre and Plastic Cover-Up for Classes 2 through 6 have a maximum use voltage of 14,600 V to 72,500 V and a retest frequency of 1 YEAR. Hydraulic Pruners and Pole Saws have a retest frequency of 1 YEAR. Certified Insulated Aerial Device has a retest frequency of 1 YEAR. Bucket Liner has a retest frequency of 1 YEAR. Certified Insulated Aerial Device for Barehand is tested as per unit certification at 6 MONTHS. FRP Live Line Tools have a retest frequency of 3 YEARS. Insulated Pole Platform has a maximum use voltage of 15,000 V and a retest frequency of 3 YEARS.

Exam tip: pattern summary is as follows. 90 days equals rubber gloves of all classes. 6 months equals barehand aerial device only. 1 year equals blankets, hose, hoods, bypass jumpers, cover-up, hydraulic tools, aerial devices, and bucket liners. 3 years equals FRP live line tools and insulated pole platforms.

Rule 135, Rubber Glove Work, Revised 01/24.

135(1) through (8), Core Requirements. Critical: 135(1): workers required to wear rubber gloves shall be trained in proper Class selection, care and use of gloves and leather protectors. 135(3): only rubber gloves receiving initial acceptance tests per ASTM and sized to fit the worker shall be issued. 135(4): marked with legible expiry date; never used beyond this date. 135(5): approved protective covers must be used in conjunction with rubber gloves; and must never be used as a work glove alone. 135(6), Daily use requirements: (a), air tested AND visually inspected each day, prior to use; (b), exchanged when damaged or doubted; (c), stored away from ionization or corona; (d), used only with approved protective covers; and (e), never worn inside out. 135(7): jewelry must not be worn while wearing rubber gloves.

135(8), Minimum Cuff Distances. Critical: minimum distance between the glove gauntlet and the leather cover cuff per the ASTM requirement. Class 00 is 0.5 inches, or 13 mm; the memory aid is half inch. Class 0 is 0.5 inches, or 13 mm; memory aid is half inch. Class 1 is 1 inch, or 25 mm; memory aid is Class 1 equals 1 inch. Class 2 is 2 inches, or 51 mm; memory aid is Class 2 equals 2 inches. Class 3 is 3 inches, or 76 mm; memory aid is Class 3 equals 3 inches. Class 4 is 4 inches, or 102 mm; memory aid is Class 4 equals 4 inches.

135(9) through (13), Procedural Requirements. Critical: 135(9): rubber glove techniques shall be carried out under the establishment of a hold-off where the electrical equipment exists. 135(11): rubber glove work from 15 kV to 36 kV nominal shall be performed while working from a certified insulated aerial device. 135(13), Rest-to-Rest Rule: rubber gloves shall be put on before leaving the rest, and worn continuously while work is carried out on any pole or structure carrying conductors energized or that could become energized at potentials up to 36 kV.

IHSA Supplemental to Rule 135. Critical: IHSA Supplemental 1, Ground-to-Ground Rule. Rubber gloves shall be put on before leaving the ground, worn continuously while work is carried out on any pole or structure with conductors energized or that could become energized to 36 kV. Ground-to-Ground is more stringent than Rest-to-Rest. Gloves go on and come off at ground level, not the bucket's rest position.

Critical: IHSA Supplemental 3, Line Clearing Operations Rubber Glove Rule. Workers shall wear appropriate rubber gloves with leather protectors when the worker or that which is being worked on is within 3 m, or 10 ft., of energized apparatus, as follows. Up to 500 V nominal requires Class 00. Up to 750 V nominal requires Class 0. Up to 5 kV nominal requires Class 1. Over 5 kV and up to 50 kV nominal requires Class 2.

Critical: Ground-to-Ground exception for Line Clearing. Authorized workers may ascend and descend vegetation without rubber gloves ONLY if BOTH of these conditions are met: (1), vegetation is outside the Restricted Zone per Rule 129 Authorized Workers; and (2), the climber AND all climbing equipment can remain outside of proximity while ascending and descending. Once aloft, appropriately rated gloves must be worn when entering proximity.

Critical: IHSA Supplemental 4. Rubber glove work from 5 kV to 15 kV phase-to-phase shall be carried out while standing on an insulated pole platform or from a certified insulated aerial device.

The Hydro One Supplementals are as follows. Hydro One Supplemental 1(a) requires rubber gloves when working on apparatus over 300 V nominal. Hydro One Supplemental 1(b) requires rubber gloves when in the Restricted Zone at 750 V or above. Hydro One Supplemental 1(c) requires rubber gloves when using live line FRP tools under damp or adverse weather. Hydro One Supplemental 2 requires rubber glove work over 750 V to 15 kV to be performed from an insulated pole platform or insulated aerial device.

Section VIII key facts to memorize: Rule 131(3) states painting is NOT permitted within the Restricted Zone. Rule 132(2) states if no written procedure exists, list job steps on the job plan itself. Rule 133 states live line work requires authorized workers plus approved work procedures. Rule 134(3) states if the expiry date is not visible, do NOT use the tool and return it for retesting. Rule 134(5) states motorized non-insulated pole tools are NOT permitted in proximity over 750 V. Rule 134(6) requires daily cleaning AND visual inspection. Table 1 rubber gloves have a retest frequency of 90 DAYS for all classes. Table 1 barehand aerial device has a retest frequency of 6 MONTHS. Table 1 hydraulic pruners and pole saws have a retest frequency of 1 YEAR. Table 1 certified insulated aerial device has a retest frequency of 1 YEAR. Table 1 bucket liner has a retest frequency of 1 YEAR. Table 1 FRP live line tools have a retest frequency of 3 YEARS. Table 1 insulated pole platform has a retest frequency of 3 YEARS. Rule 135(5) states leather protectors must be used with gloves and must NEVER be used as a work glove alone. Rule 135(6)(e) states rubber gloves must never be worn inside out. Rule 135(7) states jewelry must not be worn while wearing rubber gloves. Rule 135(8) cuff distance for Classes 00 and 0 is 0.5 inches, or 13 mm. Rule 135(8) cuff distance for Class 2 is 2 inches, or 51 mm. Rule 135(9) requires rubber glove techniques to have a hold-off in place where equipment exists. Rule 135(11) states rubber glove work from 15 to 36 kV requires a certified insulated aerial device only. IHSA Supplemental 1 is the Ground-to-Ground rule: gloves on before leaving the ground; off upon return to ground. IHSA Supplemental 3 for 5 kV or less within 3 m requires Class 1. IHSA Supplemental 3 for 5 to 50 kV within 3 m requires Class 2. IHSA Supplemental 3 exception allows no gloves when ascending or descending if vegetation is outside the Restricted Zone AND climber and equipment stay outside proximity. IHSA Supplemental 4 states 5 to 15 kV rubber glove work requires an insulated pole platform or certified insulated aerial device. Hydro One Supplemental requires rubber gloves at over 300 V nominal, which is more stringent than IHSA.

Section IX, Specialized Work: Rules 136 through 149.

Rules 136 through 149 cover specialized work types. Rule 145 on Overhead Conductor Insulation and Rule 149 on Backfeed are the most heavily tested for utility arborists. Rule 136 and Rule 137 contain specific requirements tested directly by number.

Rule 136, Live Line Tool Work.

Critical: five requirements. 136(1): carried out under direct supervision of a worker authorized to perform the work. 136(2): at least two authorized workers shall be assigned. 136(3): rubber gloves shall be worn whenever the worker is in the Restricted Zone per Rule 129. 136(4): carried out under establishment of a hold-off where equipment exists. 136(5): when live line tool work is in progress, no other work shall be carried out on the same pole, structure, or any adjacent structures.

Exam tip: Rule 136(2) requires a minimum of TWO authorized workers, not just one authorized and one general worker. Rule 136(5) states that adjacent structures are also excluded from other work during live line tool operations.

Rule 137, Barehand Work.

Critical: seven requirements. 137(1): only authorized workers with formal training in this method. 137(2): continuous observation by an authorized dedicated observer who has no other duties. 137(3): only from a certified insulated aerial device approved for barehand work or from a helicopter. 137(4)(a): aerial device dielectrically tested at least every 6 months. 137(4)(b): metered current leakage test for the voltage, immediately prior to work, and results must be recorded. 137(5): hold-off established where equipment exists. 137(6): bonding lead combined length shall never exceed the depth of the bucket. 137(7): workers shall only contact objects to which they are bonded.

Exam tip: two key numbers are: the 6-month aerial device testing requirement, which is more frequent than the standard 1 year; and the rule that bonding leads must not exceed the depth of the bucket.

Rule 138, Stringing and Removing Conductors.

Critical: 138(4): when induced voltage or contact with energized apparatus is possible, workers shall work in an equipotential zone. Workers outside the equipotential zone shall wear rubber gloves when handling the conductor. 138(5): when crossing energized lines or roads where traffic cannot be interrupted, only approved tension stringing techniques with suitable safeguards at all crossing points may be used.

Rule 139, Hoists.

Critical: 139(1): web hoists and nylon ratchet tensioners used on energized conductors shall be cared for as live line tools. 139(2): used on voltages over 750 V phase-to-phase; used in conjunction with link sticks or other approved live line tools when connected to an anchor point at a different potential. 139(3): web hoists shall be used whenever work requiring a hoist is performed within the Restricted Zone to exposed apparatus energized at 750 V nominal or greater.

Rule 140, Confined Spaces.

Critical: 140(2): all entrants shall wear an approved full-body harness. A rescue rope or lifeline shall be attached to the harness and anchored outside the confined space where no additional hazard is created. 140(3): switching operations on underground equipment shall be performed outside of the confined space. 140(4): workers other than those involved in authorized testing and switching shall not be present in confined spaces when equipment is being energized or de-energized.

Rule 141, Working on Cables and Associated Equipment.

Critical: 141(1): work on underground cables over 750 V nominal unless de-energized is limited to: (a), approved switching and testing using live line tools; or (b), moving energized cables with appropriate-class rubber gloves. 141(3): moving energized cables over 750 V requires a hold-off in effect. 141(5): energized cables must be inspected by an authorized worker before moving. If inspection reveals a hazard, isolate and de-energize before moving. 141(10): the spiking tool must be activated from outside the immediate work zone.

Rule 142, Pulling Cable.

Critical: 142(2): where a fish tape could contact energized apparatus, the fish tape shall be made from non-conductive materials. 142(3): when pulling into a duct with energized cables, the pulling unit shall be grounded, and the operator must work within an equipotential zone.

Rule 143, Portable Ladders.

Critical: only approved non-conductive portable ladders shall be used when working on or in proximity to energized apparatus.

Cross-reference: AIP Section VIII states ladders are non-insulated unless tested and stickered. Rule 143 sets the minimum standard for proximity use: approved non-conductive construction.

Rule 144, Scaffolds.

Critical: metal scaffolding clearances are: (a)(i), vertical clearance of 0.61 m, or 2 ft., PLUS the Authorized Worker distance from Rule 129; (a)(ii), horizontal clearance of 2.5 m, or 8 ft., PLUS the Authorized Worker distance from Rule 129; and (a)(iv), metal scaffolds must be continuously bonded and grounded when used in proximity. Non-conductive scaffolding means authorized workers may build, move, or use it up to the Authorized Worker LOA limits.

Exam tip: two scaffold clearance additions are: plus 0.61 m, or 2 ft., vertical; and plus 2.5 m, or 8 ft., horizontal. Both are on top of the Rule 129 Authorized Worker distance.

Rule 145, Overhead Conductor Insulation.

Critical: all covered, jacketed, or insulated overhead conductors energized at voltages greater than 750 V shall be treated as bare conductors.

Exam tip: this is the shortest substantive rule in the EUSR, being one sentence, and it is one of the most heavily tested. It appears in all three chapters of the curriculum. EUSR Rule 145 states "treated as bare conductors." AIP Section III on Hendrix states "not touch safe when energized; apply same Limits of Approach to coated conductors as to non-coated." And LCO Rule 800 number 10 states "weatherproof covering is not insulation; consider covered conductors bare and alive unless positively known to be isolated and de-energized."

Rule 146, Temporary Power Cables.

Critical: 146(1): temporary power cables on the ground or exposed to vehicular traffic must be clearly identified and have barriers installed to prevent accidental contact. 146(2): temporary power cable installations must be inspected for potential hazards on a regular basis by a competent worker.

Rule 147, Cord-Connected Electrical Equipment.

Critical: cord-connected equipment shall NOT be used where the tool and or cord cannot be secured to prevent its falling or reaching closer than the Safe Limits of Approach for authorized workers per Rule 129, unless a safe work area has been created through approved barriers.

Rule 148, Mobile Transformers.

Mobile transformers shall be connected and disconnected in accordance with documented policies and procedures.

Rule 149, Backfeed.

Critical: 149(1): before starting work, backfeed hazards must be identified and: (a), eliminated where possible; OR (b), controlled using approved temporary grounding procedures. 149(2): work is NOT to be performed on transformers connected in parallel or banked, except replacing fuses with live line tools, until all sources of electrical energy have been removed from BOTH the secondary AND primary sides of the transformer to be worked on.

Exam tip: two testable specifics. First, backfeed hazards must be identified and controlled BEFORE starting work. Second, for parallel and banked transformers, BOTH the primary AND secondary sides must be de-energized.

Cross-reference: AIP Section IV covers the backfeed definition and the homeowner generator scenario, where a small generator can step up through a transformer to full primary voltage. Rule 119 on temporary grounding is the approved control method for Rule 149(1)(b).

Section IX key facts to memorize: Rule 131(3) states painting is NOT within the Restricted Zone. Rule 132(2) states if no written procedure exists, list job steps on the job plan itself. Rule 133 states live line work requires authorized workers plus approved work procedures. Rule 134(3) states if expiry date is not visible, do NOT use the tool and return for retesting. Rule 134(5) states motorized non-insulated pole tools are NOT permitted in proximity over 750 V. Rule

134(6) requires daily cleaning AND visual inspection. Rule 135(5) states leather protectors must be used with gloves and are NEVER to be used as a work glove alone. Rule 135(6)(e) states rubber gloves must never be worn inside out. Rule 135(7) states jewelry must not be worn while wearing rubber gloves. Rule 135(8) cuff Class 00 and 0 is 0.5 inches, or 13 mm. Rule 135(8) cuff Class 2 is 2 inches, or 51 mm. Rule 135(9) requires a hold-off where equipment exists for rubber glove techniques. Rule 135(11) states rubber glove work from 15 to 36 kV requires a certified insulated aerial device only. IHSA Supplemental 1 is Ground-to-Ground: gloves on before leaving ground; off upon return to ground. IHSA Supplemental 3 for 5 kV or less requires Class 1 within 3 m. IHSA Supplemental 3 for 5 to 50 kV requires Class 2 within 3 m. IHSA Supplemental 3 exception allows no gloves ascending or descending if vegetation is outside the Restricted Zone AND climber and equipment stay outside proximity. IHSA Supplemental 4 states 5 to 15 kV rubber glove work requires an insulated pole platform or certified insulated aerial device. Hydro One Supplemental requires rubber gloves at over 300 V nominal, which is more stringent than IHSA. Rule 136(2) requires a minimum of two authorized workers. Rule 136(5) states adjacent structures also excluded from other work during live line tool operations. Rule 137(4)(a) requires aerial device dielectric testing every 6 months for barehand work. Rule 137(6) states bonding leads must not exceed the depth of the bucket. Rule 143 requires only approved non-conductive portable ladders in proximity. Rule 144 metal scaffold clearances add 0.61 m, or 2 ft., vertical and 2.5 m, or 8 ft., horizontal, both on top of the Rule 129 Authorized Worker distance. Rule 145 states all covered, jacketed, or insulated overhead conductors over 750 V shall be treated as bare conductors. Rule 149(1) requires backfeed hazards to be identified and controlled BEFORE starting work. Rule 149(2) states for parallel or banked transformers, BOTH primary AND secondary sides must be de-energized.

And that completes Chapter 3, Electrical Utility Safety Rules, all 50 rules and the full Definitions section, from the foundational conduct rules in Section II through the specialized work rules in Section IX. With all three chapters now complete, you have covered the full 444B curriculum: Line Clearing Operations, Arborists in Proximity, and the Electrical Utility Safety Rules. Review the key facts at the end of each section regularly, pay close attention to the critical callouts, and remember that specific numbers, exact thresholds, and precise conditions are exactly what the exam tests. Good luck.