UAA®
UTILITY ARBORIST ASSOCIATION

WELCOME TO MIDWESTERN REGIONAL & SAFETY SUMMIT

JULY 22nd – 23rd, 2026

WELCOME
AND
SAFETY MESSAGE

PRESENTED BY : MARK HOWLAND, DUKE ENERGY

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WRIGHT

TREE SERVICE KINGS, INC.

SIF PREVENTION –INDUSTRY BEST PRACTICES

PRESENTED BY: WESLEY WASHINGTON, ASPLUNDH

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BEST PRACTICE AND PREVENTING SIF EVENTS

JULY 22ND, 2026

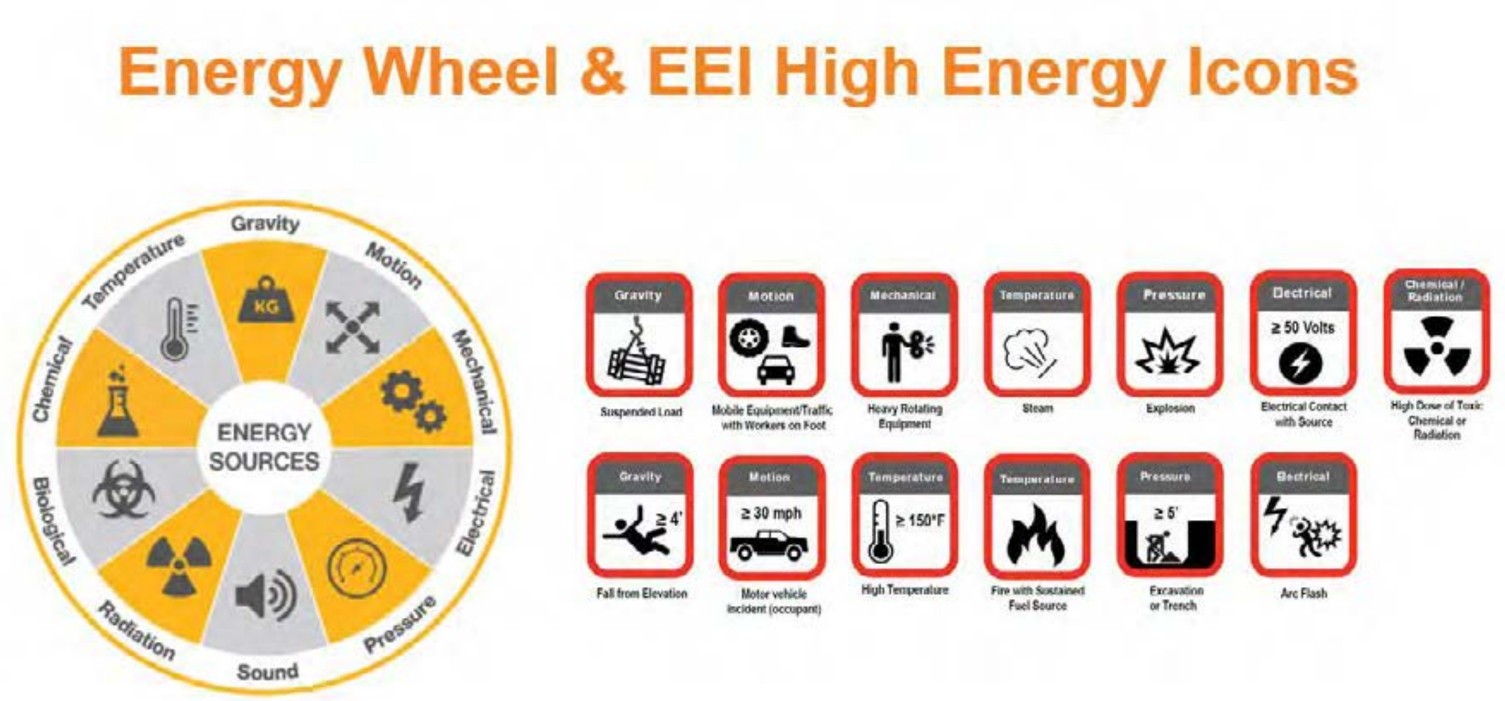
What is a SIF?

- Serious Injuries and Fatalities

- SIF was developed to be a metric that better defines serious injuries and fatalities. It includes work-related fatalities, life-threatening injuries, life-altering injuries, or through specific SIF indicating criteria.

What Causes a SIF?

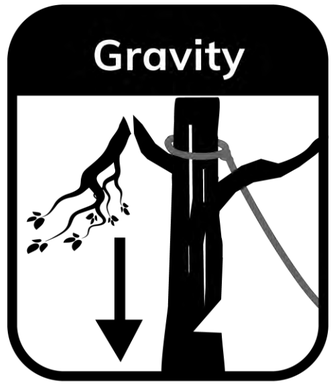
- The majority of SIF related events occur due to the presence and uncontrolled release of High Energy.



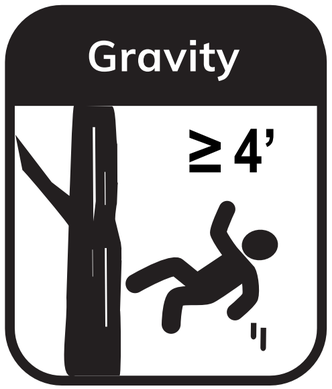
Understanding High Energy In Vegetation

- The Arborist High Energy Icons (AHEI) were developed to have a focused set of High Energy Sources to educate employees in the line-clearance industry on. It removes icons of High Energy Sources that are not present at all in the line-clearance industry (i.e. Excavation/Trenching is specialty, permit-required work that employees in our industry never interact with. Including this icon diluted the message of importance when educating our employees on High Energy).
- Additional High Energy Sources were added that were not included at all in the EEI Icons. These include the Tension: Wood and Tension: Wires icons, which are High Energy Sources that are currently difficult to measure, but have a clear history of causing fatalities in our industry when left uncontrolled/unmitigated

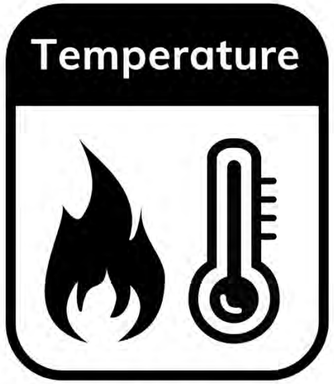
Arborist High Energy Icons



Large Falling Object

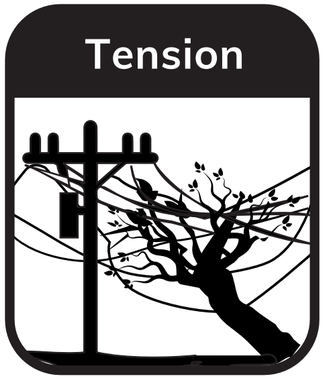


Fall from Elevation

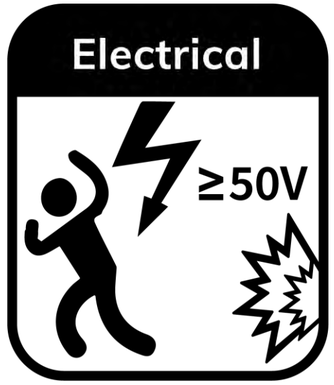


High Temperature

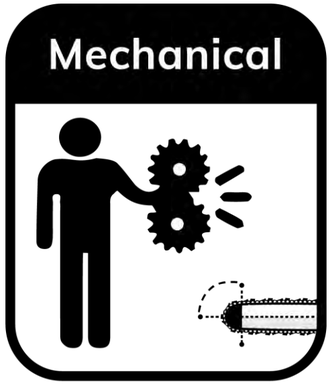
Wood



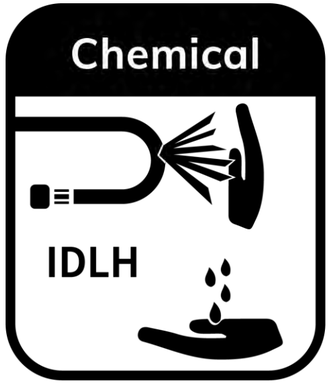
Wire



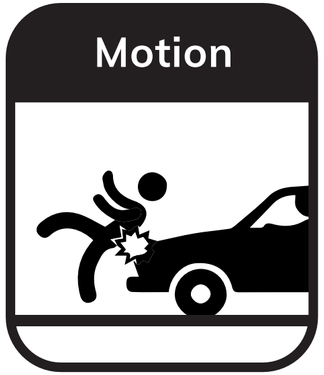
Electrical



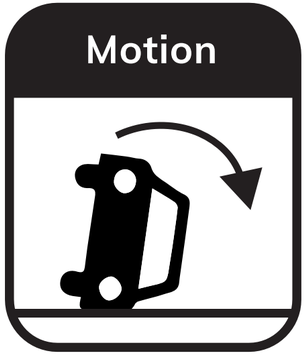
Rotating Equipment



Chemical



Mobile Equipment/Traffic with Workers on Foot



Rollover

What are some ways you and your teams identify the hazards that cause SIF’s?

Making Hazard ID a Habit

- Our goal is to increase the use and familiarity of individual hazard recognition by every one of our teammates that it becomes so routine, that every employee does this involuntarily with every job and task.

Team Education

High Energy Hazard Education

Arborist High Energy Icons – Introduction Campaign Week 3

Fall from Elevation

How can a Fall From Elevation Kill or Significantly Injure You?

- When Falls From Elevation have enough falling distance, the impact upon landing will have enough force to become a High Energy Hazard.
- If a person falls with enough force, the impact will kill or significantly injure them.

When Does a Fall From Elevation Become *High* Energy?

- For an average sized person, falls from a height of 4 feet or more will have enough force on impact to kill or significantly injure you.
- This includes falls from this height whether you are falling out of a tree, falling out of an aerial lift bucket, or you're in an aerial lift bucket during a tip over event.

What Tools Do We Have To Protect Ourselves from Falls From Elevation?

- LCQS Lessons ***9 – Ropes & Knots***, ***10 – Climbing Techniques***, ***14 – Rescue Techniques***, ***15 – Aerial Device Operations***, *and* ***25 – Off-Road Aerial Devices*** all contain detailed information on how to control/mitigate the High Energy Hazard of Falls From Elevation. Take time this week review, discuss, and refresh yourself on these lessons and the control/mitigation tools they detail.
- Examples of control/mitigation tools covered in detail in these LCQS Lessons include:
  - Performing a Pre-Climb Inspection
  - Being 100% Tied-In (either as a climber or in a bucket)
  - Properly setting all outriggers & outrigger pads
  - Setting your climbing rope so that it is crotched around a main leader (NOT around a branch)
  - Putting on your Fall Harness while on the ground, adjusting it to fit properly, and then receiving a Peer Check before entering the bucket

Integration into Every Day

JOB BRIEFING

G.F. NAME:

Phone #

DATE:____/____/____ TIME:____:____ CREW#:_____ FOREPERSON:_____

WORKSITE LOCATION: _____

IN CASE OF EMERGENCY, DIAL 911

Crew Task Description: Check each jobtask(s) for a brief description of work.

Trimming / Bucket __ Trimming / Climbing __ Trimming / Mech. __
Chipping __Hand Cutting __ Mowing __ Tree Felling __Removal / Bucket __
Removal / Climbing __Storm Work __Tree on the Line __Downed Tree w/Tension __
Hazard Tree Removal __Flagging __Other (list) _____

On-site First Aid and CPR: ☐Yes ☐No

Crew Assessment: Is each crew member properly trained to perform their assignedtask(s)? ☐Yes ☐No

Crew Assessment: Does crew possess the proper tools needed to perform the task(s) safely? ☐Yes ☐No

Human Performance Traps: What Traps might be encountered?

Human Performance Tools: What Tools will be used to overcome the potential Traps?

Foreperson Acknowledgment: I have assessed the crew and it is able to perform the task(s) at hand safely. ☐Yes ☐No

Weekly Safety Topic: Refer to Weekly Safety Meeting Booklet: _____

Nearest Medical Facility: _____

Medical Facility Address: _____

Medical Facility Phone #: _____

Person Responsible to contact 911 and backup _____

Cell Service: ☐Yes ☐No *Plan:* _____

Fire Danger Level Today: _____

Utility Name: _____

Utility Contact: _____

Utility Phone #: _____

*# of Employees*_____
Emergency Meeting Place:

Environmental Concerns: ☐Yes ☐No *Is Spill Kit available?* ☐Yes ☐No

Who to Call if Spill Occurs: _____

IF THE JOB CANNOT BE PERFORMED SAFELY, STOP THE JOB, AND ASK FOR ASSISTANCE!

What is the most likely thing that could go wrong in this job? Plan for the worst to prevent unsafe events! S.T.A.R (Stop - Think - Act - Review)

Mark all boxes that apply. Fill in the blanks when applicable. Please note that this is not an all-inclusive list.

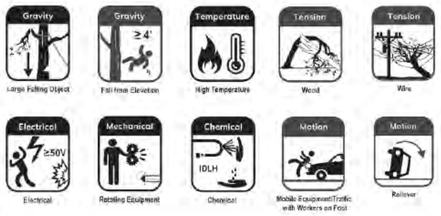
1

Work Procedures- (Per crewmember)

- ☐ 1. Job Setup
- ☐ 2. Job Entry Location (JEL)
- ☐ 3. Night Work
- ☐ 4. Distribution Work
- ☐ 5. Transmission Work
- ☐ 6. Substation Work
- ☐ 7. Flagging
- ☐ 8. Manual Climbing Work
- ☐ 9. Bucket Work
- ☐ 10. Brush/Dragging/Chipping
- ☐ 11. Tree Felling
- ☐ 12. Lifting/Material Handling
- ☐ 13. Chainsaw Use
- ☐ 14. Rigging/Roping Work
- ☐ 15. Green Log Weight Estimates
- ☐ 16. Customer Specific Req.
- ☐ 17. Handsaw with Climber
- ☐ 18. Handsaw in Bucket
- ☐ 19. Spotter
- ☐ 20. Securing Vehicle /Loads
- ☐ 21. Spray Work
- ☐ 22. UTV/ATV Operations
- ☐ 23. Claw, Clam or Log Loader Work
- ☐ 24. Specialized Equipment (List): _____
- ☐ 25. Winching Operations
- ☐ 26. Storm Work

2

Energy Sources - High Energy - Circle each high energy source that will be present for the planned work.



Common Energy Source Mitigation Steps & Controls (List any others in the Special Precautions Section)

- ☐ Electric Voltage KV:_____
- ☐ MAD (Use Decal or LCQS):_____
- ☐ Neutral MAD: _____
- ☐ TTC TAD#_____
- ☐ Heat Index_____
- ☐ Outage-Scheduled
- ☐ Utility Lockout Tagout/Grounding
- ☐ Equipment Lockout/Tagout
- ☐ 100% Tied-In to Bucket Anchor Point (Aloft in Bucket)
- ☐ 100% Tied-In Around a Main Lead (Aloft in Tree)
- ☐ Shave Cuts (for Spring Poles)
- ☐ Non-Conductive Tool Inspection
- ☐ Spraying Equipment Inspection
- ☐ Specialized Equipment Inspection
- ☐ Outrigger Placement
- ☐ Slope of Aerial Lift Setup is within the allowed degrees front-to-back and side-to-side
- ☐ Chainsaw Chain Brake is Operational
- ☐ Seatbelt Worn When Operating Equipment (including UTVs)
- ☐ Chipper Emergency Stops are Operational
- ☐ Storm Work/Emergency Checklist
- ☐ Wood Controlled/Wire Controlled
- ☐ Hydration Logbook Use (When Heat Index is at or above 91°F)
- ☐ Drop Zone Marked (Aloft Work)
- ☐ Danger Zone Marked (Tree Felling)
- ☐ Escape Routes Planned & Practiced

JOB BRIEFING – PAGE 2

3

Additional Hazards-What are the Hazards of this job? All hazards shall be mitigated in the Special Precautions section below. Only list hazards that exist at each work location. If needed, call an ALL STOP and ask for assistance!

- ☐ 1. Electrical Closer than 10'
- ☐ 2. Downed Conductors
- ☐ 3. Utility Hardware Condition
- ☐ 4. Tree Parts Inside MAD
- ☐ 5. Insects/Spiders
- ☐ 6. Animals/Reptiles
- ☐ 7. Irritating/Poisonous Plants
- ☐ 8. Weather_____
- ☐ 9. Slips/Trips/Falls of Less than 4'
- ☐ 10. Falling Objects/Line of Fire
- ☐ 11. Chemical(s) used by crew
- ☐ 12. Winch Cable Use
- ☐ 13. Dead Tree/EAB
- ☐ 14. Lodged Tree/Hangers
- ☐ 15. Vines
- ☐ 16. Body of Water/River
- ☐ 17. Pedestrian Traffic
- ☐ 18. Railroads
- ☐ 19. Heavy Lifting
- ☐ 20. Bend/Twist/Reach
- ☐ 21. Fences/Gates/Access Issues
- ☐ 22. Ground Condition
- ☐ 23. Other (Write in the box to left to describe)

BE DETAILED: USE BOX ON LEFT IF ADDITIONAL SPACE IS NEEDED FOR DETAILED EXPLANATIONS OR COMMENTS

4

Special Precautions-What special precautions must be taken to mitigate hazards?

- ☐ 1. Insect Mitigation
- ☐ 2. Dead Tree Risk Assessment & Hazard Mitigation
- ☐ 3. Special Lighting Req
- ☐ 4. Herbicide. Name:_____
- ☐ 5. Pedestrians/Sidewalk Management
- ☐ 6. Pre-existing Property Damage (document)
- ☐ 7. Wildlife Environmental Protection
- ☐ 8. 2nd Person Required (When 10' to Lines or 12' off ground)
- ☐ 9. Vehicle MAD Chart (Posted & Legible)
- ☐ 10. All Stop Procedure
- ☐ 11. Equipment Safety Zone
- ☐ 12. Guy & Structure Marking
- ☐ 13. Clear Path of Travel
- ☐ 14. Move or Mark Tripping Hazards
- ☐ 15. School Zone
- ☐ 16. Public Interaction
- ☐ 17. Terrain & Ground Classification_____
- ☐ 18. Flagging Operation
- ☐ 19. Drinking Water Available
- ☐ 20. Pre-Task Stretching Performed
- ☐ 21. Other (Write in the box to left to describe)

5

Personal Protective Equipment-What PPE must be used for this job? Inspect PPE before use as required. PPE checked to the right shall be worn while performing task, write below any other PPE required.

- ☐ 1. Hardhat
- ☐ 2. Eye Protection
- ☐ 3. Ear Protection
- ☐ 4. Face Protection
- ☐ 5. Whistle
- ☐ 6. Fall Protection
- ☐ 7. Respiratory Protection
- ☐ 8. Personal Flotation Device
- ☐ 9. Glove Type:_____
- ☐ 10. Leg Gaiters
- ☐ 11. Chaps/Saw Pants
- ☐ 12. Appropriate Footwear
- ☐ 13. Hi-Visibility Apparel (Class 3)
- ☐ 14. Long Sleeve Shirt
- ☐ 15. Rain Gear if needed
- ☐ 16. Ice Cleats
- ☐ 17. Other

6

Post Job Review

Was an All-Stop called?			Were there any Close Calls / Good Catches?			Did anything unusual occur that you shared with your GF?		
Yes ☐		No ☐	Yes ☐		No ☐	Yes ☐		No ☐

If you've answered yes to anything, please elaborate here. Share any learnings that could improve the operation and/or provide coaching opportunities:

The Job Briefing has been thoroughly reviewed with the people below:

Crew Members	Printed Name	Crew	Signature	Printed Name	Visitors	Signature
Foreperson:						

2

Energy Sources - High Energy *- Circle each high energy source that will be present for the planned work.*

Large Falling Object

Fall from Elevation

High Temperature

Wood

Wire

Electrical

Rotating Equipment

Chemical

Mobile Equipment/Traffic with Workers on Foot

Rollover

Common Energy Source Mitigation Steps & Controls (List any others in the Special Precautions Section)

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- ☐ Heat Index _____
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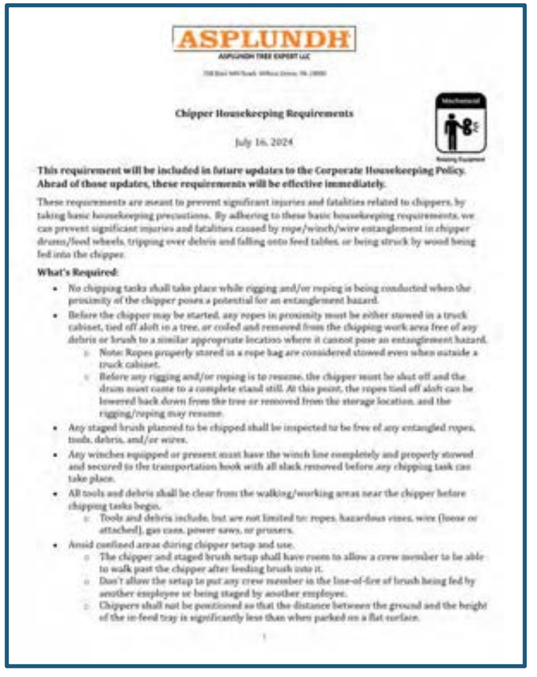


ASPLUNDH

ASPLUNDH TREE EXPERT LLC

Chipper Housekeeping Requirements

July 16, 2024

This requirement will be included in future updates to the Corporate Housekeeping Policy. Ahead of those updates, these requirements will be effective immediately.

These requirements are meant to prevent significant injuries and fatalities related to chippers, by taking basic housekeeping precautions. By adhering to these basic housekeeping requirements, we can prevent significant injuries and fatalities caused by rope/winch/wire entanglement in chipper drums/feed wheels, tripping over debris and falling onto feed tables, or being struck by wood being fed into the chipper.

What's Required:

- No chipping tasks shall take place while rigging and/or roping is being conducted when the proximity of the chipper poses a potential for an entanglement hazard.
- Before the chipper may be started, any ropes in proximity must be either stowed in a truck cabinet, tied off aloft to a tree, or coiled and removed from the chipping work area free of any debris or brush to a similar appropriate location where it cannot pose an entanglement hazard.
  - Note: Ropes properly stored in a rope bag are considered stowed even when outside a truck cabinet.
  - Before any rigging and/or roping is to resume, the chipper must be shut off and the drum must come to a complete stand still. At this point, the ropes tied off aloft can be lowered back down from the tree or removed from the storage location, and the rigging/roping may resume.
- Any staged brush planned to be chipped shall be inspected to be free of any entangled ropes, tools, debris, and/or wires.
- Any winches equipped or present must have the winch line completely and properly stowed and secured to the transportation hook with all slack removed before any chipping task can take place.
- All tools and debris shall be clear from the walking/working areas near the chipper before chipping tasks begin.
  - Tools and debris include, but are not limited to: ropes, hazardous vines, wire (loose or attached), gas cans, power saws, or pruners.
- Avoid confined areas during chipper setup and use.
  - The chipper and staged brush setup shall have room to allow a crew member to be able to walk past the chipper after feeding brush into it.
  - Don't allow the setup to put any crew member in the line-of-fire of brush being fed by another employee or being staged by another employee.
  - Chippers shall not be positioned so that the distance between the ground and the height of the in-feed tray is significantly less than when parked on a flat surface.

Lessons Learned

TREE TOPPING WIRES-ON-GROUND OUTAGE

Day of Incident: Wednesday
Location: Mid-Atlantic US
Task at Hand: Tree Topping
Crew Makeup: 2-Person Bucket Crew
Extent of Damage: No injures. Outage with Wires on Ground

Electrical | Gravity

EVENT SUMMARY:
A 2-person bucket crew was performing trimming and removal operations. The bucket operator was removing a red oak tree that was approximately 70' tall. Because he could not reach the top of the tree, the bucket operator decided to notch the top out directly away from the lines. The top was approximately 6" diameter by 25' tall. The bucket operator did not set a rope in the treetop prior to making his notch and back cut. The hinge-wood showed signs of being dry and/or having some decay present. As the bucket operator made his back cut, he stated that a gust of wind blew on the treetop back towards the line, breaking its hinge, and causing the top to fall down toward the line. As it fell, the treetop came down onto and contacted the single-phase primary. The contact resulted in the wires breaking and coming to the ground. All employees remained in place until the utility responded and deemed the site safe. The contact with the wire resulted in an outage to 131 customers for approximately 2 hours.

WHY is This SIGNIFICANT?
This was a High Energy Event where a piece of wood weighing more than 300 lbs. fell more than 10 feet, and in an unintended direction. If this top would have struck a ground person or the equipment, it could have caused a significant injury or fatality. The wires breaking and coming to the ground created the potential for an indirect contact if any crew members on the ground had been too close, also creating the potential for significant injury or fatality.

HOW Could This Have Been PREVENTED?:
- If a pull rope had been installed in the treetop, prior to making any cuts, it would have started the fall of the treetop in the intended direction of the notch aim, even if a gust of wind was present.
- If wind is present, tying the pull rope off at an anchor point would have further limited any impact the wind would have on the topping process.
- Whether tree topping or tree felling, set your pull rope before making the Notch and Back Cut.
- If a secondary rope is needed as a tag line, set this in the tree/treetop and anchor it directly away from the lines before making the Notch and Back Cut, as well.

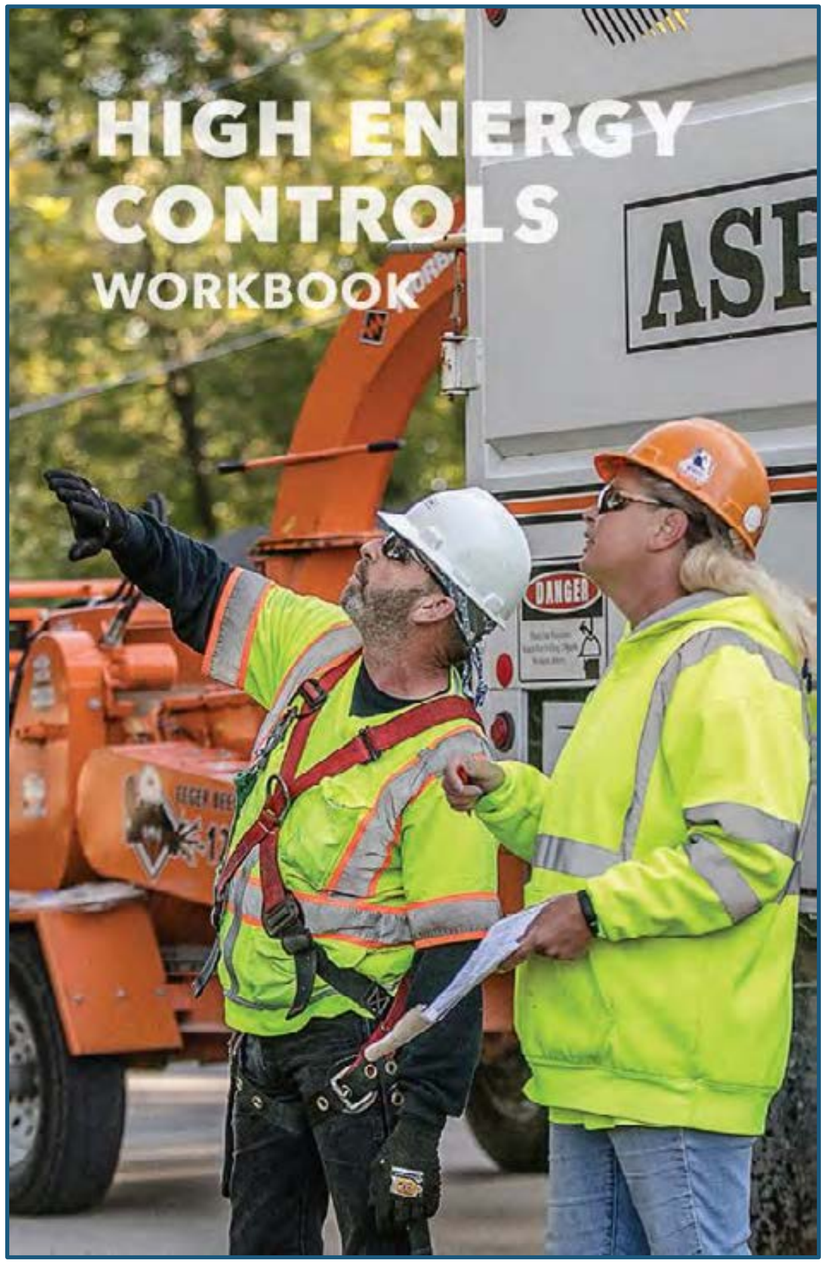
This correspondence has been prepared as a communication directly to Field Employees. It is for education purposes – not to admit or assign blame.

Controls and Safeguards

- Identification and recognition were the first part in the process of elimination Serious Injuries and Fatalities.

- The next step in the process was to identify what levels of Controls needed to be in place to prevent or control the release of High Energy in our daily tasks.

- Creation of the High Energy Controls Workbook – Asplundh Field Guide. Used by our crews during the job planning process.



CHIPPER OPERATIONS

High Energy Controls	Protects Against
Reversing bar/reversing pull cord and bump bar are operational. ***DIRECT CONTROL***	 Rotating Equipment
Chipper must be attached to a vehicle/stationary object before drum operation. ***DIRECT CONTROL***	 Mobile Equipment/Traffic with Workers on Foot
No body part is past the infeed hopper plane (*red line at right*). 	 Rotating Equipment
Stow any ropes that are present in the chipping work area, including brush piles.	
DO NOT stand or feed from directly behind the chipper.	

Direct Controls Workbook

Review Schedule

Week of Campaign	Topics / Cards to Review	Review the Week Ending:
Week 1	• How to Use this Booklet, pg.3 • Direct Controls, pg.4	01/17/2026
Week 2	• Recurring High Energy Hazards, pg.5-7 • Vehicle Operations (Driving) pg.8-9	01/24/2026
Week 3	• Chipper Operations, pg.10-11 • Winch Chipper Operations, pg.12-13	01/31/2026
Week 4	• Ground Chainsaw Operations, pg.14-15 • Roping and Rigging, pg. 16-17	02/07/2026
Week 5	• Lodged Tree Removal (Rigging Method) pg.18-19 • Lodged Tree Removal (Controlled Bucking Method) pg.20-21	02/14/2026
Week 6	• Spring Pole Removal (Rigging Method) pg. 22-23 • Spring Pole Removal (Controlled Bucking Method) pg.24-25	02/21/2026
Week 7	• Tree Felling, pg. 26-27 • Second Rope Diagram and Tree Lean Diagram, pg.28-29	02/28/2026
Week 8	• Climbing/Trimming Operations, pg. 30-31	03/07/2026
Week 9	• Aerial Lift Operations, pg.32-33	03/14/2026
Week 10	• Tree Topping, pg.34-35	03/21/2026
Week 11	• Loading/Unloading Equipment from Trailers, pg.36-37	03/28/2026
Week 12	• Backyard Bucket Operations, pg.38-39	04/04/2026
Week 13	• UTV Usage, pg.40-41	04/11/2026
Week 14	• Storm Work, pg.42-43 • Arborist High Energy Icons, pg.44-48	04/18/2026

HIGH ENERGY CONTROLS

HOW TO USE THIS BOOKLET AND EACH HIGH ENERGY CONTROL CARD

HIGH ENERGY CONTROLS are controls that target high energy to prevent Significant Injury and Fatalities (SIF). For a description of the 10 High Energy sources encountered in arboriculture, refer to pages 44-48 of this booklet.

NOTE: This booklet is specific to High Energy Hazards and supplemental to the *Line Clearance Qualification Standard* (LCQS). This booklet *does not* replace the LCQS.

This Booklet contains 3 to 6 High Energy Controls for each arborist work task.

- The High Energy Controls listed in this booklet are all **observable** and **coachable**.
- High Energy Controls in this booklet shaded **Green** are **Direct Controls**. **Direct Controls** are highly effective High Energy Controls and meet the definition and requirements on page 4.
- Call an **All Stop** when the High Energy Controls are not followed.

For Trainees: The High Energy Controls listed for a task are the first items that should be taught, so the trainee knows upfront how to keep themselves free from SIFs.

- In addition to the High Energy Controls listed for each task, this booklet contains a 5-Step brief overview of how to perform each task.

For all Crew Members: After performing the Job Briefing, refer to this booklet to verify all the High Energy Controls listed are implemented for the identified work tasks.

If any of the High Energy Controls listed for a work task cannot be implemented, **CALL AN ALL STOP AND ESCALATE TO YOUR REGIONAL MANAGEMENT AND/OR SAFETY TEAM.**

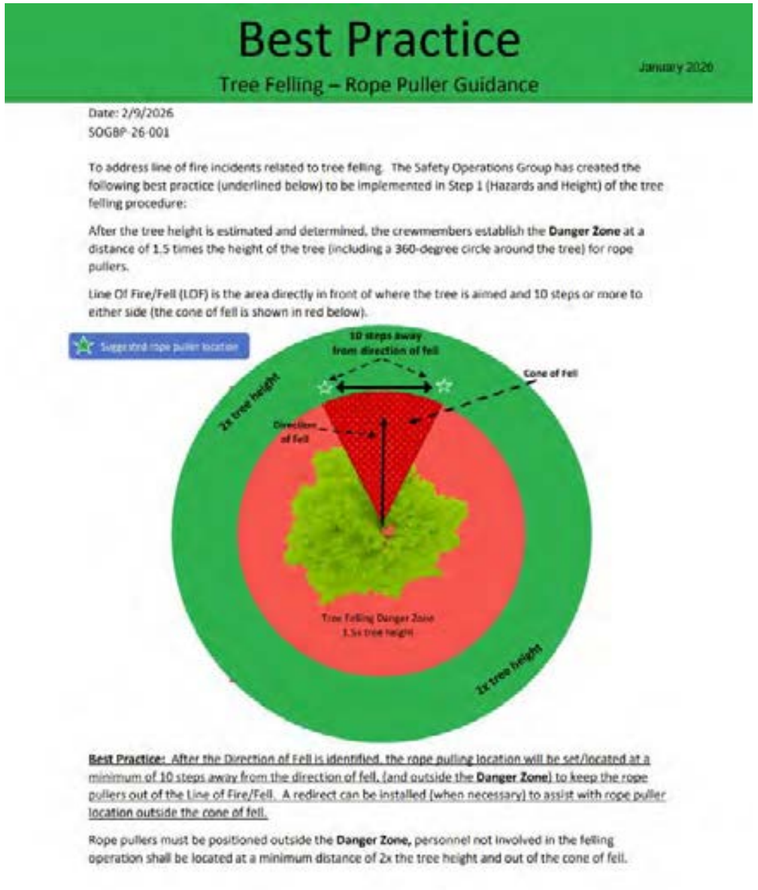
What are some ways you ensure Safeguards and Controls are sufficient and in place?

Going Beyond the Standard

- Leveraging our inhouse AI platform built into our Safety Portal, we have identified one of the areas of greatest potential for High Energy presence it with struck by injuries.

- Our Safety Group in conjunction with their Training Team, partnered with some of our Operations team to develop some new best practice materials for our field employees.

Best Practice Information



Best Practice

January 2026

Tree Felling – Rope Puller Guidance

Date: 2/9/2026
SOGBP 26-001

To address line of fire incidents related to tree felling. The Safety Operations Group has created the following best practice (underlined below) to be implemented in Step 1 (Hazards and Height) of the tree felling procedure:

After the tree height is estimated and determined, the crewmembers establish the **Danger Zone** at a distance of 1.5 times the height of the tree (including a 360-degree circle around the tree) for rope pullers.

Line Of Fire/Fell (LOF) is the area directly in front of where the tree is aimed and 10 steps or more to either side (the cone of fell is shown in red below).

Suggested rope puller location
10 steps away from direction of fell
Cone of Fell
2x tree height
Direction of Fell
Tree Felling Danger Zone 1.5x tree height
2x tree height

Best Practice: After the Direction of Fell is identified, the rope pulling location will be set/located at a minimum of 10 steps away from the direction of fell, (and outside the **Danger Zone**) to keep the rope pullers out of the Line of Fire/Fell. A redirect can be installed (when necessary) to assist with rope puller location outside the cone of fell.

Rope pullers must be positioned outside the **Danger Zone,** personnel not involved in the felling operation shall be located at a minimum distance of 2x the tree height and out of the cone of fell.

What are some of your Best Practices?

ONE ASPLUNDH™
POWERING THE FUTURE

THANK YOU

USING HERBICIDES TO GROW YOUR ROW

PRESENTED BY

DEWEY GOSS, TOWNSEND

Using Herbicides to Grow your ROW

Dewey Goss

Vegetation Control Manager

The Townsend Corporation LLC

Welcome the Right-of-Way!

- a legal right, established by usage or grant, to pass along a specific route through grounds or property belonging to another, or the right to build and operate a railroad line, road, or utility on land belonging to another.

Utility Companies

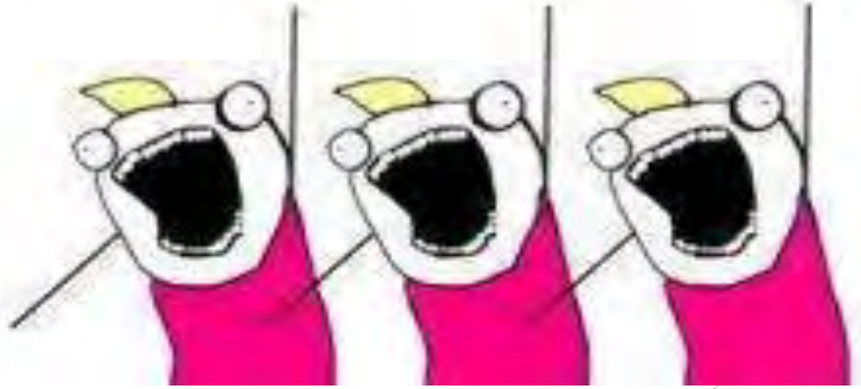
Utility Workers

WHAT DO WE WANT?

GRASS'S AND FLOWERS!!!

CAN YOU DO IT WITH HERBICIDES ALONE?

WE DON'T KNOW!!!



Where to Start!!!!

Starting With The End In Mind

Starting With The End In Mind.

Long Term?

Starting With The End In Mind.

Location?

Current Budget?

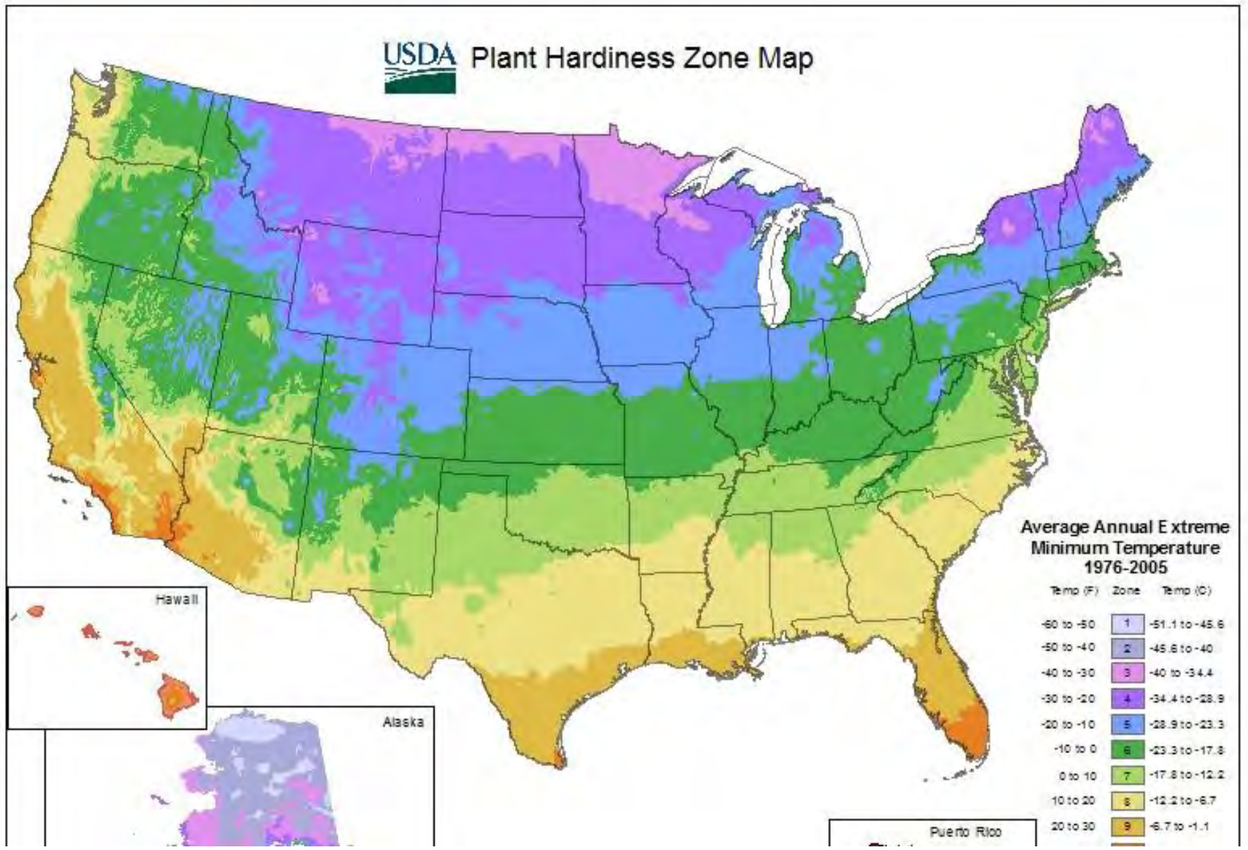
Starting With The End In Mind.

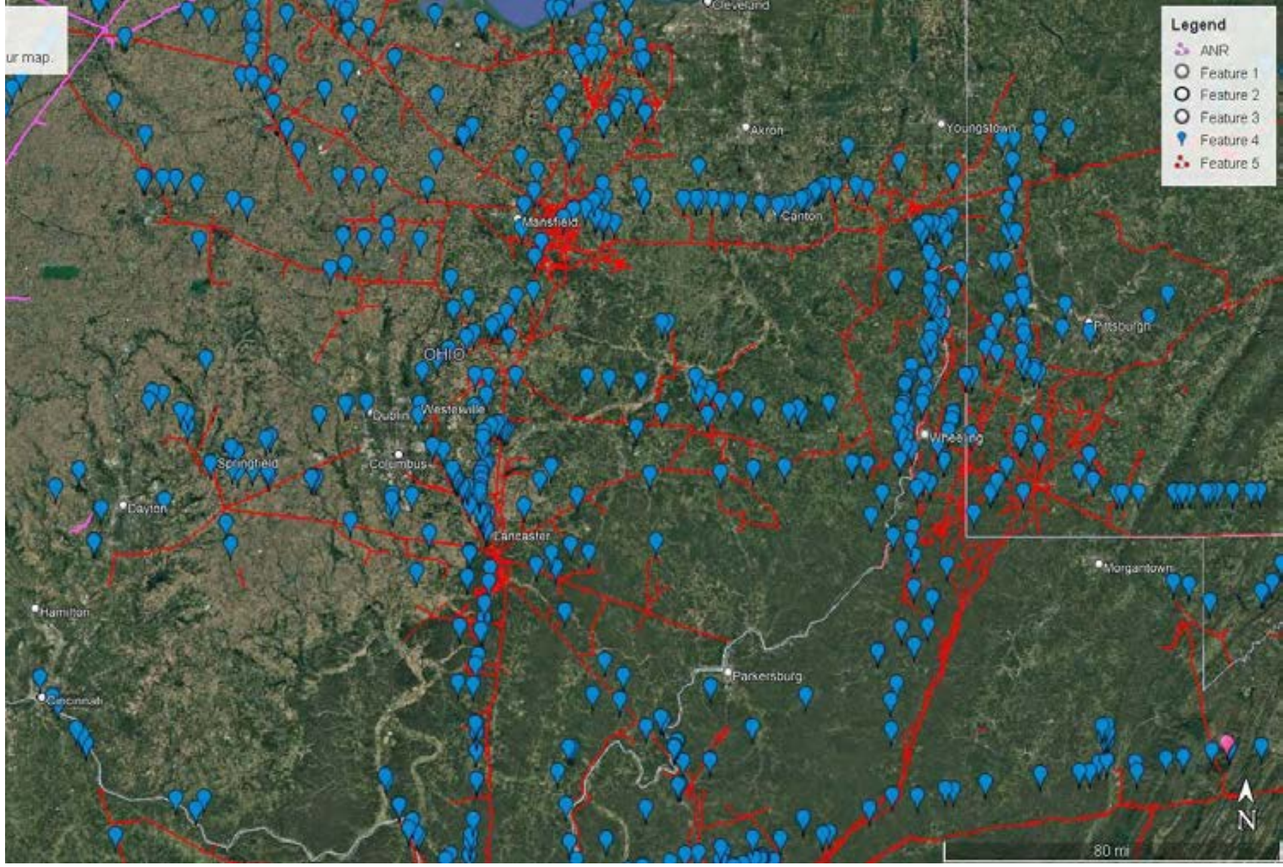
Location?

Current Budget?

Environmental Concerns?

The Ultimate End Goal





Location, Location, Location

Not every place is going to be perfect for everything.

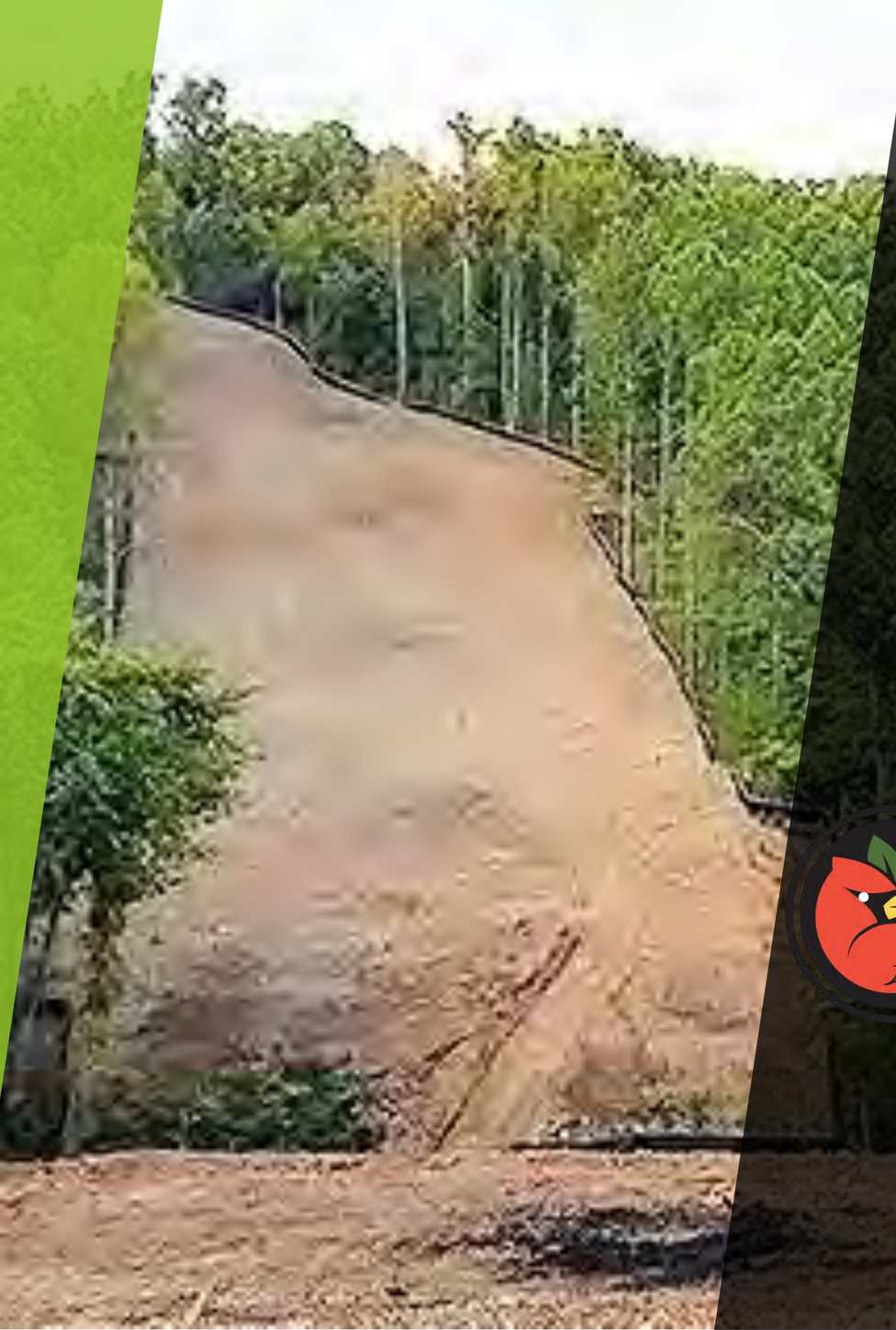
Some Places will be Perfect

On average it can cost anywhere from $300 to $5,000 per acre to create a new grassland/ wildflower/pollinator habitat.

Seed Mix Cost

- Standard grasses, $100 - $250 per acre
- High Diversity Native Mixes, $300 - $800 per acre
- Premium Custom Mixes, $1,000 - $2,000 per ace

Over seeding **WILL** need to occur for the first few years



Environmental Concerns

Department of Natural Resources

According to Pollinator.org

- **1. Check the Sunlight**
- **Find a sunny spot:** Pick an area with full sun (6 to 8 hours of direct light daily).
- **Watch the shade:** Avoid areas heavily shaded by trees or buildings.
- **2. Test the Soil**
- Plants grow best in soil they are used to.
- **Avoid waterlogging:** Do not pick spots that stay muddy or hold puddles for days after rain.
- **Know your dirt:** Test your soil to see if it is sandy, clay, or rich. This helps you pick the right local plants.
- **Look for bare ground:** Leave a few small patches of bare, sunny dirt nearby. Many native bees dig into the ground to make their homes.
- **3. Seek Safety**
- Bugs need a safe home free of danger.
- **No chemicals:** Pick a spot far away from where you spray weed killers or bug sprays.
- **Stop the wind:** Choose an area sheltered from strong winds. Tall fences or thick shrubs work well.
- **4. Provide Water and Shelter**
- Pollinators need water just like humans.
- **Add a water source:** Place your habitat near a bird bath or a shallow dish.
- **Use landing pads:** Put rocks or sticks inside the water. This gives bees and butterflies a place to stand so they do not drown.
- **Leave nesting areas:** Find a spot near dead logs, brush piles, or old hollow plant stems so insects can hide in the winter.

Why Herbicides?

- Mowing and trimming increases the stem count of existing vegetation
- Invasive species (not natural to the local geography) will overwhelm indigenous species unless eliminated
- Eliminating invasive species and other undesirable vegetation means attacking their root systems
- Eliminating invasive species and reducing the overall vegetation stem count allows native grasses and wildflowers to flourish

Common Practices Today

- Trim, cut, mow, no herbicide usage, no other control methods
  - No use of minimal herbicides
- Trim/cut and treat/spray trees; doesn't deal with invasive species
  - Eventually draws the attention of DNR and others
- Separate programs: tree trimming versus herbicide application
- One approach to the entire system
  - No differentiation by line location, Good for the goose is good for the gander.
- Hot-spotting – targeting troublesome trees versus dealing strategically
- Using herbicides to extend the cycle instead of assessing results and re-

So how do I Grow with Herbicides?

Herbicides

Start with the easy questions

Selective

Non-Selective

Selective Herbicides

Milestone®

Herbicide

DoMyOwn.com

METHOD®

240SL

Vastlan™

SPECIALTY HERBICIDE

SPECIMEN

PLATEAU®

herbicide

FOR WEED CONTROL, NATIVE GRASS ESTABLISHMENT AND TURF GROWTH SUPPRESSION ON PASTURES, RANGELAND AND NONCROP AREAS AND CONIFER PLANTATION SITE PREPARATION

Active Ingredient:

Other Ingredients: 76.9%

TOTAL: 100.0%

EPA Reg. No. 241-345 EPA Est. No.

KEEP OUT OF REACH OF CHILDREN

CAUTION/PRECAUCION

Net Contents:

BASF

Non-Selective Herbicides

Herbicide Application Methods

High Volume Foliar

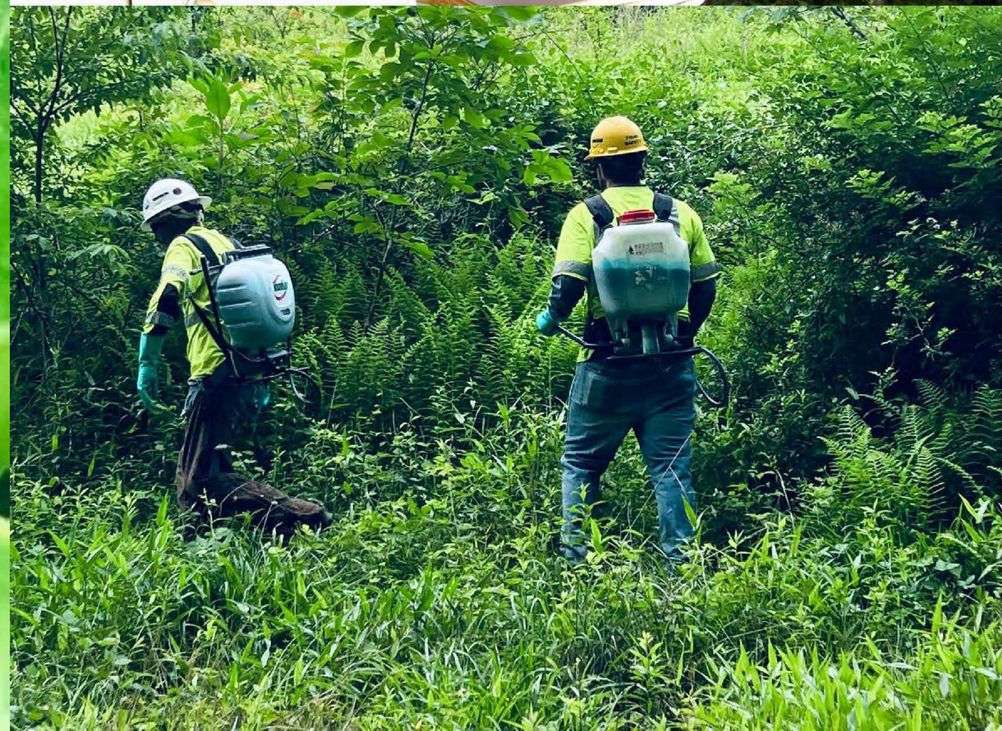
- For dense tall brush
- Can be sprayed form a distance
- Spray solutions volumes between 100 to 250 GPA
- Treat plants to the point of run-off. To gain canopy penetration
- Spray pressures tend to be upwards of 100 PSI +

Low Volume Foliar

- Low profile in sensitive areas
- Spray dilute volumes 20-50 GPA
- Good for brush under 8-6 feet tall
- Treat foliage until wet, not to run-off
- Good in low density areas

Ultra Low Volume Foliar

- 3-5 GPA
- Treat approximately 80% coverage
- Create only specks on leaf's, Sprinkling Coverage
- Done by very specialized equipment
- Calibration is critical



Low Volume Basal Bark

- Plant specific application
- Reduces off-target damage
- Can be used year-round (oil base)
- Hard to use in dense growth areas
- Can be used as Cut-Stump treatment

Cut Stubble

- Follow-Up to Mowing
- No Profile Visual Effect
- Transmission or Distribution ROW
- Stem & Root Absorption
- Thinvert or water carrier

Starting with the end goal in mind!!

Partnerships are the key to success.

Questions

Using Herbicides to Grow your ROW

Dewey Goss
Vegetation Control Manager
The Townsend Corporation LLC

THE ACCIDENT TRIANGLE

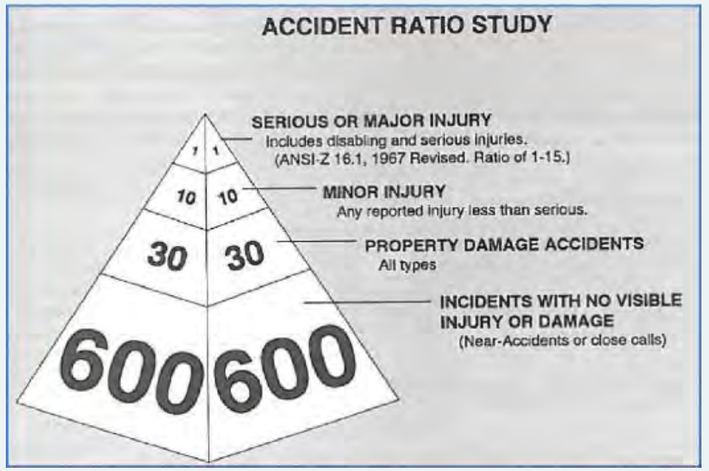
PRESENTED BY

SIMON KENYON, ARBORMETRICS

The Heinrich Triangle

From injury-count pyramids to SIF exposure, high-potential learning, and critical-control verification

First-time presentation



Bird/Germain accident ratio study

Based on three attached files: Anderson & Denkl SPE paper, Busch et al. PSJ article, and Simon Kenyon expanded draft.

Nine-section roadmap

Each section answers one question needed to move from lagging injury rates to fatal-risk prevention.

1. Origins: Heinrich and Bird

2. What the triangle gets right

3. Where universal ratios break down

4. Injury rates vs fatality risk

5. High-Risk Activities and potential severity

6. Risk-matrix zones and HiPo reporting

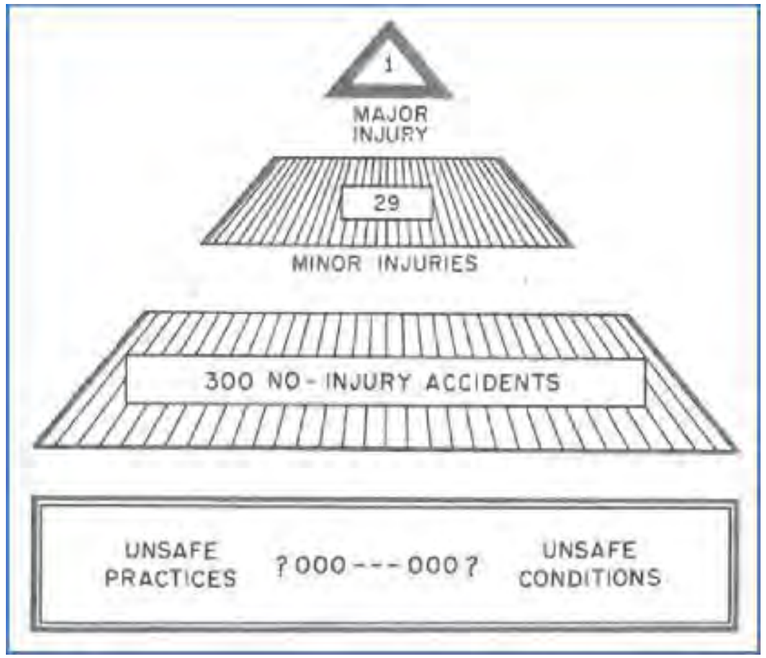
7. SIF failure modes

8. Field translation for vegetation management

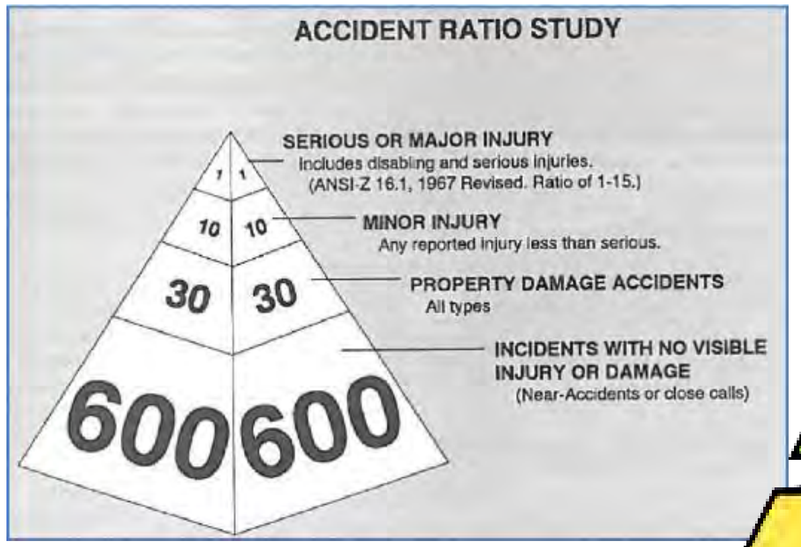
9. Controls, learning, and close

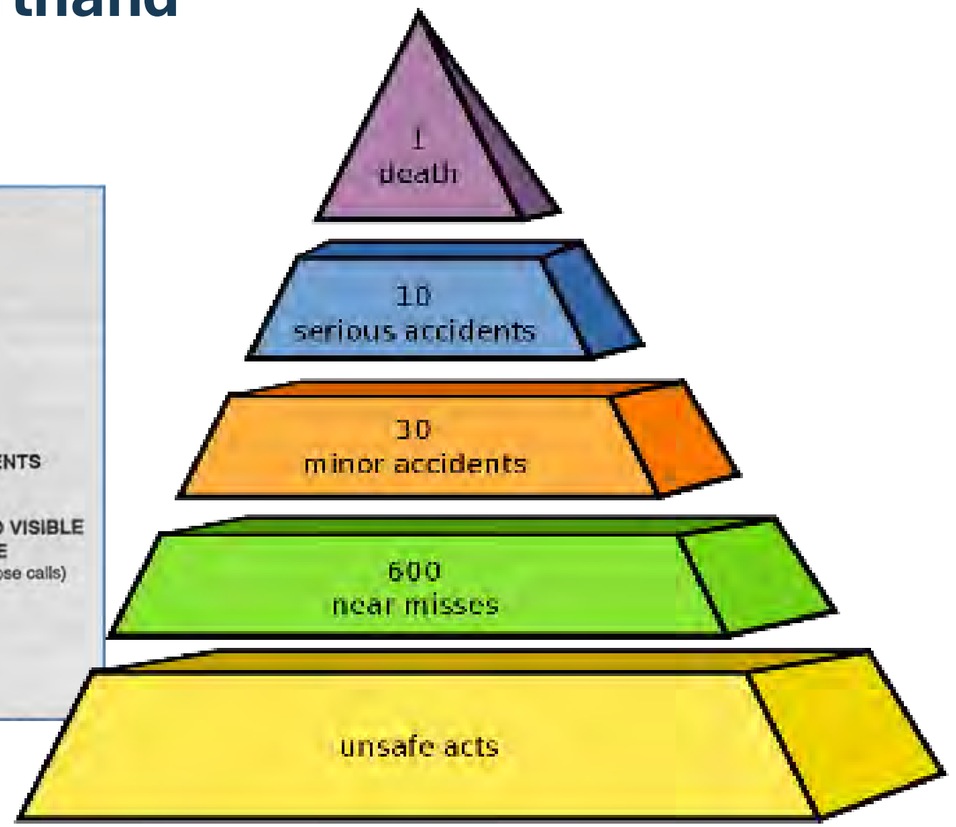
1. Origins: the accident triangle became safety shorthand

The classic premise is that many lower-consequence events sit beneath fewer severe outcomes.



Heinrich original pyramid





Bird/Germain 1-10-30-600 ratio

- Heinrich depicted a relationship between no-injury accidents, minor injuries, and major lost-time injuries.
-
- Bird/Germain expanded the concept to serious injuries, minor injuries, property damage, and no-visible-injury events.
-
- The compelling message: learn from the broader base before loss becomes severe.

Heinrich, quoted in Busch et al.

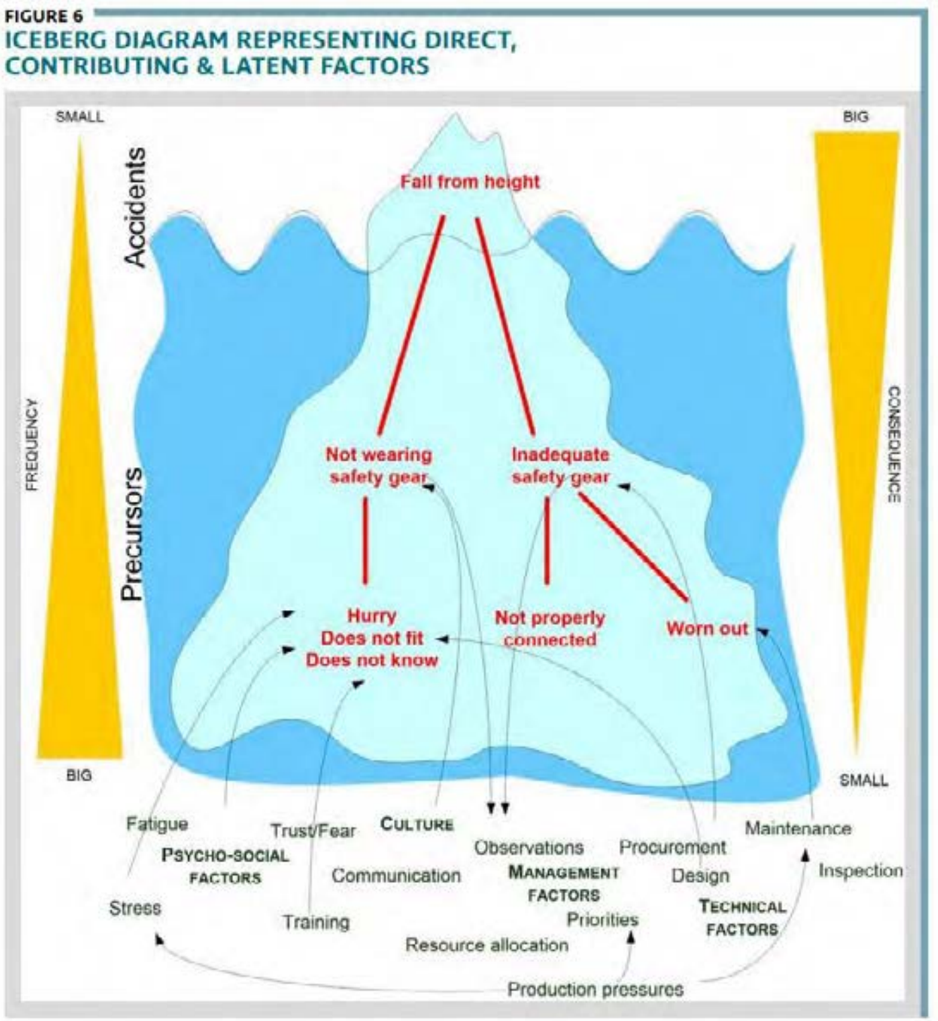
“Prevent the accidents and the injuries will take care of themselves.”

2. What the triangle gets right: weak signals still matter

The issue is not learning from minor events. The issue is assuming every minor event predicts a fatality.

> *“Reacting to a similar incident with minor consequences (preferably even a near miss) can remove the causes and prevent an accident with major consequences from happening.”*
>
> Busch et al.

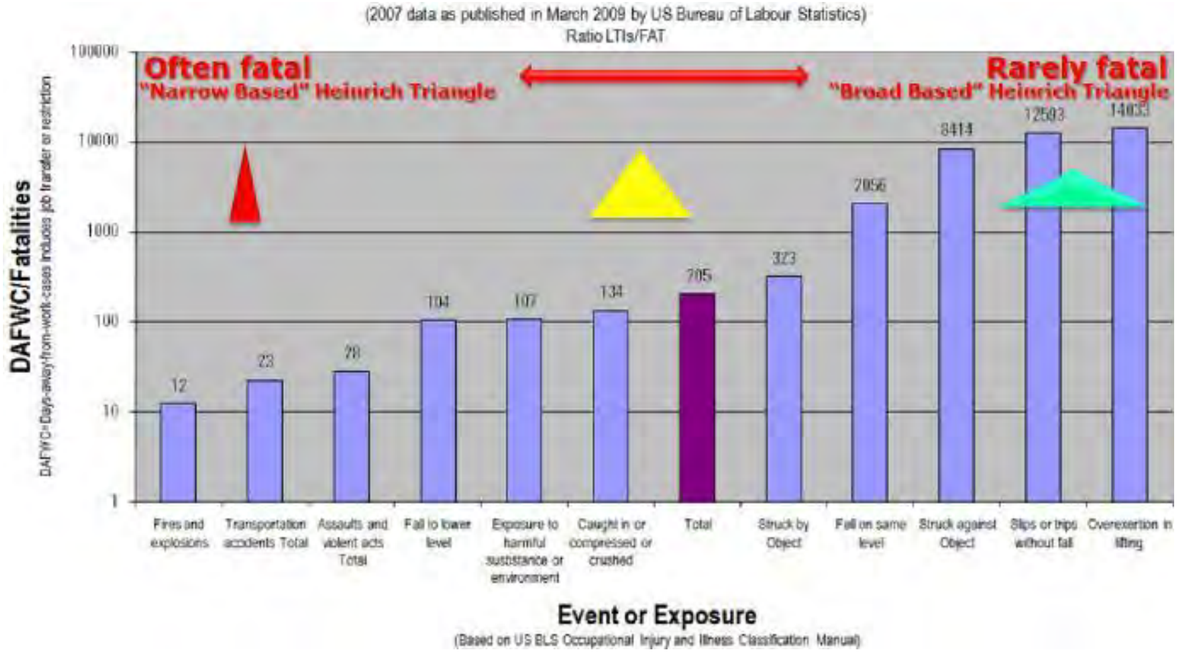
- Lower-consequence events can be valuable when they share credible causal pathways with high-consequence work.
-
- “Similar” is the key word: the event must point to the same hazards, controls, or system weaknesses.
-
- The pyramid is most useful as a prompt for learning, not as a universal mathematical law.



Original iceberg diagram: direct, contributing and latent factors

3. Where universal ratios break down

Not all hazards produce the same warning pattern before serious harm.



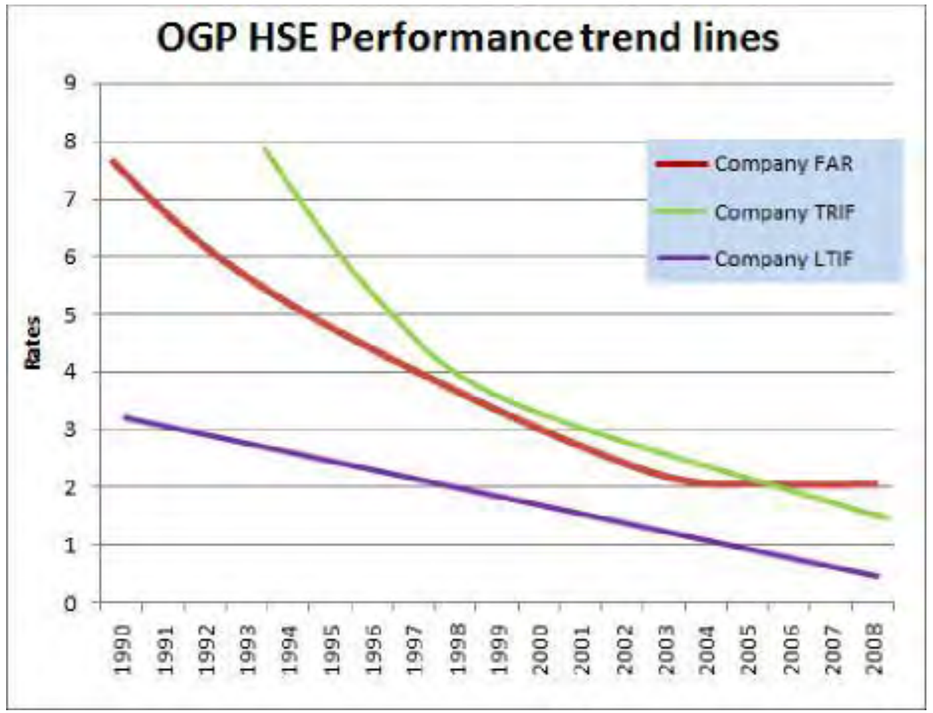
Ratio of lost-time injuries to fatalities by event type

- Some categories have a narrow base: few warnings before catastrophic loss.
-
- Others have a broad base: many lower-consequence events before serious loss.
-
- Combining unlike hazards into one pyramid can bury the hazards most likely to kill.

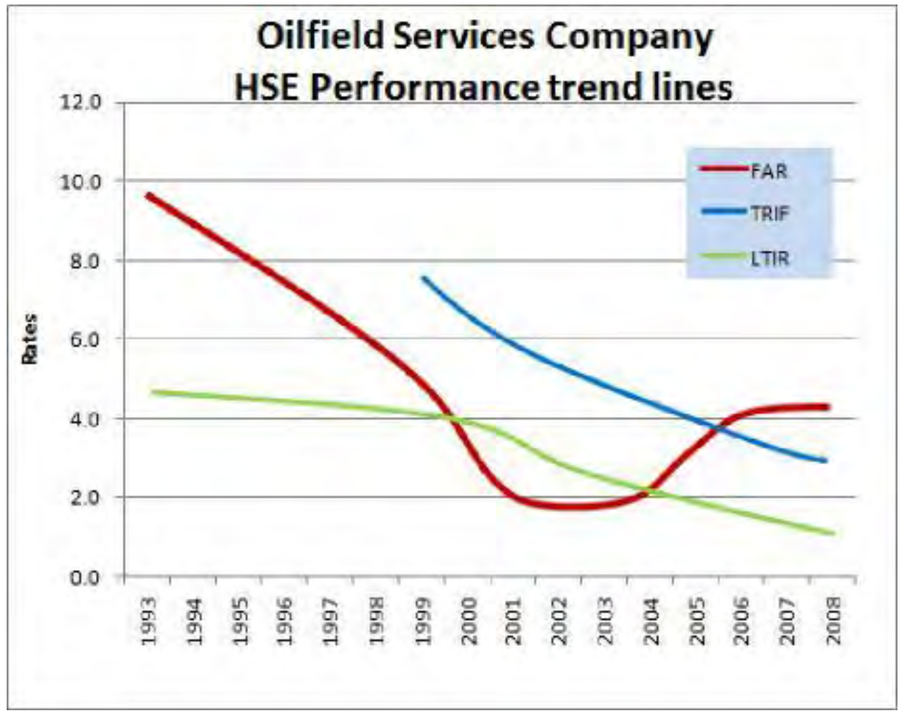
> *"Obviously then there are different ratios for different accident types, for different jobs, for different people."*
>
> Petersen & Roos, quoted in Anderson & Denkl

4. Injury rates can improve while fatality risk remains

Lagging indicators can show progress without proving high-energy work is controlled.



OGP HSE performance trend lines



Oilfield services company trend lines

"TRIR and LTIF show consistent improvement, [but] the fatality rate has flattened."

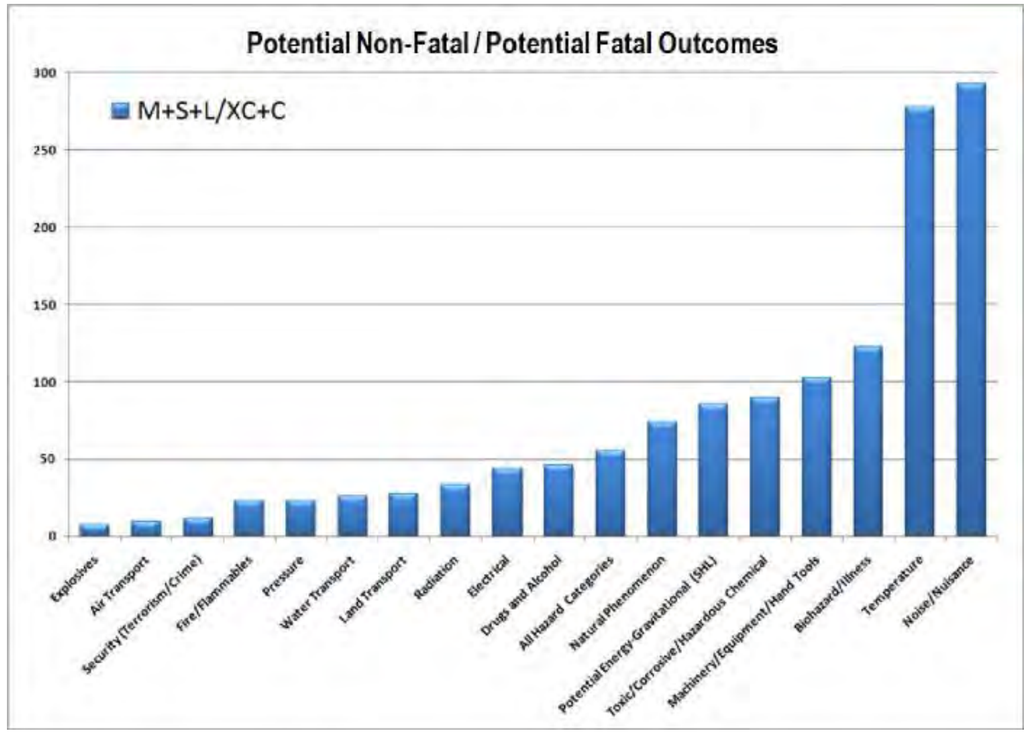
Anderson & Denkl summary

"Improving personal injury rates [were] mistakenly interpreted as an indication of acceptable process safety performance."

Baker Panel, quoted by Anderson & Denkl

5. High-Risk Activities: classify by potential, not just outcome

Potential severity uncovers serious exposure before the actual outcome occurs.



Potential nonfatal to potential fatal outcomes

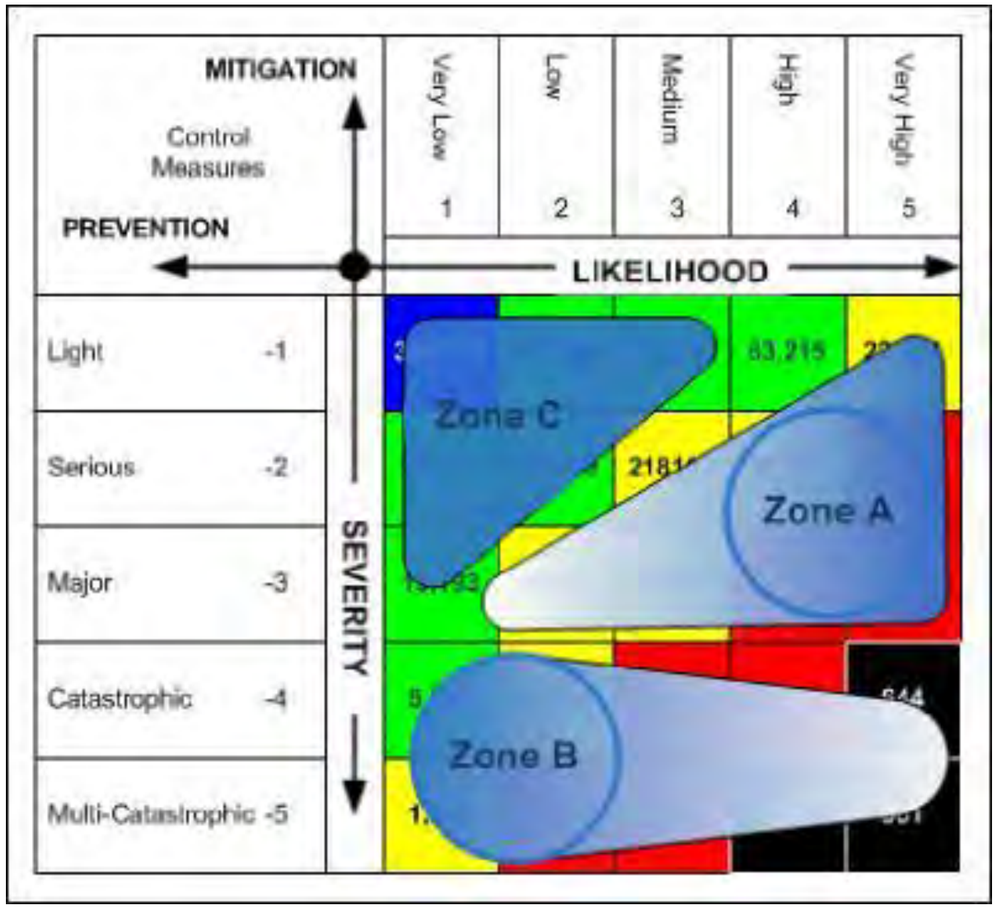
	High Risk Activities	Non High Risk Activities
Fatal outcome	Often	Rarely
Opportunities to learn from	Few (need to Study)	Many (can learn from experience)
Base of Pyramid	Narrow	Broad
HSE Focus on	Operations/Process	Personal Injury
Approach	Must be proactive	Can be reactive
Compliance level required	100% all the time	Greater X%
Main HSE Tools	Learn from High Potential Incidents, Conduct Risk Assessments, Learning from past fatal incidents	Prompt incident reporting, assign action items to address risk, achieve timely closure of action items

Main characteristics of HRA vs non-HRA

- High-risk activities are often low frequency, high severity, and offer few learning opportunities.
-
- The same actual outcome can mask very different potential outcomes.
-
- A near miss is valuable when it shows credible fatal potential or failed critical controls.

6. Risk-matrix zones: separate signal from noise

The most useful reports are not always the most frequent reports.



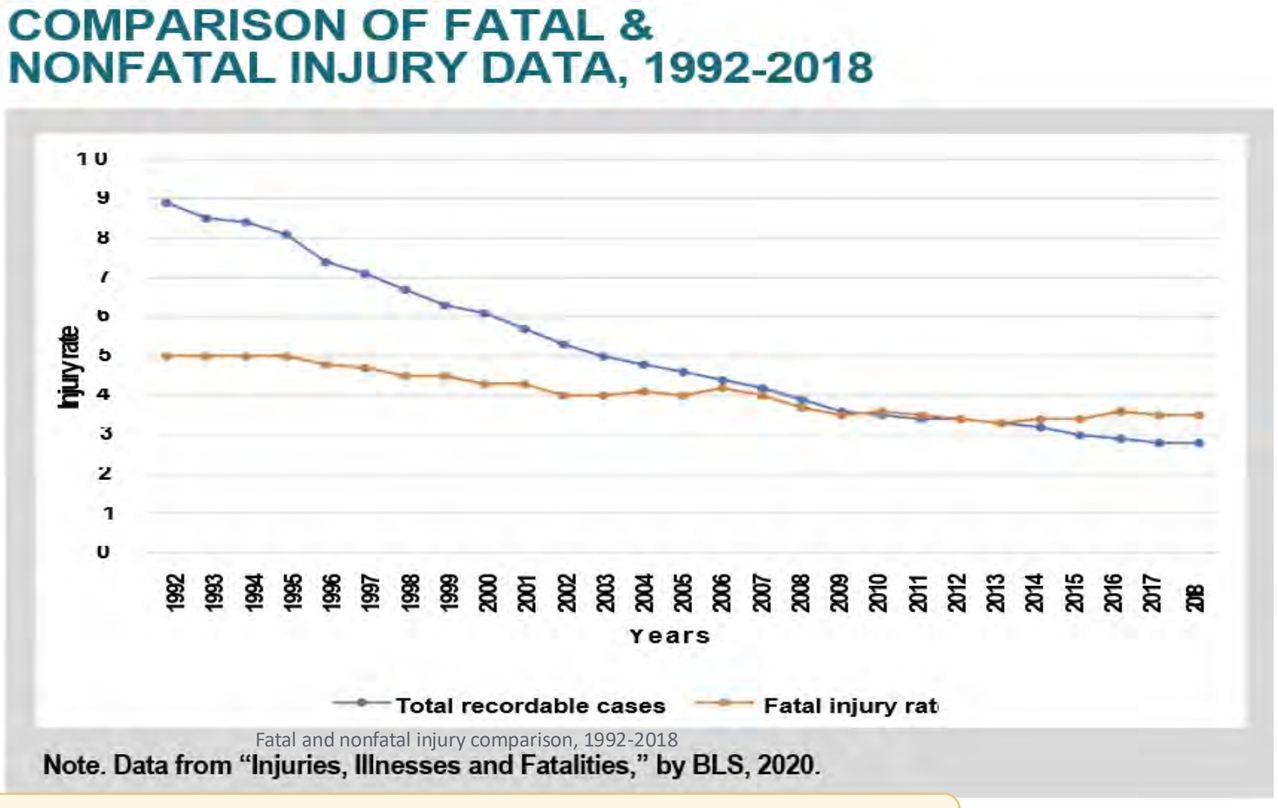
Original risk matrix zones A, B and C

- Zone A: high-frequency / low-severity “good hunting ground” for injury prevention.
-
- Zone B: only a small share of reports, but represents fatal-potential occasions.
-
- Zone C: high volume, lower learning value for serious risk unless used for coaching and culture.

> *“Zone B contains only 1 to 2% of the risk reports, yet represents all those occasions when there could have been a fatality.”*
>
> Anderson & Denkl

7. Busch et al.: we may be collecting the wrong data

Observation systems often overcount visible, low-consequence conditions.



Fatal and nonfatal injury comparison, 1992-2018

"OSH professionals are not taking full advantage of safety data to help prevent serious injuries and fatalities."

Busch et al. key takeaway

- Common behavior and incident data can be weakly related to SIF prevention.
-
- Classification by controls and risk potential is more useful than grouping by chance outcome.
-
- Social and technical systems both need deeper analysis.

Observation categories, severity matrix and at-risk findings

Metric Usefulness and Limitations

Metric / Signal	What it measures well	Where it can mislead	Better use in the program
TRIR / DART	Recordable injury outcomes and lost/restricted work trends.	Can improve while fatal-risk exposure remains unchanged or increases.	Keep as lagging indicators, but do not use as the primary proof of SIF readiness.
Near-miss volume	Reporting participation and opportunities for learning.	High volume can overrepresent low-consequence events and create noise.	Classify by potential severity and common high-risk pathways.
High Potential / SIF Potential	Events that could plausibly have produced life-altering injury or fatality.	Definitions can become inconsistent or influenced by fear of escalation.	Use clear criteria, calibration reviews, and non-punitive learning expectations.
Critical controls	Presence and performance of barriers that prevent serious harm.	Paper controls may exist without working reliably in the field.	Verify control effectiveness during actual work, not only through documentation.
Weak signals	Small signs that a system is drifting toward failure.	Often dismissed because no one was harmed.	Treat repeated weak signals as learning opportunities before serious consequences occur.

7. Six failure modes of SIF prevention programs

A SIF program can look robust on paper while leaving consequential risk unmanaged.

1. **Low-severity lagging data**
2. **Vague SIF / HiPo definitions**
3. **Outcome focus instead of exposure**
4. **Controls assumed effective**
5. **Fear, blame and softened reporting**
6. **Rule violations over decision-making**

“Preventing serious harm requires leaders to confront how work is truly performed, how systems drift over time and how people make trade-offs in imperfect conditions.”

Rethinking Safety Metrics expanded draft

8. Field translation for utility vegetation management

The absence of injuries is not the same as the presence of control.

Electrical proximity

Tree failure / struck-by

Traffic exposure

Lone-worker emergency response

Terrain, weather and fatigue

Production pressure and drift

“The value of the control is not measured by frequent activation; it is measured by whether it is available, understood, maintained, and used when needed.”

PLB example from expanded draft

9. Practical operating model: count less, verify more

The mature program keeps lagging metrics but pivots leadership attention to exposure and control performance.

1

Define SIF / HiPo criteria

Use clear examples and calibration reviews.

2

Classify both actual and potential severity

Do not let outcome alone drive learning priority.

3

Identify critical controls

Name the barriers that prevent life-altering harm.

4

Verify controls in real work

Observe work-as-done, not just documents.

5

Learn without blame

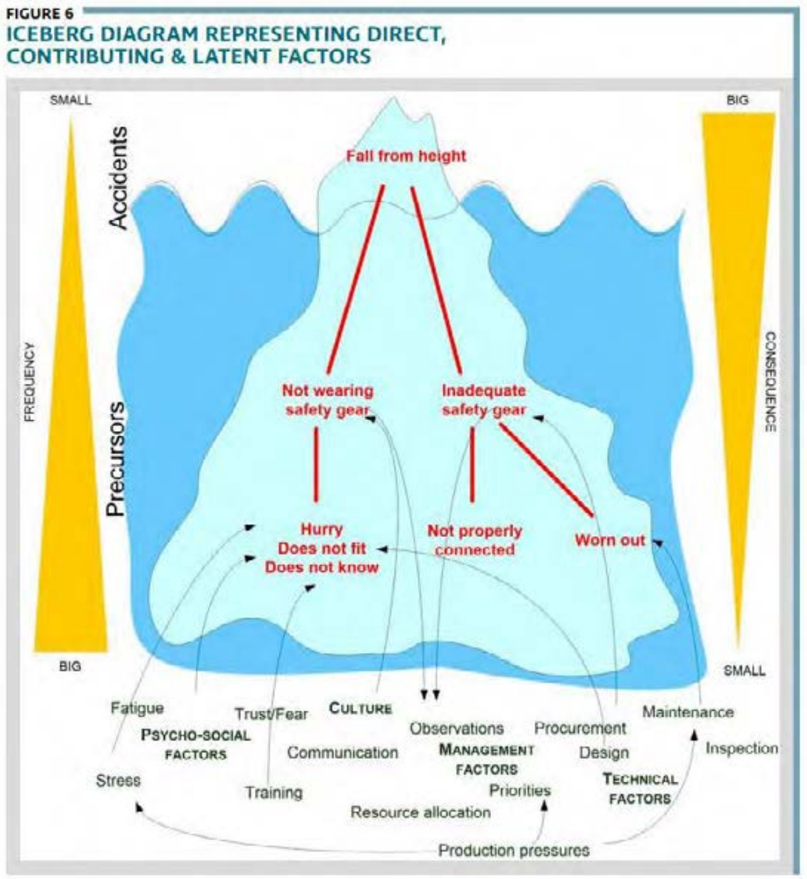
Ask what failed and how the system can improve.

> *“Shift your questioning from “who failed” to “what failed” and “how can we improve.””*
>
> Busch et al.

Closing message: Heinrich and Bird are useful, but incomplete

Reducing recordables is good. Preventing life-altering harm requires a deeper view of exposure, controls and learnin

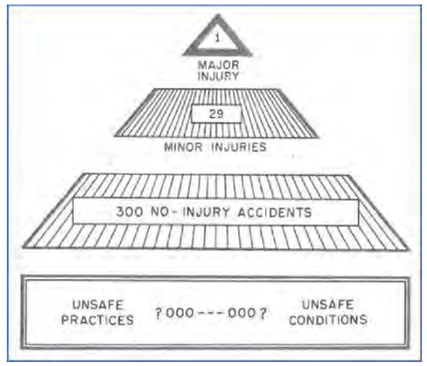
- Do not reject the triangle: refine its use.
-
- Treat high-potential events and weak signals as learning assets.
-
- Prioritize critical controls where energy, exposure and consequence are high.
-
- Build trust so crews report the signals that matter before harm occurs.



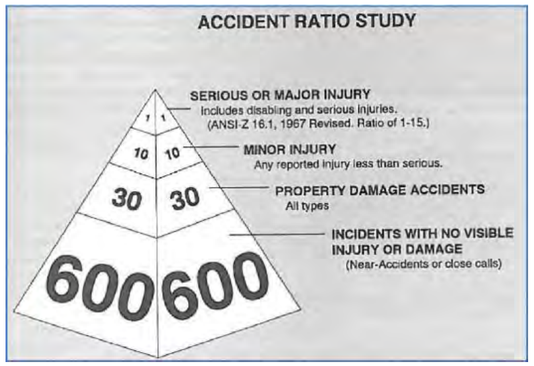
“The safest conclusion is not that Heinrich and Bird were wrong, but that their models are incomplete when used as a stand-alone strategy for preventing serious harm.”

Appendix: original diagrams retained from source files

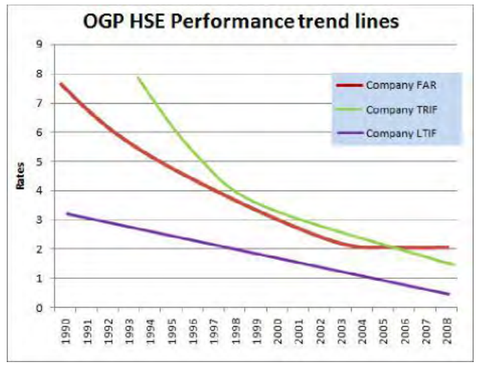
Key graphics were extracted from the attached Word documents and embedded directly in this deck.



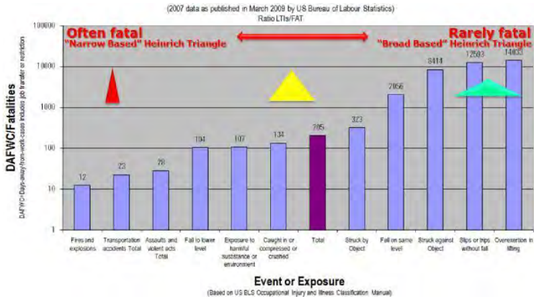
Heinrich original



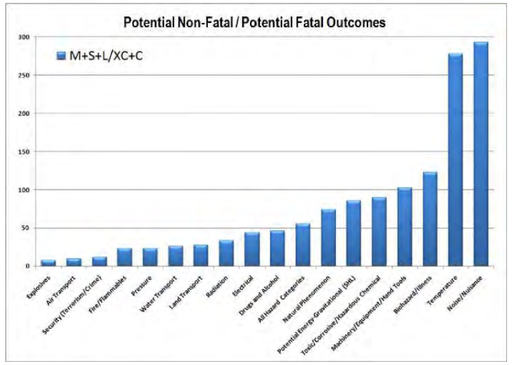
Bird/Germain ratio



OGP trend lines



LTI/fatality ratio



Potential fatal outcomes

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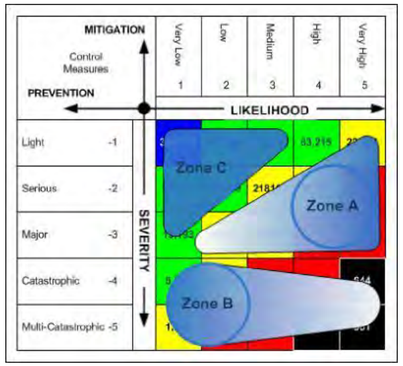
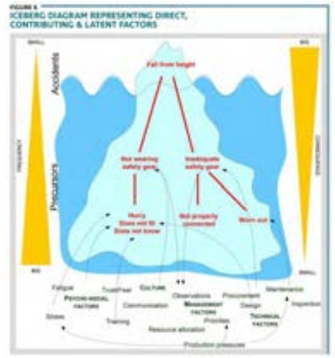
Approach	Must be proactive	Can be reactive
Compliance level required	100% all the time	Greater X%
Main HSE Tools	Learn from High Potential Incidents, Conduct Risk Assessments, Learning from past fatal incidents	Prompt incident reporting, assign action items to address risk, achieve timely closure of action items

HRA table



Risk matrix zones



Iceberg factors

Source notes and quotations used

This deck intentionally preserves original quotations and figures from the attached files.

Anderson & Denkl: “Heinrich’s principle works only when applied to a large number of combined hazards and activities.”

Petersen & Roos: “There are different ratios for different accident types, for different jobs, for different people.”

Busch et al.: “It is wrong to talk about major and minor accidents since there is no such thing. It’s the consequences that are major or minor.”

Hale: “Clearly articulated and understood scenarios must drive prevention activities.”

Expanded draft: “The absence of harm should not be mistaken for the presence of control.”

LUNCH

12:00-1:30

BUILDING RESLILIENCE AND RELIABILITY THROUGH IVM

PRESENTED BY
MATTHEW MEADOR, EDKO

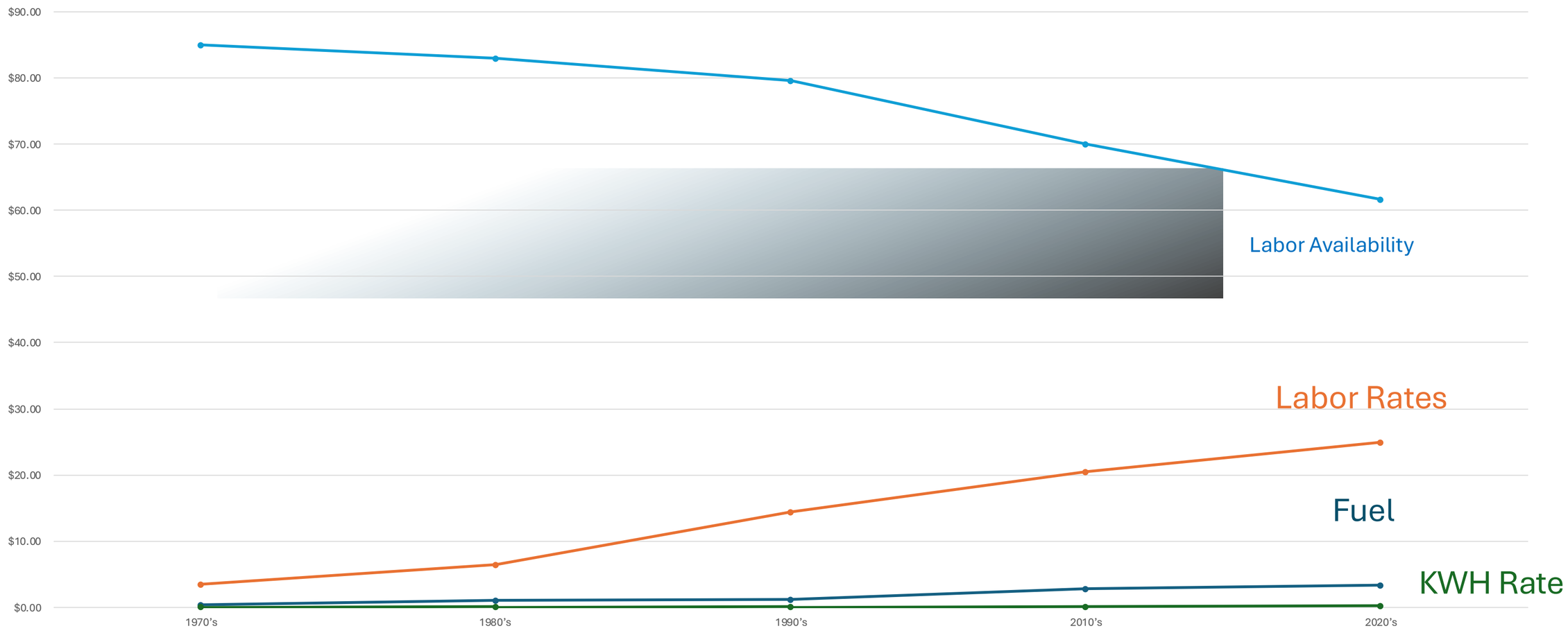
Building Reliance and Resilience through Vegetation Management

Evaluating criteria, metrics, and inspection protocols

VM Reliance Challenges

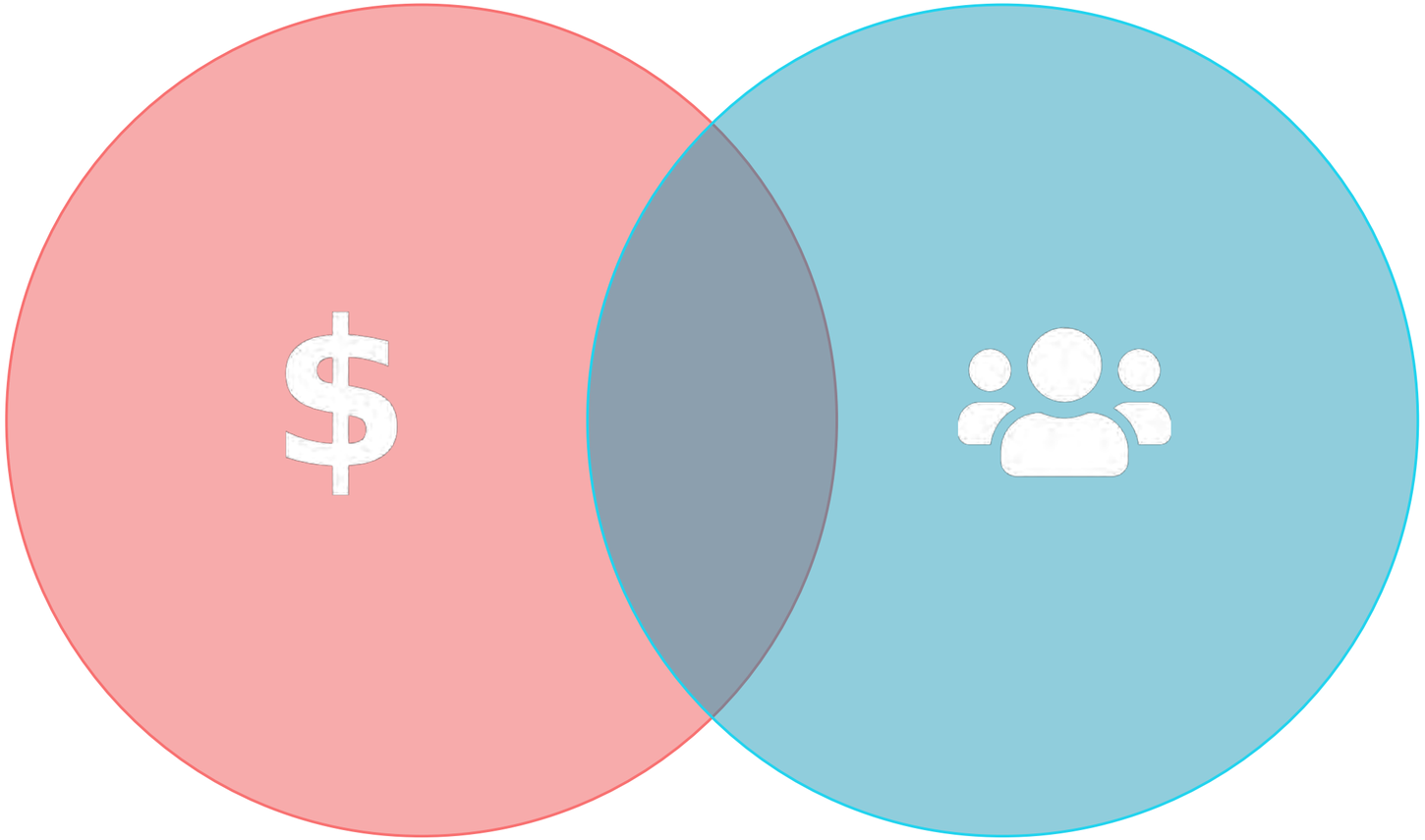
VM Challenges

	AVG. HOME PRICE	AVG. PRICE PER GALLON FOR GAS	AVG. WEEKLY GROCERY COST	VEGETATION MANAGEMENT
1970's	$23K -$74K	$0.36	$53.00	Utilities first utilized contract VM services
1980's	$76K -$149K	$1.00	$80.39	The mechanical trimmer was invented
1990's	$150K - $204K	$1.19	$99.90	The mechanical trimmer was first full utilized on utility ROW
2010's	$275K - $384K	$2.83	$233.00	The Affordable Care Act is passed and contractor's increased employee benefits
2020's	$389K - $438K	$3.30	$270.00	Private Equity influences the industry


$90.00
$80.00
$70.00
$60.00
$50.00
$40.00
$30.00
$20.00
$10.00
$0.00
1970's
1980's
1990's
2010's
2020's
Labor Availability
Labor Rates
Fuel
KWH Rate

Growing Load
Increasing electrification and rising load demand

Infrastructure Stress
Aging assets, climate adaptation, and greater reliability expectations



Rate Pressure
Fixed capital allocation, regulatory caps, and limited spending flexibility

Efficiency Mandate
Optimize operations and prioritize high-impact investments

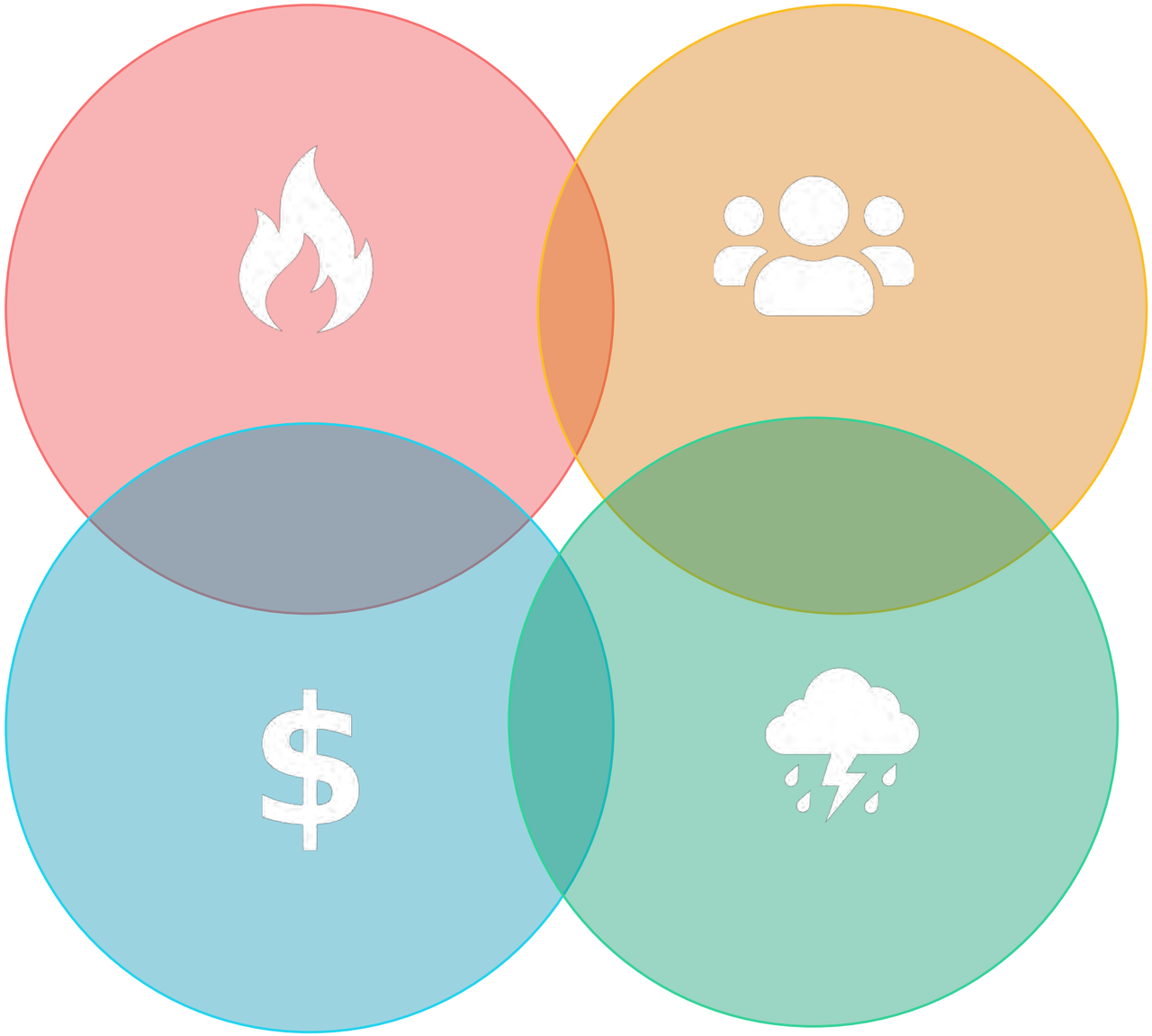
Meeting growing energy needs within a fixed financial budget requires strategic prioritization and operational efficiency

Catastrophic Fire Events

Such as, the devastating wildfire in California that reshaped industry liability and fire mitigation standards

Insurance Requirements

Escalating premiums, coverage requirements, and liability exposure



Regulation and Oversite

Growing demands for Fire Mitigation Planning, execution, and tracking

Increasing Storms

More frequent and severe weather events driving infrastructure damage and increasing fire fuels

Converging Wildfire Risk Factors

- **Reduction of Fire Fuels**
- **High Risk Fire Days**
- **Ageing Hardware**
- **Unprotected Line-Miles**
- **Hardware Near Structures**
- **High Voltages**
- **Strategic Hardware**

When these factors come together, the risk of an escalating fire increases

Vegetation Management Reliance Objective

- No Injuries
- No Fires
- No Outages

HOW IVM SUPPORTS RELIANCE PLANNING

01 Impacts Up to 30% of the Right of Way

02 Improves the Right of Way for Future Cycles

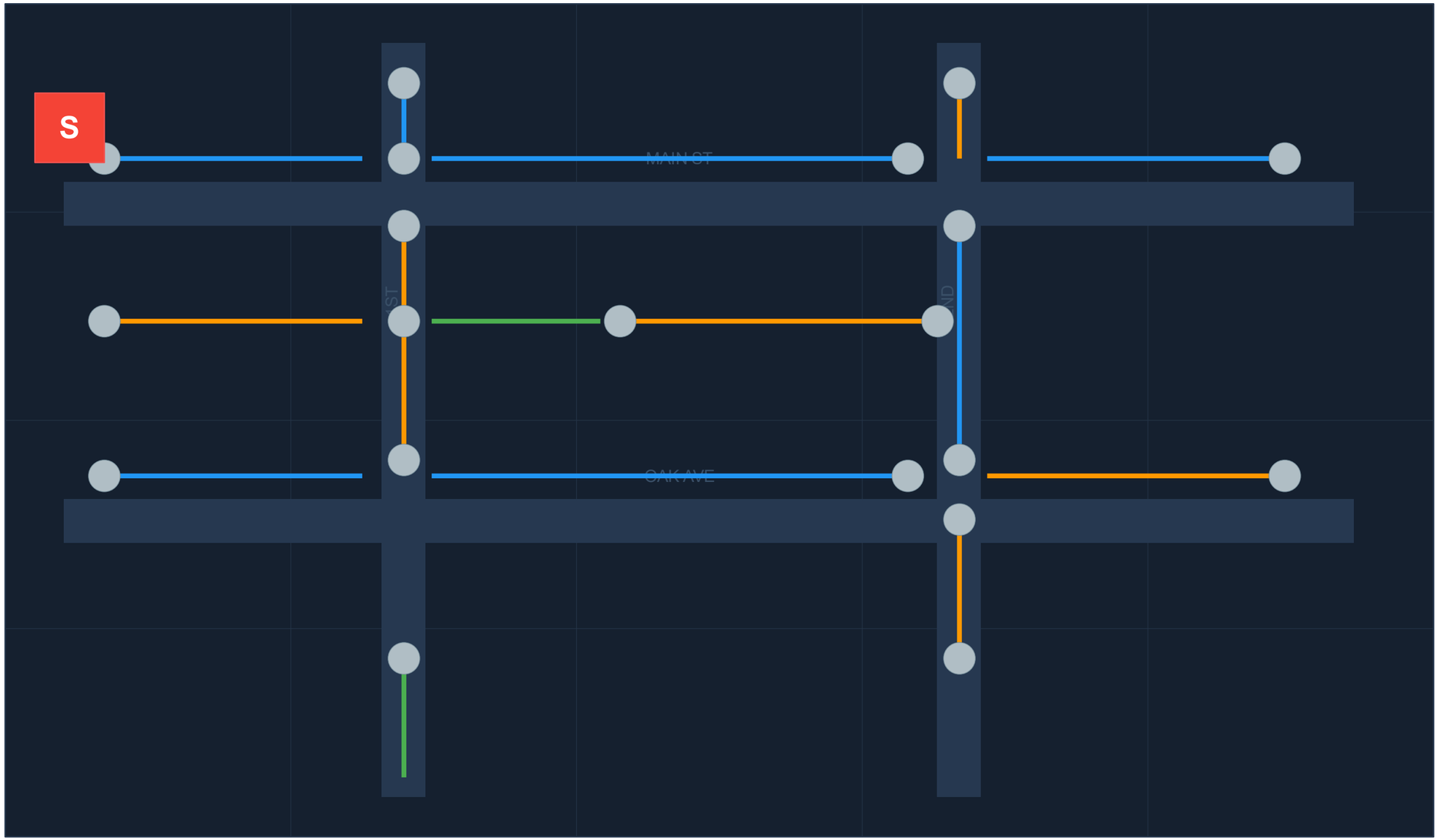
03 Reduces Labor Demands

04 Improves Working Conditions

05 Ensures Timely Work Schedule Completion

06 Reduces Cost

Feeder 4102 — Work Type Classification



LEGEND

- Bucket Work **50%**
- Climb Work **40%**
- Open **10%**
- Substation

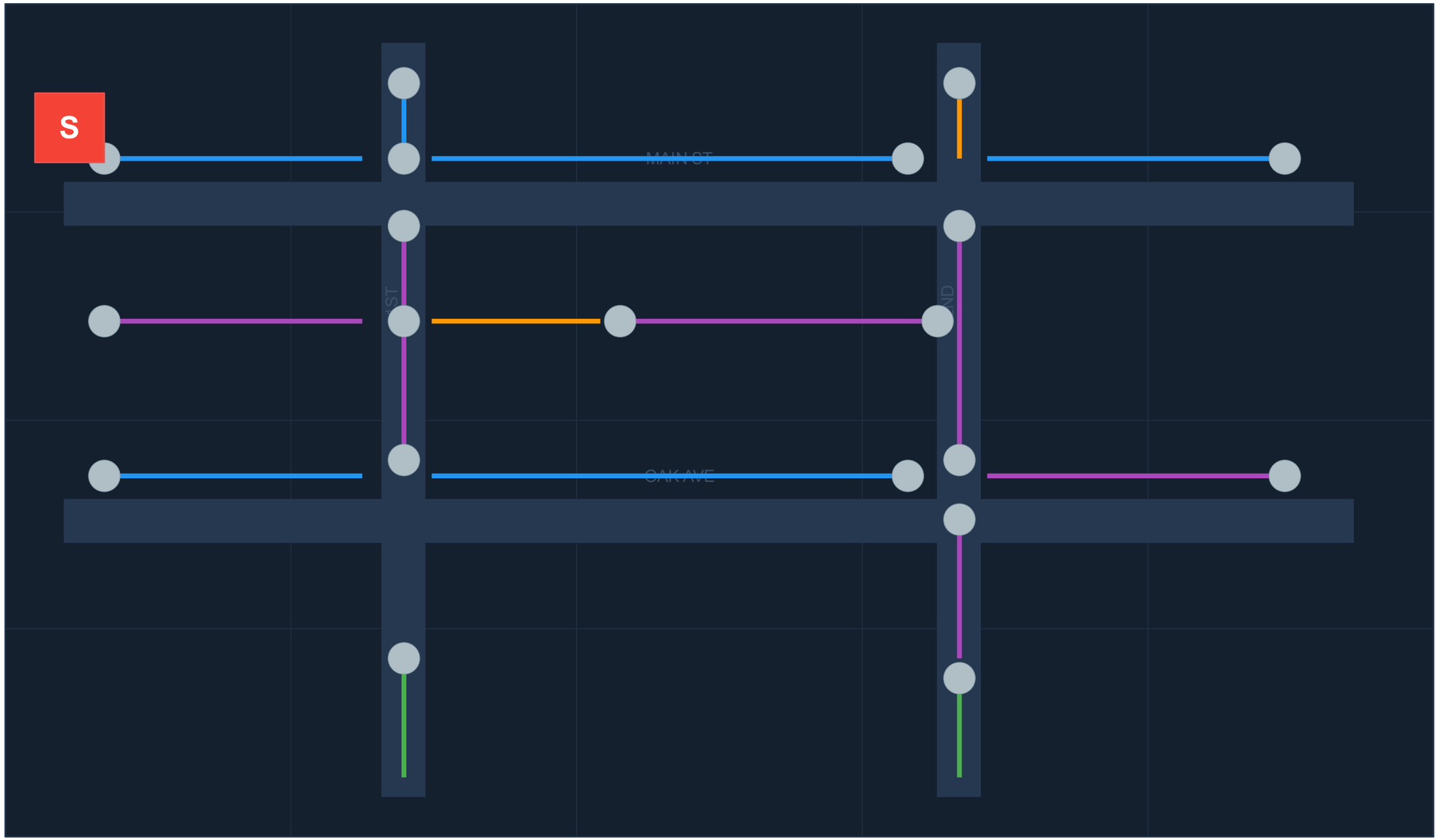
CIRCUIT STATS

142
Total Spans

18.6
Circuit Miles

97
Poles

Feeder 4102 — Work Type Classification



LEGEND

- Bucket Work **45%**
- Climb Work **10%**
- ROW Equip Work **35%**
- Open **10%**
- Substation

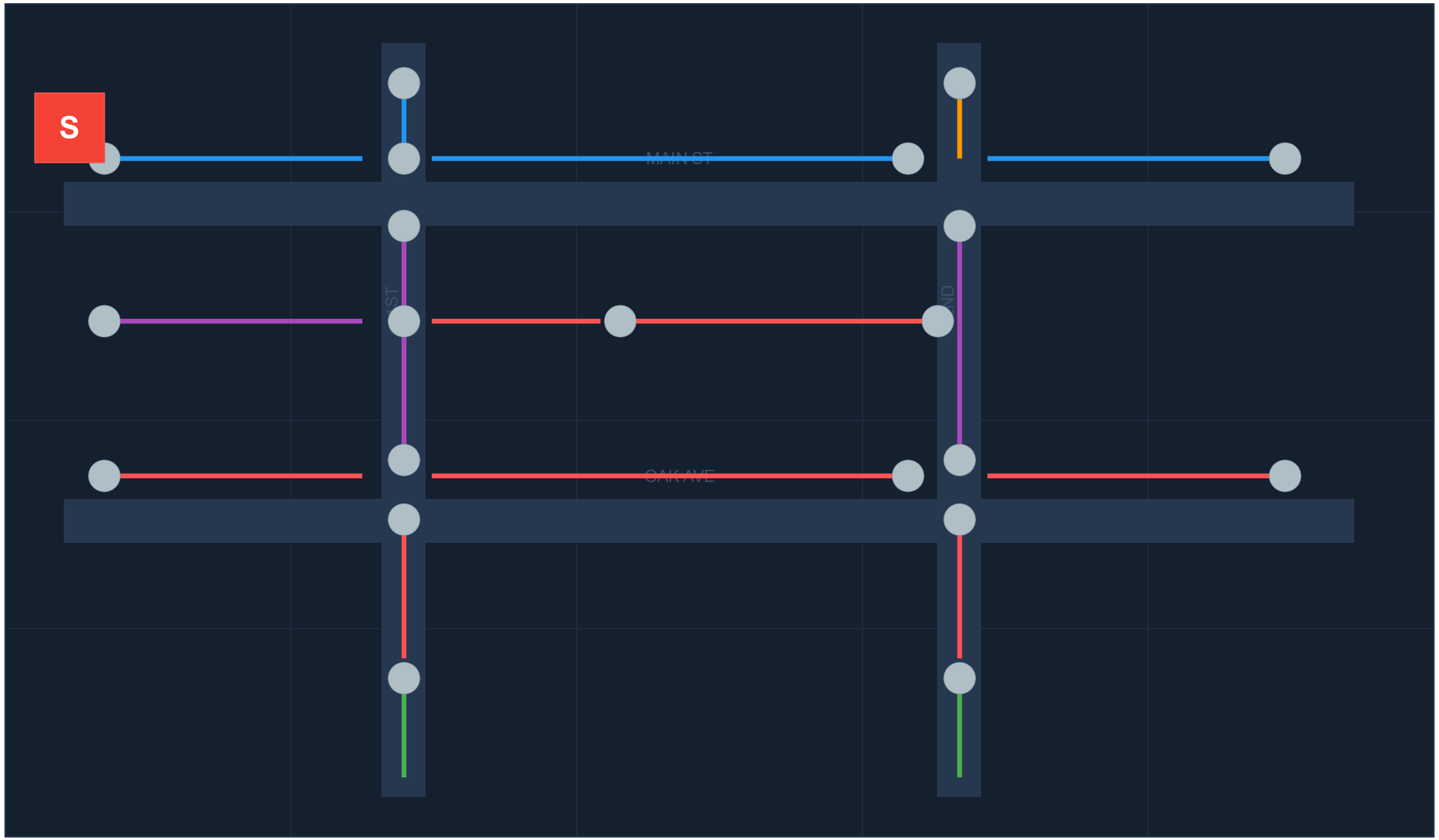
CIRCUIT STATS

142
Total Spans

18.6
Circuit Miles

97
Poles

Feeder 4102 — Work Type Classification



LEGEND

- Bucket Work **30%**
- Climb Work **5%**
- ROW Equip Work **20%**
- IVM Tools Work **35%**
- Open **10%**

Substation

CIRCUIT STATS

142
Total Spans

18.6
Circuit Miles

97
Poles

Miles vs. Crew Days

Total = 71.92 Crew Days and 2,430 Manhours

Two-Man Bucket

9.3

MILES

22.32 Crew Days

Climb Work

7.44

MILES

49.6 Crew Days

Miles ↔ Crew Days Equivalence

Miles vs. Crew Days

Total = 32.87 Crew Days and 1,000.6 Manhours

Two-Man Bucket

5.58
MILES

22.3
Crew Days

Climb

0.93
MILES

6.2
Crew Days

ROW Equip.

3.72
MILES

3.72
Crew Days

IVM Tools

6.51
MILES

0.65
Crew Days

Miles ↔ Crew Days Equivalence


BEFORE
AFTER
54%
FASTER COMPLETION
71.92
CREW DAYS
32.87
CREW DAYS

Key Highlights & Accomplishments

2010

SERVING SINCE

Proudly serving OG&E since 2010 with consistent, reliable total IVM support.

5,000

MILES COMPLETED

5,000 miles of herbicide work completed, impacting 30% of all targets across the service territory.

30% of all targets

TGRs

AVID USER

Avid user of Targeted Growth Regulators, maximizing efficiency and long-term vegetation control.

Impact of Full IVM Implementation

Before Full IVM

$8,200

PER MILE

65%

REDUCTION

in cost per mile

After Full IVM

$2,744

PER MILE

ecko OGE 2023

Work Status
No category selected

Work Type
Drone | Arm Truck | Hand Crew | Drone/Arm | Drone/Hand | Arm/Hand | TGR/Basal

Miles of Line Identifed as Workable

999.2

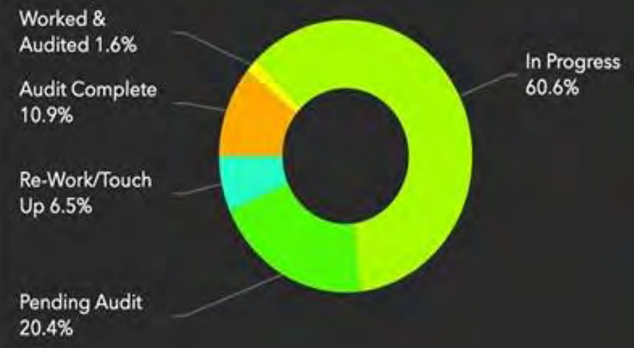
Miles of Primary Over Head Line Currently In Progress

717.8

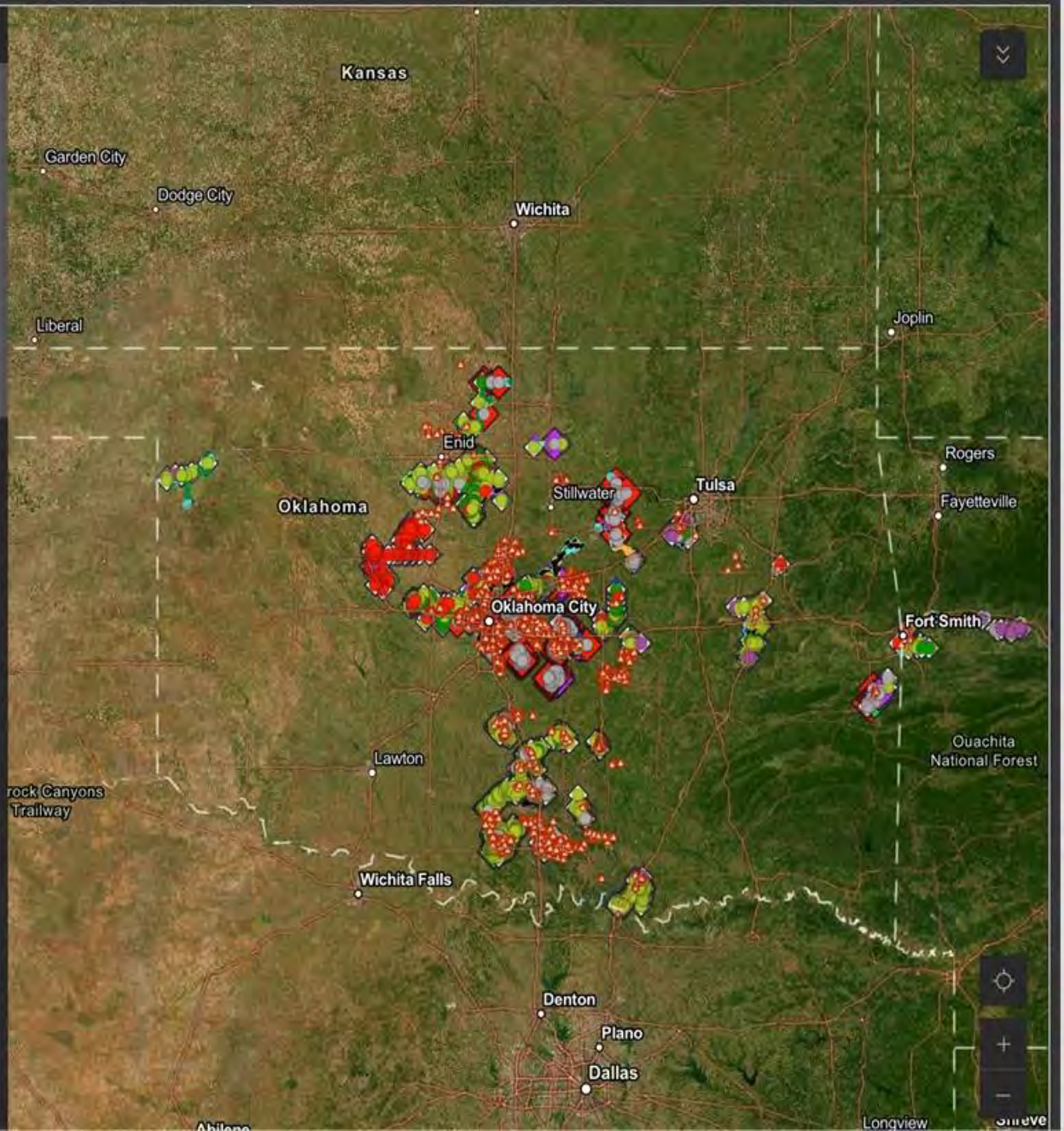
Miles Of Audit Completed Line

11.6

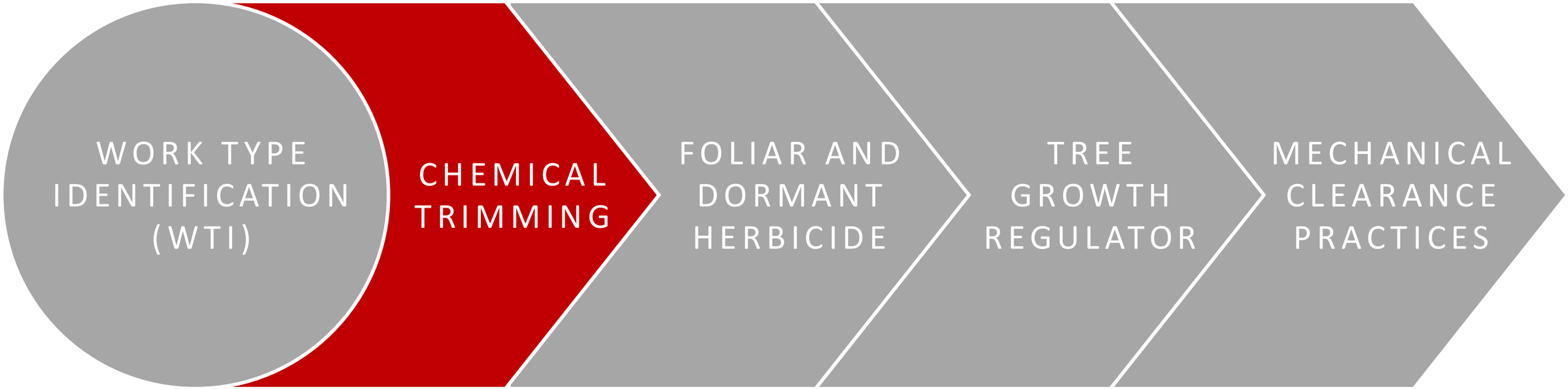
WTI	Length_mi
Drone	280
Arm Truck	736
Hand Crew	730
Drone/Arm	164
Drone/Hand	535
Arm/Hand	25



Audit Complete 10.9% | Worked & Audited 1.6%
In Progress 60.6% | Pending Audit 20.4%
Re-Work/Touch Up 6.5%



IVM APPROACH



CHEMICAL TRIMMING

Application: Foliar Season

R.O.W Floor and Sides

Optimal Application:

Inaccessible/Unsafe Terrian
Rural Distribution/Transmission
Solar

Benefit to Reliance Planning:

Lower Cost

Eliminate Arborist Exposure

Work Schedule Completion Assistance

Results Last 2x Longer

Reduces Emissions

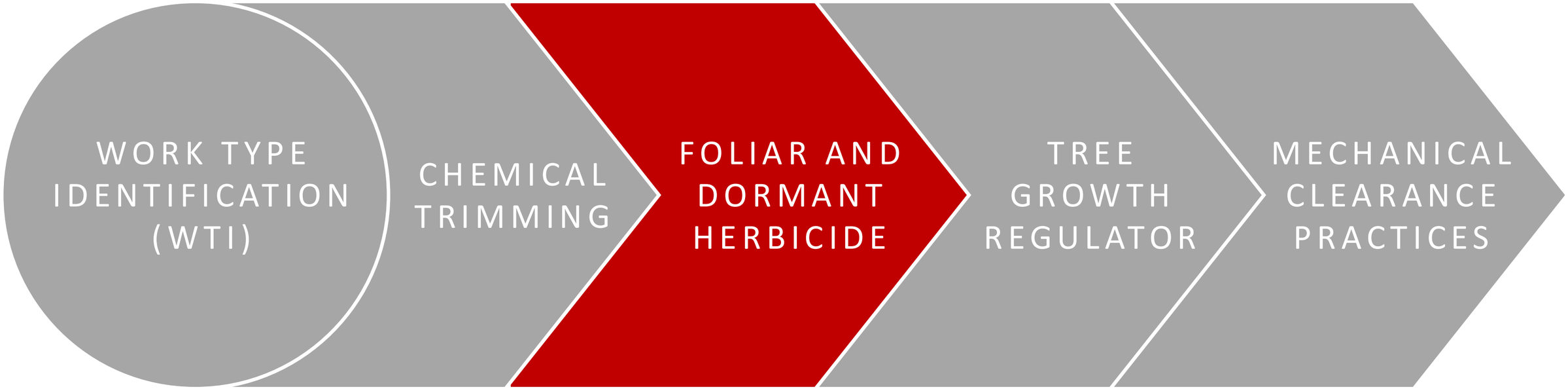
CHEMICAL TRIMMING

INCREASES
PRODUCTIVITY 3X

RESULTS LASTING
AVERAGE OF 6-8 YEARS

ELIMINATES EPICORMIC
SPROUTING

IVM APPROACH



FOLIAR/DORMANT HERBICIDE

Application: Year Round

Floor of R.O.W/Vine Patrol/Substations

Optimal Application:

Invasive Species Elimination

R.O.W Accessibility

Benefits to Reliance Planning:

Lower Cost

Reduces the Highest Number of Stems and Targets

Reduces Arborist Exposure

Work Plan Completion Schedule Assistance

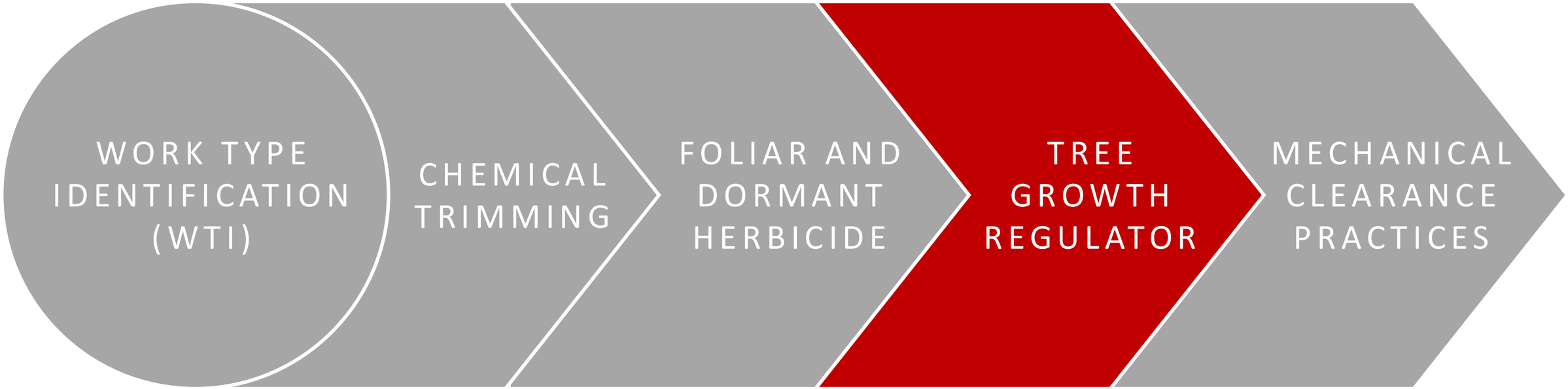
FOLIAR/DORMANT HERBICIDE

SAFELY ELIMINATES
STEMS <4” DBH

ELIMANATION OF VINES
AND VINE CAUSED
OUTAGES

RESULTS LASTING
AVERAGE OF 4-5 YEARS

IVM APPROACH



TREE GROWTH REGULATOR

Application: Year Round

Targeted Application

Optimal Application:

Yard Trees

Climbing Locations

Sensitive Areas

Cycle-busters

Benefits of Reliance Planning:

Extends Clearance Cycles

Best R.O.I

Limits Arborist Exposure

Reduces Customer Complaints

Reduces Trees Likelihood of Uprooting

TREE GROWTH REGULATOR

DIMINISHES IMPACT OF
RESURGENT GROWTH

REDUCE MID-CYCLE/
COSTLY TREE WORK

RESULTS LASTING
4-6 YEARS

IVM APPROACH

IVM'S IMPACT ON MECHANICAL CLEARANCE PRACTICES

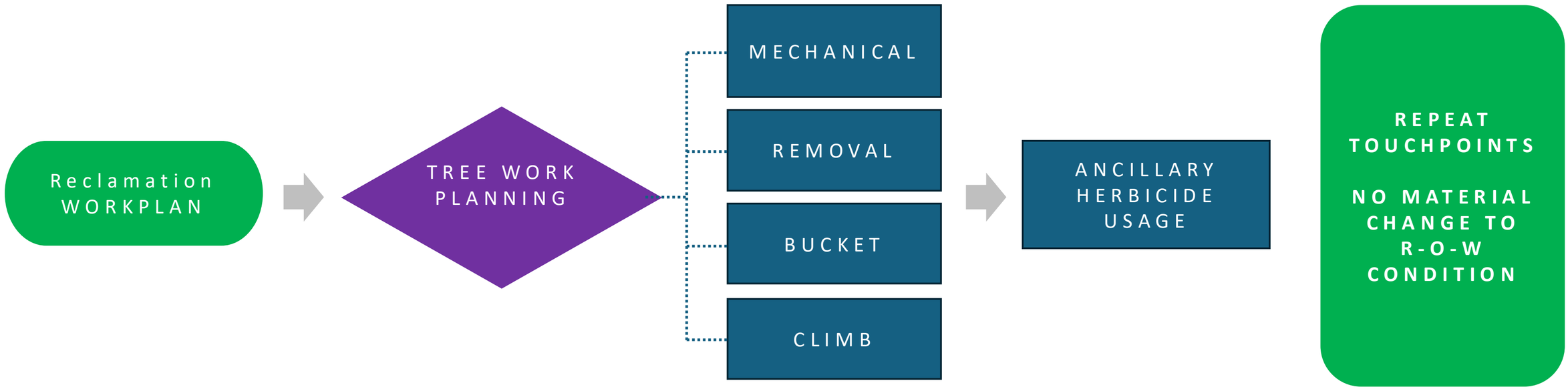
ENHANCE TREE WORKER PRODUCTIVITY

INCREASE TREE WORKER SAFETY

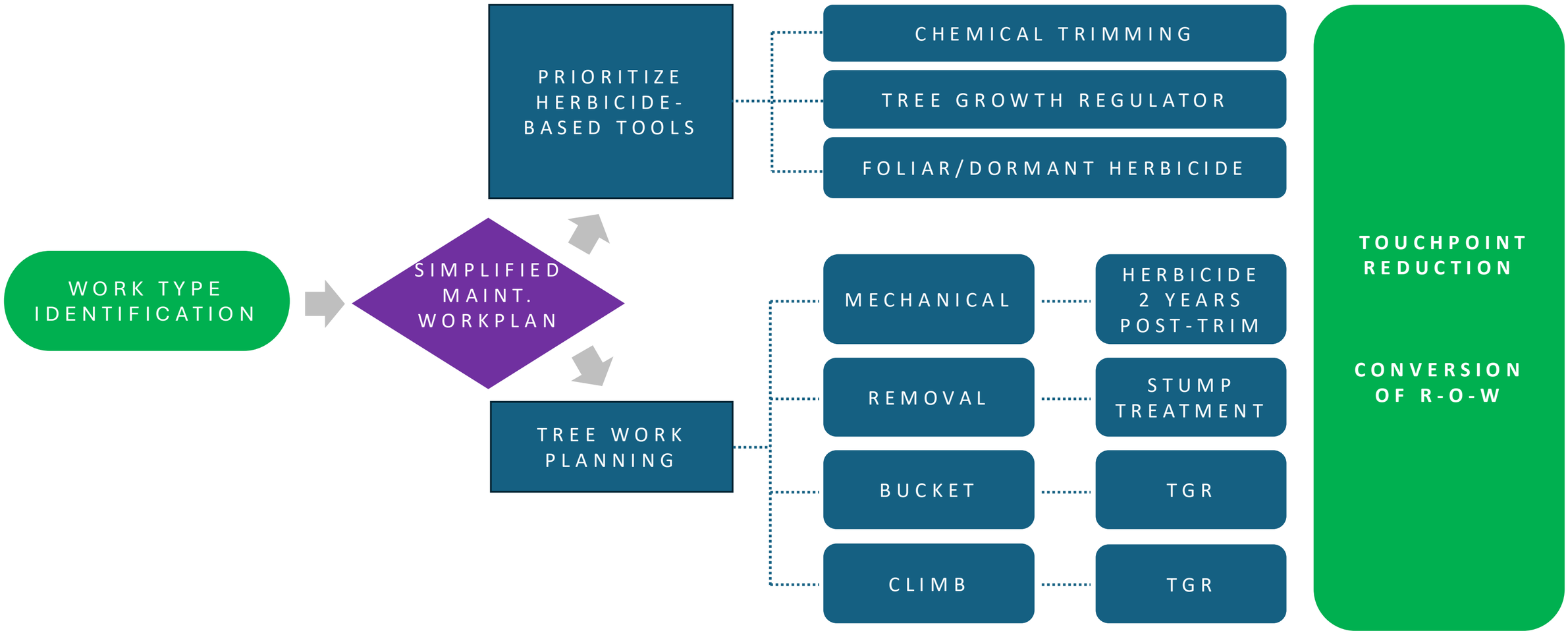
IMPROVES ARBORIST SKILL LEVELS AND REDUCES LABOR DEMANDS

ENSURE TREE VENDOR SUCCESS

COMMON UVM PROCESS MAP



PROPOSED UVM PROCESS MAP



23 STATES SERVED

18 YEARS AVERAGE MANAGER TENURE

80+ UTILITIES SERVED

edko CUSTOMERS

Shenandoah Valley Electric Cooperative
A Touchstone Energy® Cooperative

AEP AMERICAN ELECTRIC POWER

SVEC
Suwannee Valley Electric Cooperative

POWER OF COMMUNITY
PEDERNALES ELECTRIC COOPERATIVE

DUKE ENERGY®

BlueRidge ENERGY

PEE DEE ELECTRIC COOPERATIVE
A Touchstone Energy® Cooperative

ONCOR

TALQUIN ELECTRIC COOPERATIVE, INC.
WATER & WASTEWATER, INC.

Farmers Electric Cooperative

Dominion Energy®

GLADES Electric Cooperative, Inc.

Covington Electric Cooperative Inc.
A Touchstone Energy® Cooperative

Southern Company

Ozarks Electric Cooperative
A Touchstone Energy® Cooperative

mte Middle Tennessee Electric

BARTON COUNTY ELECTRIC COOPERATIVE
A Touchstone Energy® Cooperative

Peace River Electric Cooperative, Inc.
A Touchstone Energy® Cooperative

REC RAPPAHANNOCK ELECTRIC COOPERATIVE

TNMP
Texas-New Mexico Power

RE CRAIG-BOTETOURT ELECTRIC COOPERATIVE

OGE

A Total IVM Reliability Work Plan

Questions?

Matthew Meador

(931) 308-0956

matthew.meador@edkollc.com

edkollc.com

ANSI – 2026 AND THE UNEQUAL APPLICATION OF 29 CFR 1910.269

PRESENTED BY

TIM WALSH, TOWNSEND

UAA
UTILITY ARBORIST ASSOCIATION

Work as Imagined vs. Work as Done:

ANSI Z-133 – 2026 and the Unequal Application of 29 CFR 1910.26

Tim Walsh-The Townsend Company, LLC.

*This presentation is not intended to be an interpretation of the standard in any way, but merely an overview of some of the changes.

Hierarchy of Controls

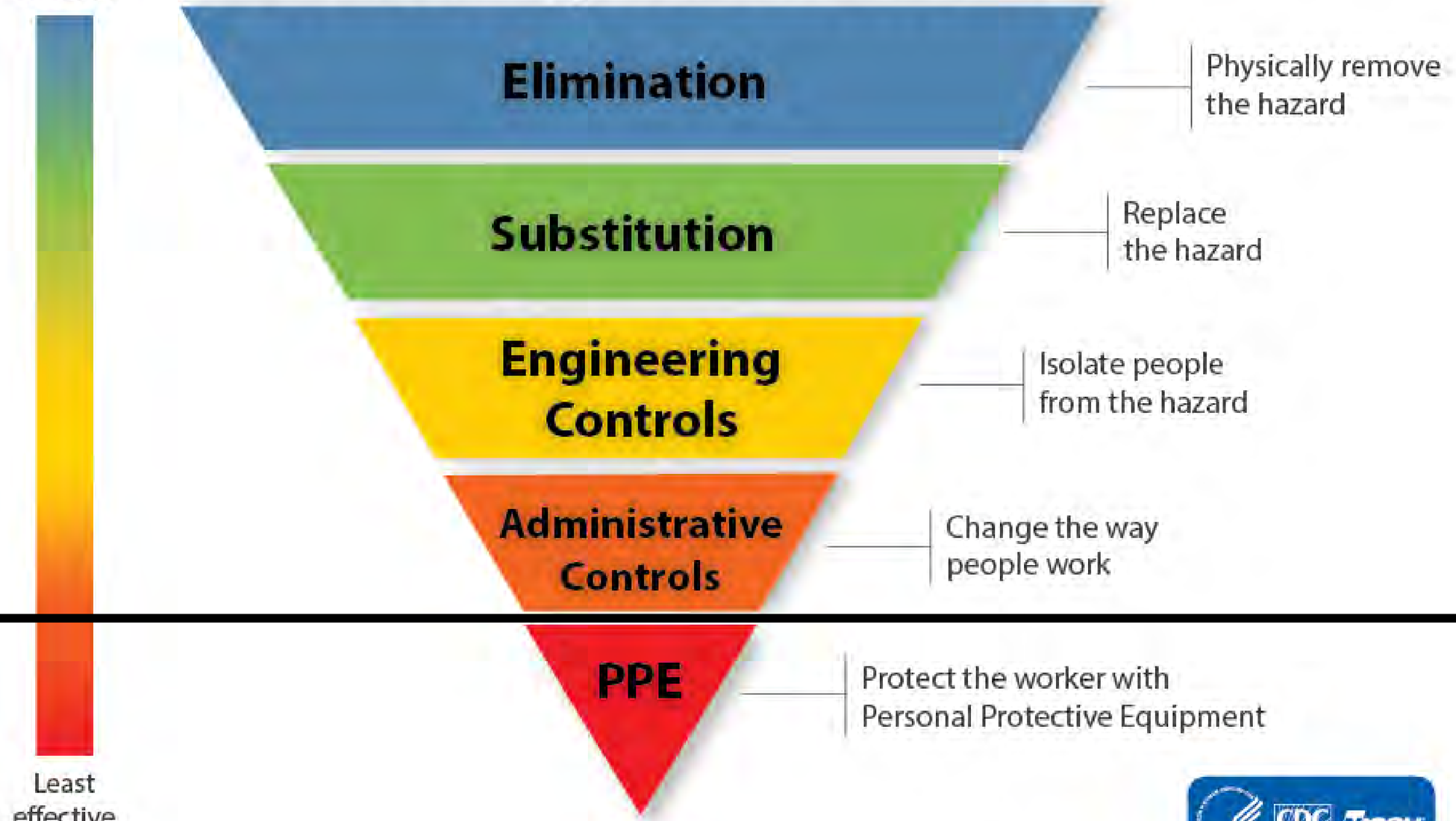


Image by NIOSH

Johnstown Boy, Pruning Tree, Is Electrocuted

An 18-year-old Johnstown boy was reportedly within a few minutes of finishing the day's work when he was electrocuted on a 4,800-volt power line at about 3:30 yesterday afternoon in St. Johnsville.

Jeffrey E. Hugg, son of Mr. and Mrs. Edward F. Hugg of 146 Pleasant Avenue, had been trimming and pruning trees on the property of Mrs. Mabel Fowler in St. Johnsville. According to St. Johnsville police, he had spoken five minutes before the accident with Adolph Sommers, caretaker of Mrs. Fowler's property, telling him he was almost finished for the day.

Sommers then walked away and the victim walked to the tree he planned to trim, an elm on the east side of the Fowler property near the bank of a creek, police said. No one reported seeing the electrocution.

Photo by Frank Ambrose
Jeffrey E. Hugg

History

- How did it all start?
  - Jeffrey Hugg-August 17, 1965
  - Ethel Hugg
  - April 4, 1968 -Accredited Standards Committee Z133
    - First standard adopted July 14, 1971
    - ANSI approved December 20, 1972
  - Revised 1978, 1982, 1987, 1994, 2000, 2006, 2012, 2017, 2026 (pending)
  - Changed name in 2012
    - Z133.1 became Z133

How it Works, General

- “Shall”-Mandatory
- “Should”-Recommendation…determines responsibility for decisions made
- Should to Shall…
- Exceptions are bolded (Nine total)
- The sub part can’t violate the part above
- “…unless it is not practicable and the employer demonstrates that a greater hazard is posed…”

How it Works, Compliance

- OSHA can reference Z133 as basis for Citation as it confirms industry recognized safety hazards and mitigations
  - 5(a)(1)- General Duty…free from recognized hazards…”
    - Applies when there is not a specific, applicable OSHA standard
    - Always a Serious Citation
  - $16,550 per violation (serious and other) maximum
  - Willful and Repeat
    - $165,514 maximum

OSI

- T
  s
  -
- I

PRM in

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View Rule

View EO 12866 Meetings | Printer-Friendly Version | Download RIN Data in XML

DOL/OSHA **RIN:** 1218-AD04 **Publication ID:** 2026

Title: Tree Care Standard

Abstract:

There is no Occupational Safety and Health Administration (OSHA) standard for tree care operations; the agency currently applies a patchwork of standards to address the serious hazards in this industry. The tree care industry previously petitioned the agency for rulemaking and OSHA issued an ANPRM (September 2008). OSHA completed a

Timetable:

Action	Date	FR Cite
Stakeholder Meeting	07/13/2016	
Initiate SBREFA	01/10/2020	
Complete SBREFA	05/22/2020	
NPRM	10/00/2026	

Legal Authority: 29 USC 655

Legal Deadline: None

Timetable:

Action	Date	FR Cite
Stakeholder Meeting	07/13/2016	
Initiate SBREFA	01/10/2020	
Complete SBREFA	05/22/2020	
NPRM	10/00/2026	

Regulatory Flexibility Analysis Required: YES

Small Entities Affected: Businesses, Governmental Jurisdictions

Included in the Regulatory Plan: No

RIN Data Printed in the FR: Yes

Government Levels Affected: Local, State

Federalism: No

Agency Contact:
Andrew Levinson
Director, Directorate of Standards and Guidance
Department of Labor
Occupational Safety and Health Administration
200 Constitution Avenue NW, FP Building, Room N-3718,
Washington, DC 20210
Phone:202 693-1950
Email: levinson.andrew@dol.gov

Federal Standards Impacting Tree Care

- 29CFR 1910.268 Telecommunications 3/26/75
- 29 CFR 1910 Subpart S – Electrical 8/6/90
  - 1910.331-335
- 29 CFR 1910.269
  - 1982- OSHA announces proposed rulemaking, National Arborist Association members get involved
  - 1994 OSHA Promulgates Final Rule (1/31/94)
    - **Preamble to Final Rule**
  - 2005 – OSHA proposes updates to 1910.269 and Subpart V, companion rule for Construction
  - 2014 – Final rules are published (7/10/14)
    - TCIA, EEI and ULCC file petitions for review
  - 2015 – settlement agreement is signed, rules are enforced (2/13/15)

Key Changes for 2026

Z revision update series

ANSI and the Z

By John Ball and Tim Walsh

Take this article with you to your next crew safety briefing! Start a conversation. Be an example. Make inroads for a better safety culture today.

The ANSI Z133 *Safety Requirements for Arboricultural Operations* is the guide for safely performing tree work in the United States. It is different from the ANSI A300 *Tree Care Standards*, a US standard, which focuses on how to care for trees. The Z, as it is often abbreviated, is centered on health and safety.

The beginning of the Z can be traced back to 1965 August 10. Jeff Huggs was in his second week as a climber with a tree company. He was assigned to prune a tree on an estate and while doing so contacted a 4.8 kV primary line. This contact electrocuted the young man. Following this tragedy, his mother, Ethel Huggs, worked tirelessly for safety requirements in our industry. She wrote to federal and state authorities, as well as safety organizations, asking for help. A committee was organized in 1968, and the first Z133 was approved by the American National Standards Institute (ANSI) on 1972 December 20.

The Z is a US standard. Other countries have their own safety standards for workers, including tree workers. The Z is sometimes a reference in these regulations and standards. Arboriculture is an international profession. There is much cross-pollination of practices and equipment around the globe. This is reflected in many of these standards.

The next edition of the Z will be published this spring. There are many changes in this new publication from the 2017 edition. This is not unusual. Every Z edition builds on the previous one. Arboriculture is not a static profession. Our technology and practices are changing at an ever-increasing pace.

This is one of the many values to the Z. It is revised every 5 to 6 years, unlike many government regulations that remain in place, unchanged, for decades. The Z can remain relevant as it periodically adopts new language to incorporate changes in our field such as the expanding use of remote technology.

While the Z is our guide, it is bound to a higher authority. As an American National Standard, the Z must also follow a guide. It must be developed and revised following the requirements of ANSI. This private, non-profit organization oversees voluntary consensus standards in the United States.

The ANSI was organized in 1918. Its mission is to administrate and coordinate voluntary standards for products, processes, services, and systems across all industries. There are more than 13,000 approved American National Standards. These are developed and revised by many different organizations, which run the alphabet from the Association for Advancing Automation to the World Millwork Alliance.

There are 2 organizations that serve as ANSI-Accredited Standards Developers (ASDs) for arboricultural work. The International Society of Arboriculture (ISA) is the ASD for the Z133 *Safety Requirements for Arboricultural Operations*. The Tree Care Industry Association is the ASD for the A300 *Tree Care Standards*.

The ANSI does not write these standards. They provide the framework for stakeholders—in business and government—to develop collaborative standards for their industry. The standards must be voluntary and consensus based. The ANSI role is to ensure that these requirements are followed.

ANSI does not enforce standards. In the United States, enforcement of industry safety and health policies (or lack thereof) through penalties is the responsibility of the Occupational Safety and Health Administration (OSHA). This agency was created by the Occupational Safety and Health (OSH) Act, which was signed into law on 1970 December 29 and enacted on 1971 April 28.

OSHA does not directly enforce ANSI standards unless they are specifically identified and incorporated into an OSHA document. These are usually identified as "shall comply with ANSI Z" incorporated into a regulation or standard. This is described as "incorporation by reference."

OSHA can also consider ANSI standards in evaluating employer responsibilities under section 5(a)(1) of the OSH Act, the General Duty Clause. The clause requires that an employer:

> (1) shall furnish to each of [their] employees employment and a place of employment which are free from recognized hazards that are causing or are likely to cause death or serious physical harm to [the] employees.

OSHA can decide that following an ANSI standard, such as the Z, would have prevented or lessened the severity of an injury in an incident. They can cite this failure to adhere to a recognized industry standard as a violation of the general duty clause. When used under the general duty clause, the failure to adhere to a provision in the standard is automatically a "serious" citation which currently carries a penalty of $16,550 per occurrence. OSHA can choose not to follow a specific standard or interpretation of an ANSI standard or choose to utilize only one part of it.

OSHA also allows *de minimis* conditions. These conditions are where an employer has a safety measure that differs from a standard but has no direct relationship to safety or health. They must also provide equal or greater worker protection. A good example is the climbing rope requirement of a 0.5-inch (12.7-mm) diameter and minimal breaking strength (MBS) of 5,400 lbs (24.02 kN).

OSHA noted in a recent interpretation letter to the Utility Line Clearance Safety Partnership (ULCSP), that noncompliance with the 1910.269(r)(7)(i) and the ANSI Z133-2017 of the 0.5 inch (12.7-mm) diameter climbing rope requirement is a *de minimis* condition.

Courtesy of Dr. John Ball

3.4 Job Briefing and Work Site Setup

- 3.4.11 Prior to dropping or lowering trunks, branches, fruit, or equipment, a landing area (drop zone) shall be established.
  - 3.4.11.1 People shall be excluded from an active drop zone unless authorized by the arborist aloft or for emergency response.
  - 3.4.11.2 A visible drop zone should be established as an aid to avoid falling objects.

5.6.1 Aerial Devices

- 5.6.1.17. A chain saw scabbard may be used on the outside of the platform if lanyard/tether is used to secure the saw while not in use.

- 5.6.1.18. During pruning/removal operations, the aerial device operator shall have a hand saw while working aloft.

6.3 Power Pruning Saws

- 6.3.1 The employer shall ensure that all power-driven tools used to cut wood with a saw chain and consisting of an integrated compact unit (handles, power source, and cutting attachment) are designed for two-hand operation and used with two hands at all times.

8.1 Ropes and Arborist Equipment

- 8.1.5 Arborist climbing lines and work-positioning lanyards shall:
  - a. have a minimum diameter of 0.44 in (11 mm).
  - b. be constructed of a synthetic fiber.
  - c. have a minimum breaking strength of 5,000 pounds (22.24 kN) without terminations when new.

- 29 CFR 1910.269(r)(7)(i)Climbing ropes shall be used by employees working aloft in trees. These ropes shall have a minimum diameter of 12 millimeters (0.5 inch) with a minimum breaking strength of 10.2 kilonewtons (2,300 pounds). Synthetic rope shall have elasticity of not more than 7 percent.

- https://www.osha.gov/laws-regs/standardinterpretations/2023-10-03

8.1 Ropes and Arborist Equipment

- 8.1.18 Steel-core work-positioning lanyards shall not be used in proximity to energized electrical equipment and/or electric supply lines.

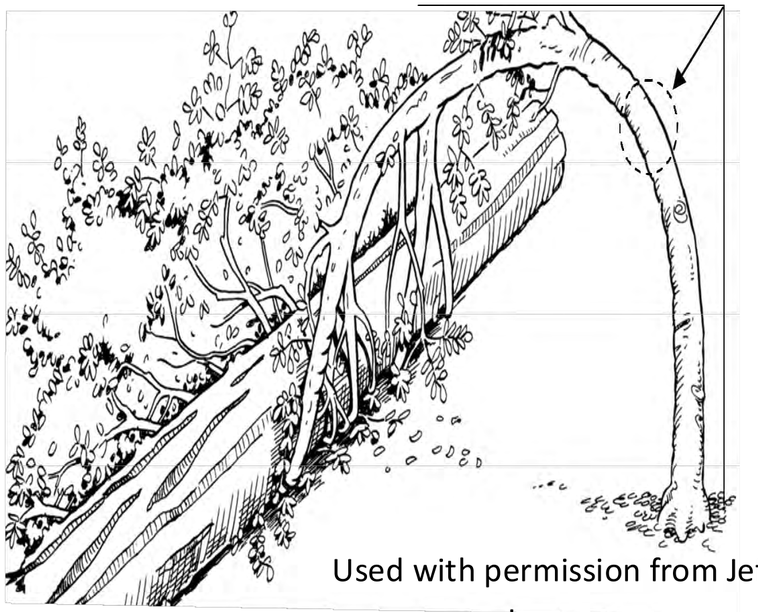
9.2 Rigging

- 9.2.13 A ground worker should be designated to maintain control of the drop zone and participate in communication, per Section 3.4.9, with the arborist aloft, verifying whether the drop zone is clear.

- 9.2.18 Rigging lines should be of appropriate length to complete the rigging operations.

9.5 Limbing and Bucking

- 9.5.2 Arborists shall be trained on the principles of tension and compression before limbing and bucking operations.
- 9.5.3 Tension and compression shall be evaluated prior to limbing and bucking operations.



Used with permission from Jeff Jepson

9.6 Brush Removal and Chipping

- 9.6.5 To reduce the hazard of entanglement from foreign objects being fed into the chipper, material and equipment on the job site should be properly managed.

- 9.6.9 During chipping operations, hands, feet, or other parts of the body shall not pass beyond the plane of the infeed hopper. Leaning into material or pushing material onto infeed table with feet is prohibited. Standing upon infeed table is prohibited.

4 ELECTRICAL HAZARDS

2017

4.1 General

4.2 Working in Proximity to Electrical Hazards – Incidental Line Clearance (29 CFR 1910, Subpart S)

4.3 Working in Proximity to Electrical Hazards – Utility Line Clearance (29 CFR 1910.269)

2026

4.1 General

4.2 Electrical Level 1 Arborist – Unqualified for Any Voltages

4.3 Electrical Level 2 Arborist – Qualified for Voltages of 750 V or Less

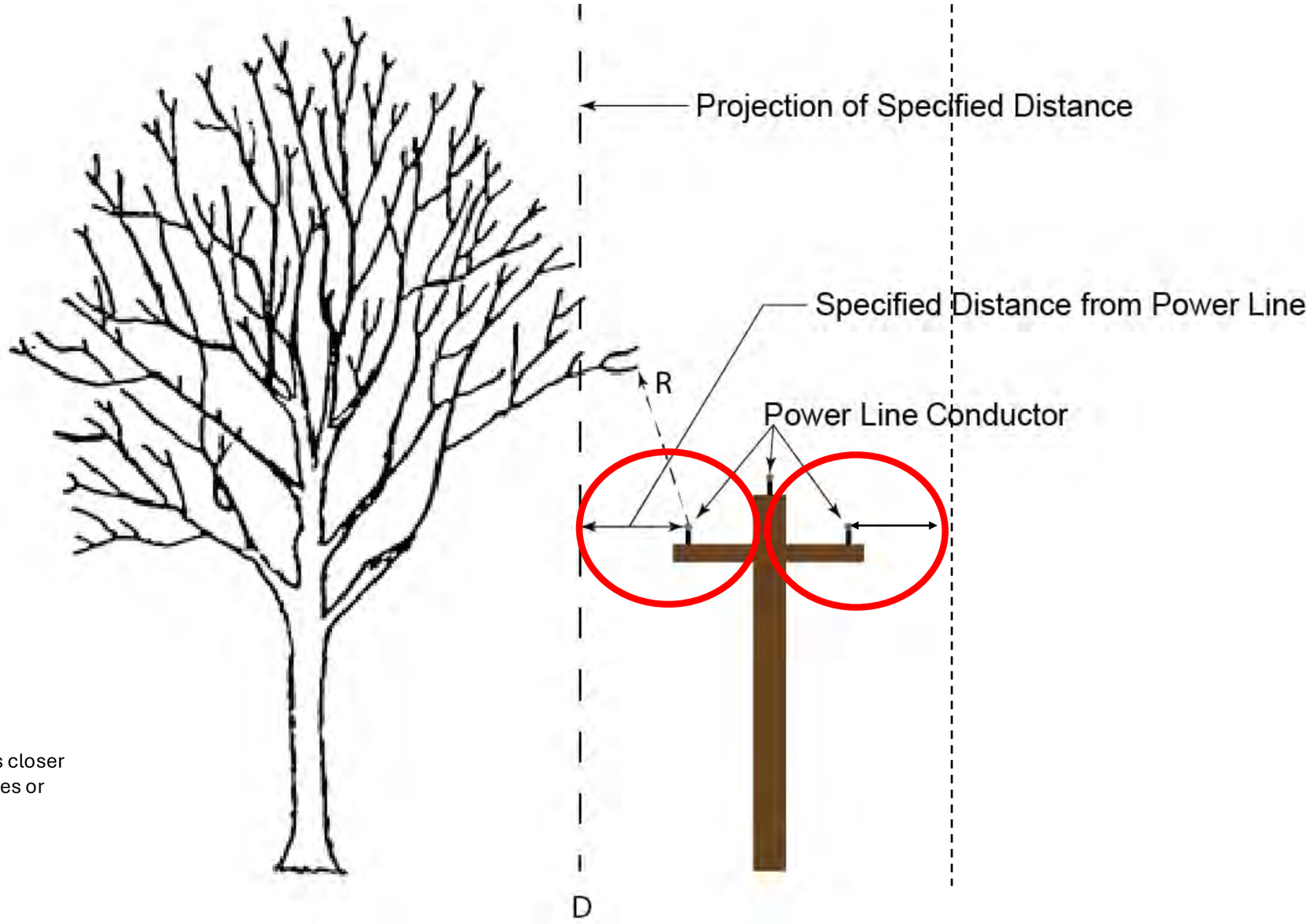
4.4 Electrical Level 3 Arborist – Qualified for Voltages Up to 35 kV

4.5 Electrical Level 4 Arborist – Line Clearance – Qualified for All Voltages

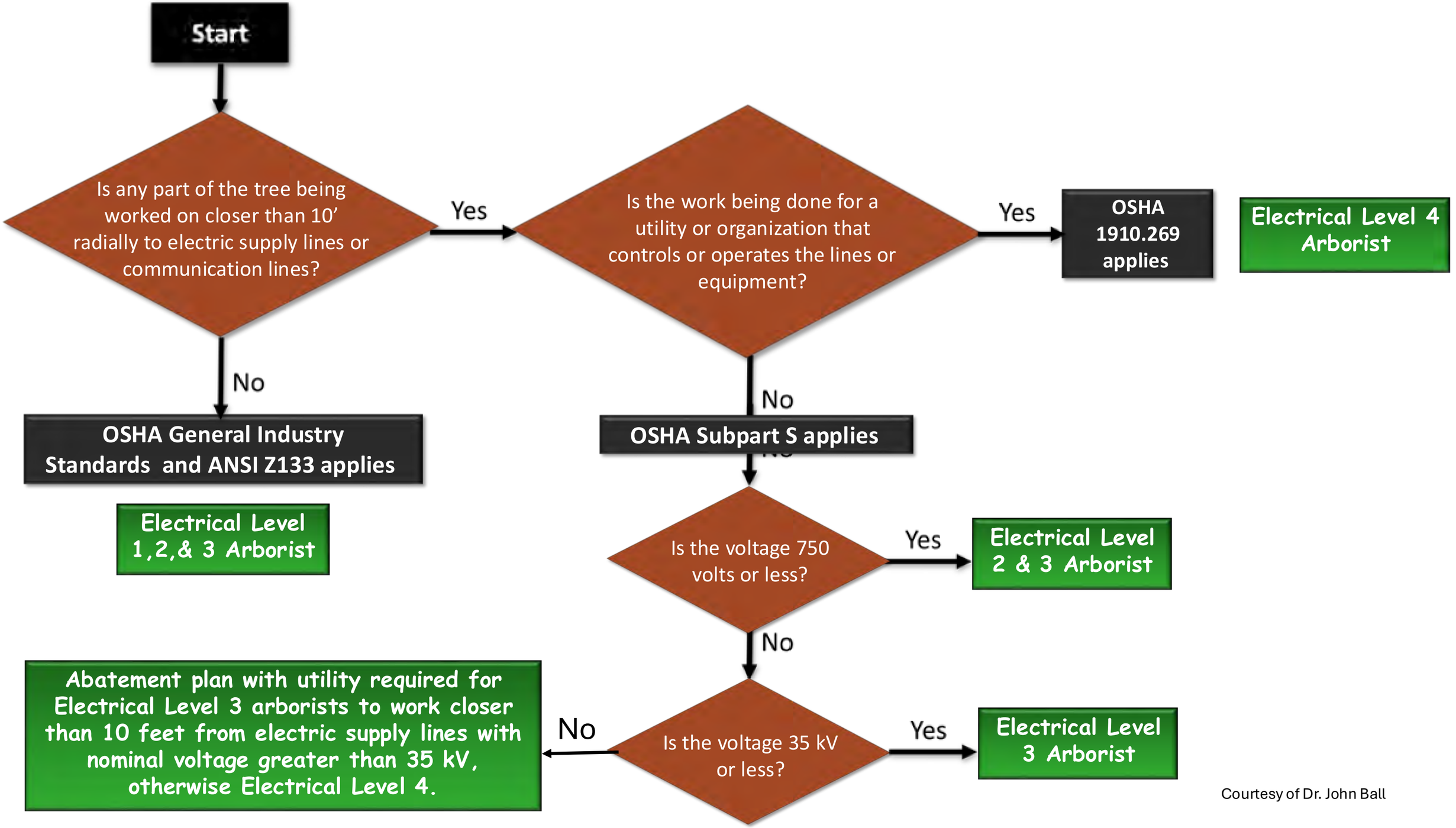
OSHA Changes 29 CFR 1910.269

- Clarification of Line Clearance Tree Trimming
  - Projection of specified horizontal distance
  - “for or on behalf of utility”
  - If not, then Subpart S applies

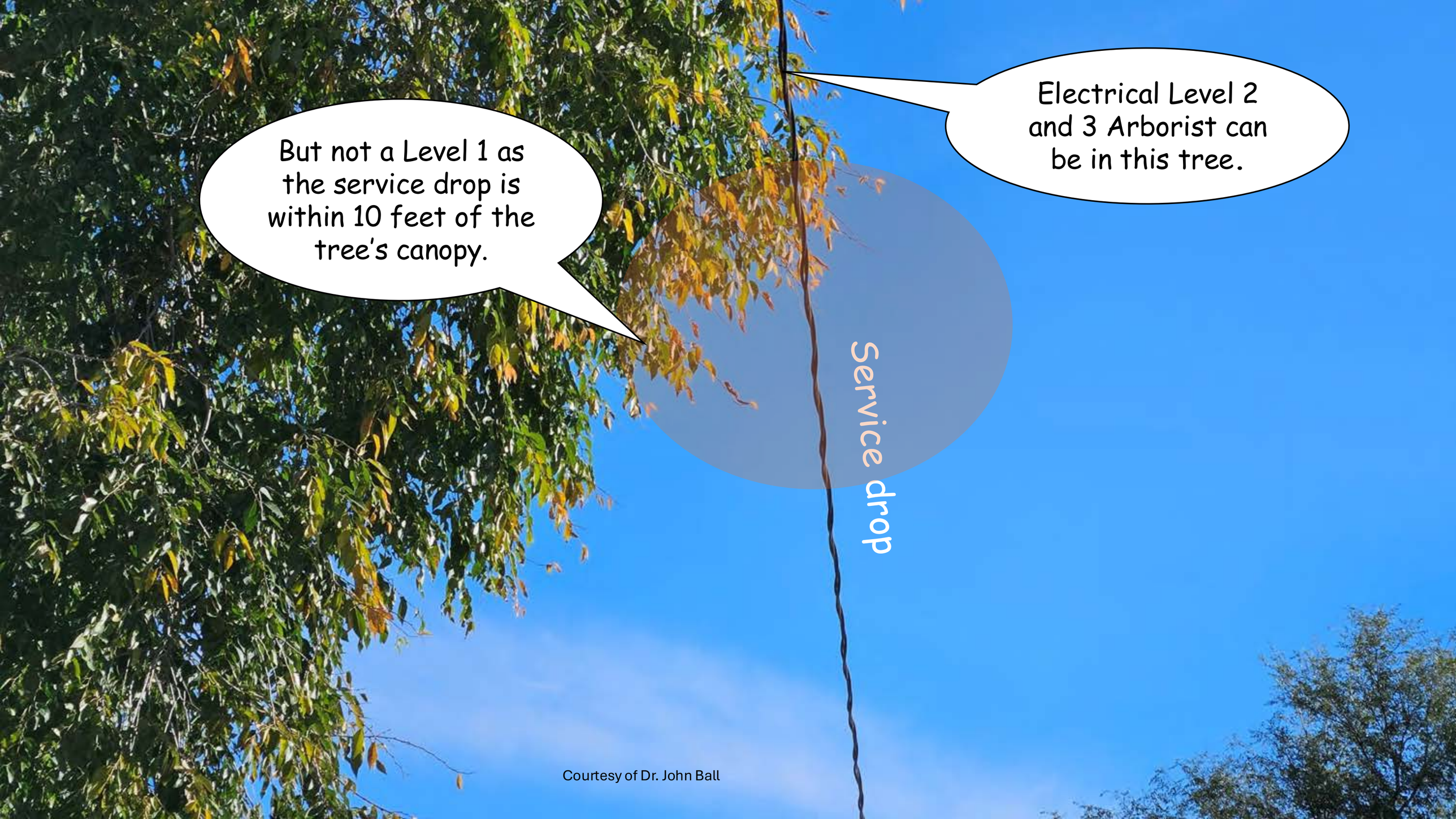
When is it Line Clearance Tree Trimming?



It’s line clearance when any part of the tree is closer than 10’ horizontally to the electric supply lines or equipment AND work is on behalf of a utility.



Courtesy of Dr. John Ball



Courtesy of Dr. John Ball

29 CFR 1910.269 Clarification

- 1910.269(a)(1)(i)(E)(2)Paragraphs (a)(2), (a)(3), (b), (c), (g), (k), (p), and (r) of this section apply to line-clearance tree trimming covered by the introductory text to paragraph (a)(1)(i)(E) of this section when performed by line-clearance tree trimmers who are not qualified employees.

- ~~1910.269(j)(2)(iii)Live-line tools used for **primary employee protection** shall be removed from service every 2 years, and whenever required under paragraph (j)(2)(ii) of this section, for examination, cleaning, repair, and testing as follows:~~

29 CFR 1910.269 Clarification

- 1910.269(r)(1)(iv)Branches that are contacting exposed energized conductors or equipment or that are within the distances specified in Table R-5, Table R-6, Table R-7, and Table R-8 may be removed only through the use of insulating equipment.
- Note to paragraph (r)(1)(iv): A tool constructed of a material that the employer can demonstrate has insulating qualities meeting paragraph (j)(1) of this section is considered as insulated under paragraph (r)(1)(iv) of this section if the tool is clean and dry.

29 CFR 1910.269 Clarification

- https://www.osha.gov/laws-regs/federalregister/1994-01-31

- The Agency will accept evidence indicating that tools of a given construction generically meet the test criteria.

- Individual poles need not be tested.

4 ELECTRICAL HAZARDS

- 4.1.14 **Rubber gloves,** with or without leather protective coverings, **shall not be considered as providing any measure of safety** from electrical hazards.
- 4.1.15 Footwear, including **dielectric overshoes** or those with **electrical-resistant soles**, shall not be considered as providing any measure of safety from electrical hazards.
- 4.1.16 When working in proximity to energized electric supply lines with insulated covers, blankets, hoses, sleeves, or any other covering or coating, **MAD shall be maintained**.
- 4.1.17 Pole tools used in proximity to energized electric supply lines shall be constructed with fiberglass reinforced plastic (FRP) or wood.

4 ELECTRICAL HAZARDS

4.2.4 The Electrical Level 1 Arborist **shall not cause any vegetation to violate the applicable MADs** shown in Table 1

4.3.12 The Electrical Level 2 Arborist **should not cause any vegetation to violate applicable MADs** (reflected in Table 2) to which they are qualified.

4.4.12 The Electrical Level 3 Arborist **should not cause any vegetation to violate applicable MADs** (reflected in Table 3) to which they are qualified.

Radio Frequency Safety

Courtesy of Dr. John Ball

Radio Frequency Safety

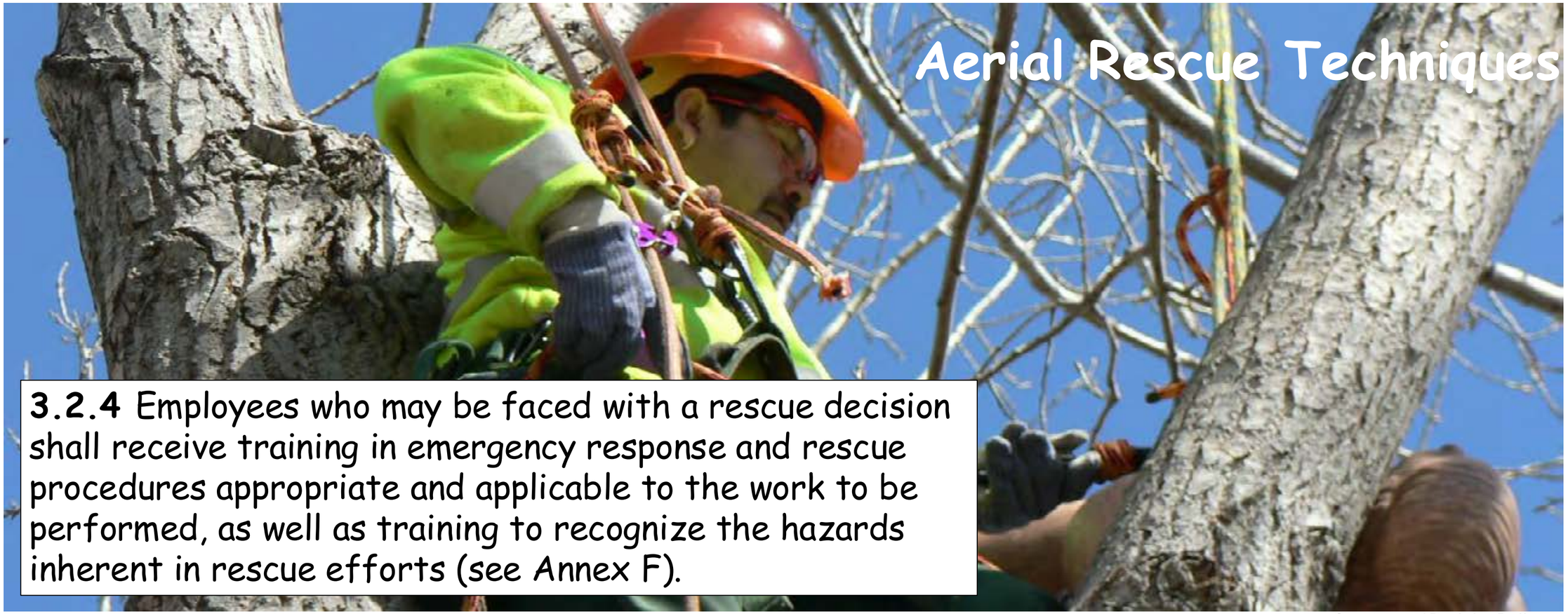
4.1.18.1 Employers shall provide radiofrequency awareness training to employees. At a minimum the training should cover the hazards.

Courtesy of Dr. John Ball

Emergency response aloft

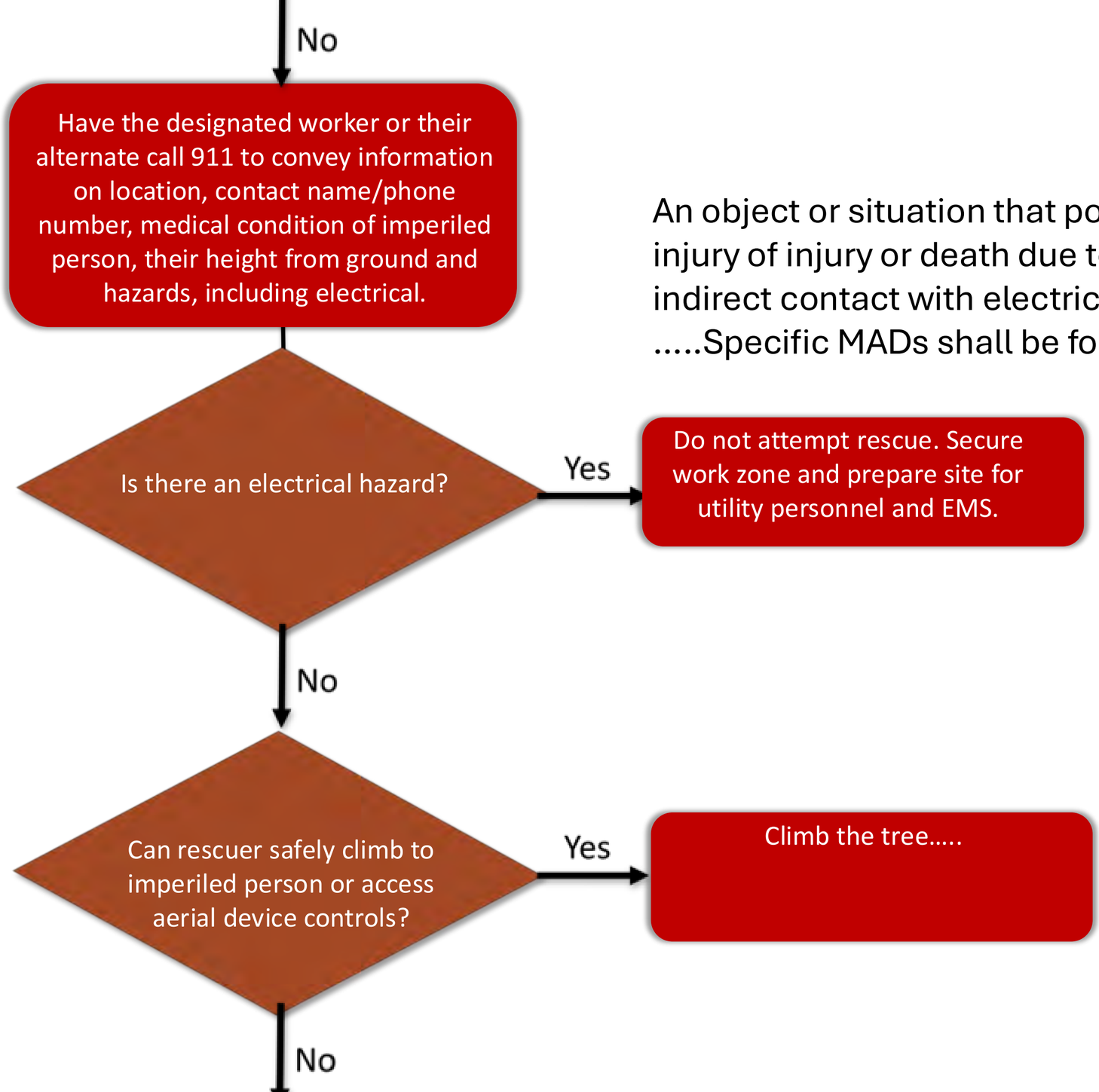
Courtesy of Dr. John Ball

Emergency response aloft



3.2.4 Employees who may be faced with a rescue decision shall receive training in emergency response and rescue procedures appropriate and applicable to the work to be performed, as well as training to recognize the hazards inherent in rescue efforts (see Annex F).

Courtesy of Dr. John Ball



An object or situation that poses risk of injury of injury or death due to direct or indirect contact with electrical conductor.
…..Specific MADs shall be followed

Courtesy of Dr. John Ball

MWISA Webinar:
Z1333 Update
(MW-26-237)

TRIR Is Not Safety Performance

Why injury rates fail to measure serious risk, system strength, and learning

Why TRIR Is Not an Indicator of Safety Performance

A case for moving OSHA from recordable-rate proxies to measures of exposure control, learning, and system strength.

Core Point

TRIR is useful for **recordkeeping** and broad surveillance, but it is not a statistically valid or conceptually sound primary indicator of safety performance - especially for mature organizations and high-consequence work.

TRIR reflects outcomes already logged; it does not reveal the organization's capacity to operate safely in real work

Proposed OSHA Outcomes

Acknowledge the limitations of TRIR publicly

Stop treating TRIR as a primary proxy for safety excellence

Elevate leading indicators, PSIF/SIF learning, and control quality

TRIR reflects an **outdated, outcome-obsessed model of safety** that creates **false confidence, suppresses reporting, and distracts leaders** from the real work of understanding exposure, controls, and system weakness.

TRIR ≠ safety

Sources reflected throughout deck: Hallowell et al. (2020); EEI comments to OSHA docket OSHA-2023-0006 (2023); EEI SCL Model (2024); OSHA leading-indicators guidance, Position Paper-Tom McDaniel, McDaniel Scientific Group

TRIR measures recordability - not the health of the work system

Outcome obsession distorts behavior

OSHA recordability was designed to standardize loggable cases.

What counts as recordable under OSHA

- Death
- Days away from work
- Restricted work or transfer
- Medical treatment beyond first aid
- Loss of consciousness
- Significant diagnosis by a licensed clinician

This is a recordkeeping threshold - not a risk-weighting model.

Three conceptual failures

- A two-stitch cut and a life-altering amputation each count as one recordable.
- A high-potential near miss or direct-control failure counts as zero in TRIR.
- Management attention drifts toward case classification instead of system weakness.

What the market behavior becomes

- ***Manipulation of safety outcomes to hit the target goal.***

This is the wrong optimization target for OSHA to reinforce.

TRIR was never designed to discriminate between weak and strong control systems in mature operations.

Short refs: OSHA 29 CFR 1904.7 recordkeeping criteria; EEI comments to OSHA docket OSHA-2023-0006; Hallowell, M. R., Quashne, M., Salas, R., Jones, M., MacLean, B., & Quinn, E. (2021). The statistical invalidity of TRIR as a measure of safety performance. Professional Safety, 66(4), 28–36.

THANK YOU!

TOWNSEND

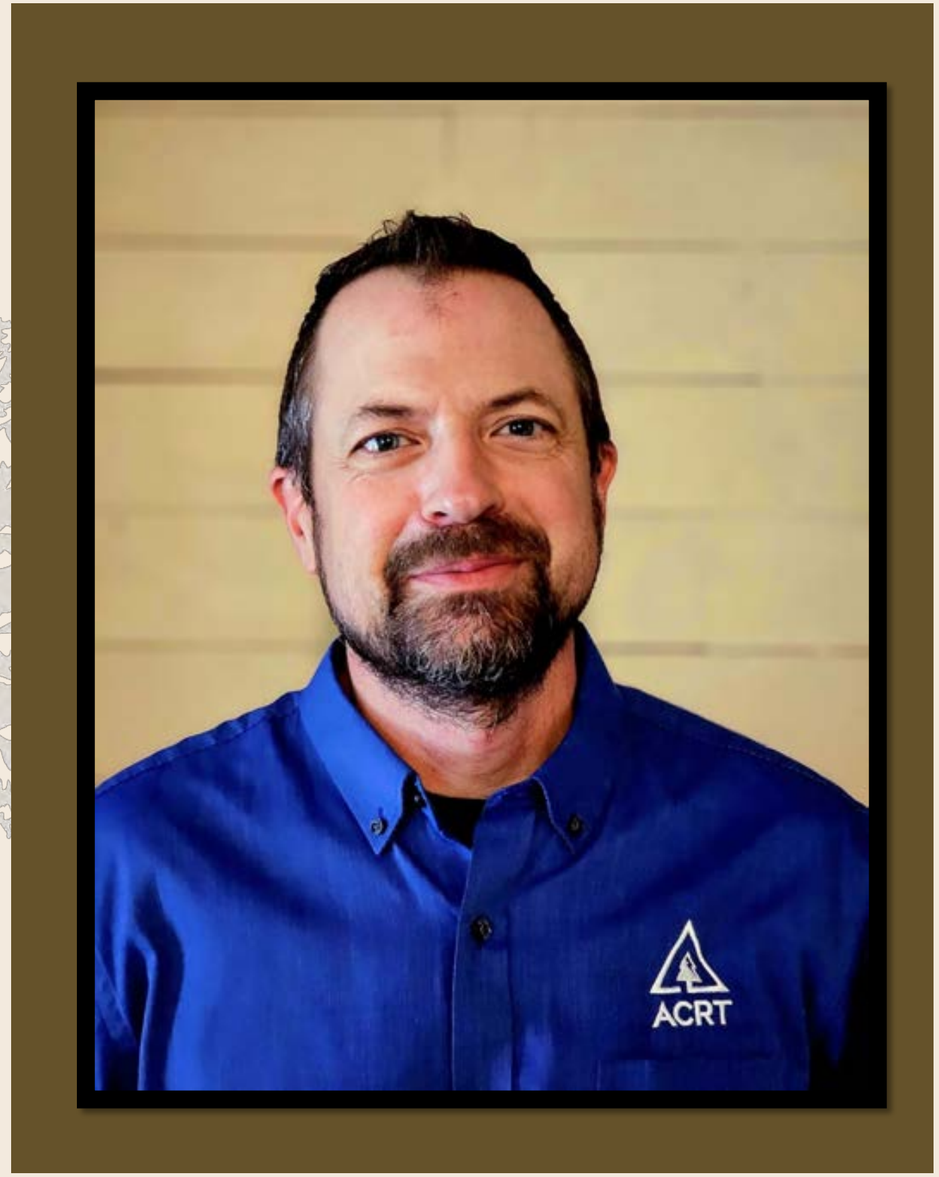
AFTERNOON BREAK

3:00-3:15 PM

COST OF QUALITY IN VEGETATION MANAGEMENT

PRESENTED BY

DAVID BURKE, ACRT



Cost of Quality In Utility Vegetation Management

David Burke

What is Cost of Quality?

Concept in project management that quantifies the total financial impact of producing products or services that meet defined quality requirements.

Why is CoQ Important

- Operational Efficiency
- Customer Satisfaction
- Drive Change
- Create Benchmarks
- Stay Competitive
- Financial Performance
  - Understanding Proactive vs Reactive Costs
  - Hidden Drains

A Case Study in Telecommunications

Similarities to UVM

- Technicians visit properties
  - Complete a service
  - First-time quality expectations
  - Rework is costly

The Key Issue

- **Customers frequently required repeat visits to solve a single issue**
  - Poor planning and/or work quality resulting in rework
  - Similar in UVM to missed work or completed not to spec
- **Factors creating the low quality**
  - Limited training standardization
  - Poor diagnostic tools at dispatch
  - Weak job planning
  - Incomplete customer/job data

Cost Drivers from Internal Failure

- Repeat visit
- Longer job duration
- Reduced productivity
- 25%+ jobs required follow-up visits
  - Doubles labor costs
  - Requires additional crews
  - Increased customer dissatisfaction & complaints

Company Response

- Multi-year initiative focused on First-Time Quality
  - Preventative Measures Taken
    - Enhanced training
    - Better diagnostics before dispatch
    - Proper matching of tech to job
    - Improved customer communication
    - Pre-job validation
    - Post-job review

And The Results Are…

- 20-30% Reduction in repeat visits
- Improved customer service scores
- Lower cost per job
- Increased tech efficiency

The Four Costs of Quality

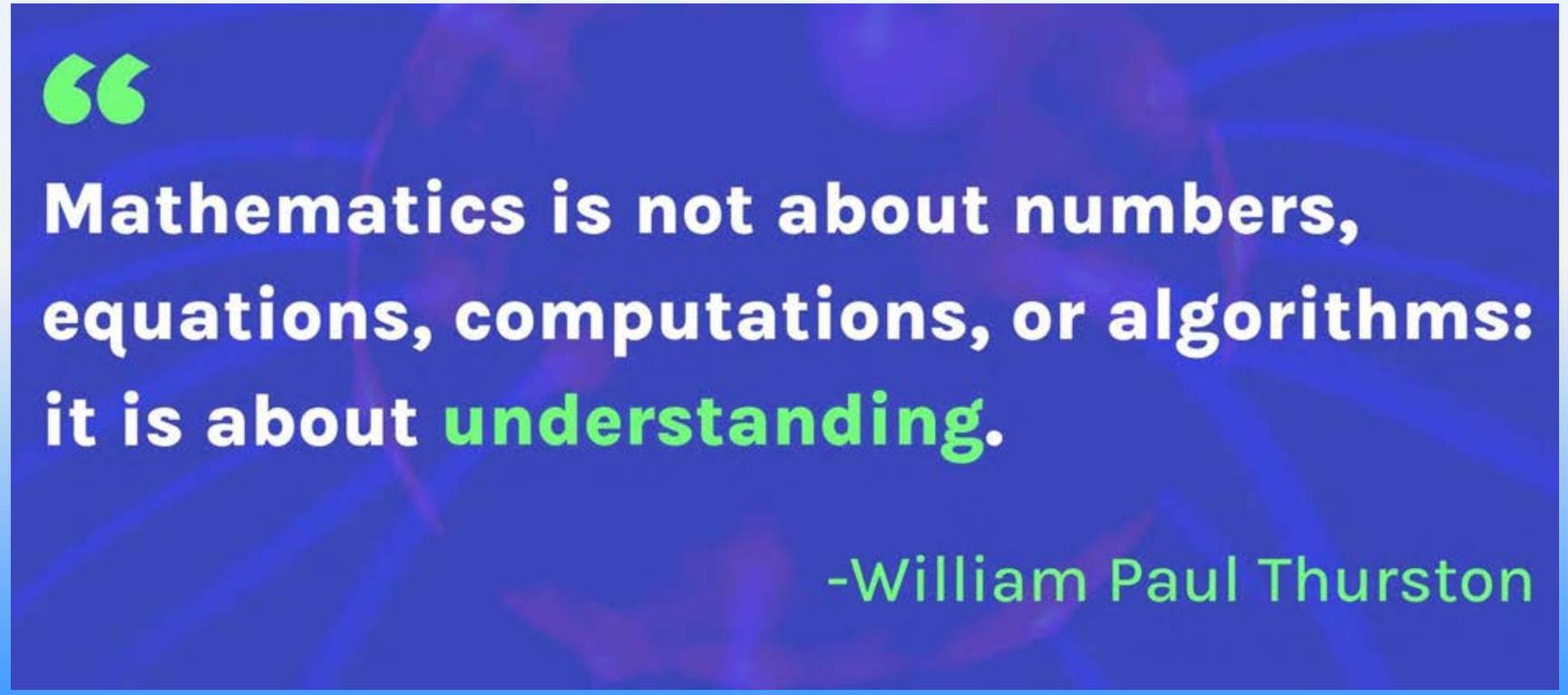
- **Preventative Costs**
  - Training
  - Pre-Inspection
  - Notification
- **Appraisal Costs**
  - Auditing
  - Customer Survey
- **Internal Failure Costs**
  - Rework
  - Customer Satisfaction Remediation
- **External Failure Costs**
  - Litigation
  - Settlements
  - Future Customer Issues

Two Fundamental Components to the Formula

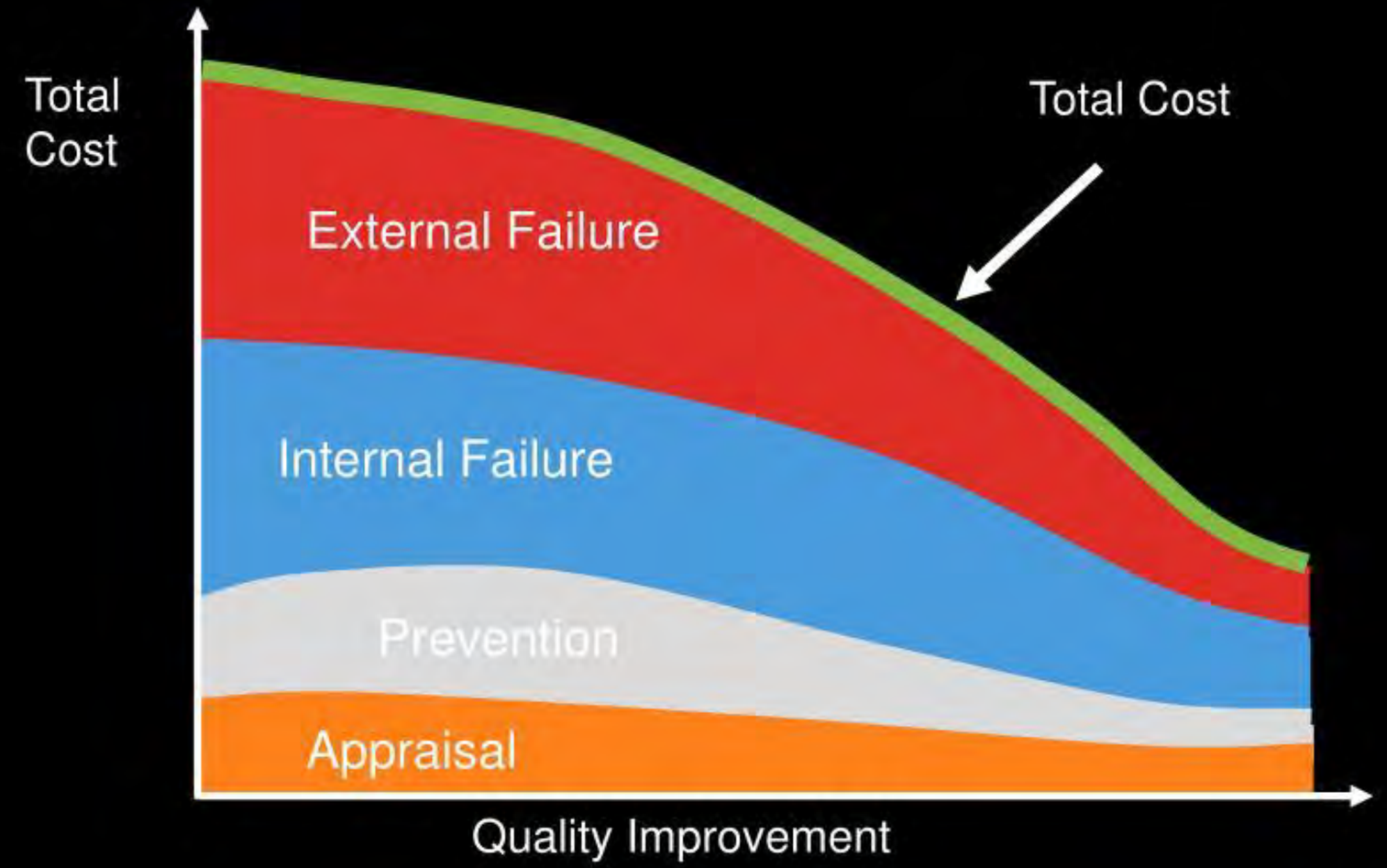
- **Cost of Good Quality (CoGC)**
  - Investment required to ensure services meet established requirements & customer expectations.
  - CoGC = Preventative Costs + Appraisal Costs
- **Cost of Poor Quality (CoPC)**
  - Financial impact when services fail to meet requirements & customer expectation
  - CoPC = Internal Failure Costs + External Failure Costs

Total Cost of Quality Formula

CoQ = CoGC+ CoPC



COSTS OF QUALITY



Takeaways

- Lessons Learned
  - Organizations can identify areas to drive improvement
  - Employee involvement is essential
  - Continuous review is essential
- Common Challenges
  - Lack of data
  - Resistance to change
  - Limited resources

Overcoming the Challenges

Data collection

Educate and involve employees

Regular reviews of data

Communicate the results

Never stop looking for ways to improve

Celebrate the wins

Reducing the Cost of Quality

Standardize	Train	Improve
Standardize Processes and Specifications • Document well	Train Well • Onboarding • Benchmarks	Continuously Improve • Get feedback from employees & customers • Regularly review data


Cost is more important than quality but quality is the best way to reduce cost.
Genichi Taguchi
quotefancy

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Our Independent Promise

We engage the best people to foster resiliency, environmental stewardship, compliance, stakeholder partnerships, and safer communities.
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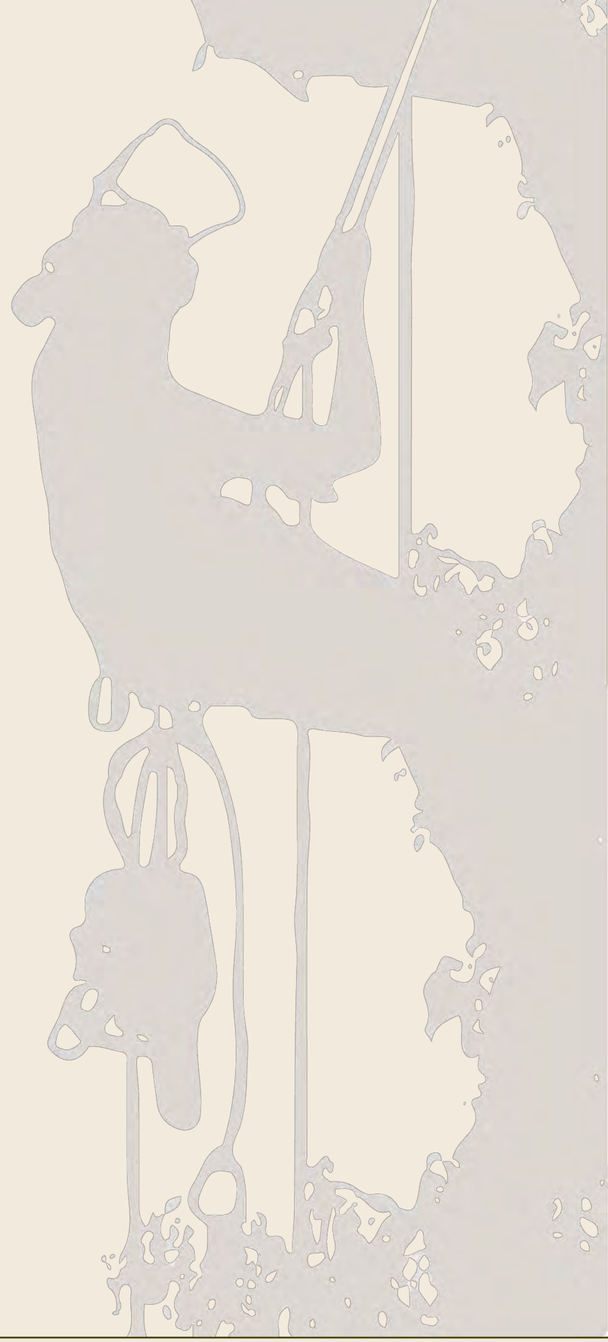
UTILITY ARBORIST ASSOCIATION

WELCOME TO MIDWESTERN REGIONAL & SAFETY SUMMIT

JULY 22ND-23RD, 2026

WELCOME
AND
SAFETY MESSAGE

PRESENTED BY
MARK HOWLAND, DUKE ENERGY



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SAFETY MOMENT & INDUSTRY UPDATE

KEYNOTE: MARK HOWLAND

DUKE ENERGY

UTILITY ARBORIST SAFETY SUMMIT · KEYNOTE

Why Safety Matters

Looking out for the tree-care workers, line-clearance crews, and utility arborists who face these hazards every day.

That's why awareness matters: knowing the hazards is what keeps a team member from becoming the next statistic.

Keynote Address · June 2026

A SHOW OF HANDS

First, let’s make this personal

Answer honestly, with a show of hands. The hands that go up in this room are exactly why this work matters — and why we can make it safer.

01

Injuries

Raise your hand if the job has ever hurt you.

02

Near misses

Raise your hand if you’ve had a close call.

03

Lives lost

Raise your hand if you’ve known someone who died doing this work.

Look around the room. — every hand is why we’re here, and why we keep getting safer.

Take a breath. Let the whole room see the hands before we move on.

THE SCALE OF THE RISK

Tree care is not an ordinary job site.

30×

the all-industry average fatality rate.

The Tree Care Industry Association reports that tree-care workers die on the job at roughly thirty times the rate of the average American worker — placing the trade among the most hazardous occupations in the United States.

Source: Tree Care Industry Association (TCIA).

ROADMAP

What this keynote covers

01	**The toll**	How dangerous the work really is, by the numbers.
02	**The three fatal hazards**	Electrocution, falls, and struck-by incidents.
03	**Recent case files**	What 2024–2025 investigations are telling us.
04	**The utility exposure**	Why line-clearance crews face elevated risk.
05	**From risk to prevention**	Field practices that send everyone home.

THE TOLL

The human cost, 2020–2023

243

TREE-CARE DEATHS

Occupational fatalities compiled by TCIA across 2020–2023.

~61

FATALITIES PER YEAR

An average of more than one tree-care worker killed every week.

1,000+

INJURIES PER YEAR

Industry sources describe tree care as an occupation with over a thousand injuries annually.

Source: TCIA running fatality compilation (2020–2023) and industry injury estimates.

THE BENCHMARK

A fatality rate near the top of every list

Deaths per 100,000 workers — tree trimmers & pruners vs. the U.S. all-industry average.

Roughly 110 deaths per 100,000 tree trimmers and pruners keeps the occupation among the highest-risk jobs in the country — about thirty times the typical workplace.

Source: TCIA and industry safety reporting for the tree trimmers/pruners occupation.

NOT A SPIKE

A pattern that's held for a decade

846

tree trimmers died on the job in the U.S. between 2012 and 2022.

Why this number matters

- The high fatality risk is persistent, not a one-off year.
- A broad BLS-based benchmark over eleven years confirms the toll seen in TCIA's annual counts.
- The danger hasn’t been engineered out of the work yet — and changing that is exactly what this summit exists to do.

Source: TCIA 2025 safety article citing BLS data, 2012–2022.

THE RECENT PICTURE

Reading 2024–2025 honestly

What we don't have yet

- No clean, finalized national 2025 fatality or injury total for tree trimming or utility arborists.
- Verified BLS / OSHA year-end counts for the last two years are not yet published.

What we rely on instead

- OSHA fatality investigations of specific incidents.
- TCIA accident tracking and 2025 accident briefs.
- Recent industry safety summaries and case reports.

The strongest recent evidence is incident patterns and case reports — not a finalized national total.

SECTION TWO

The three fatal hazards

Across 2024–2025, the same three mechanisms drive the most serious incidents — and understanding them is how we get ahead of them.

Electrocution

Electrical contact with energized lines

Falls

From trees and aerial lifts

Struck-By

Limbs, tops, and whole tree sections

HAZARD ONE

Electrical contact

The hazard that defines line-clearance work.

- Energized conductors give no warning — contact can be instantly fatal.
- Tools, limbs, ropes, and stabilizing lines can all bridge the gap to a live line.
- Failures of minimum approach distance are a recurring root cause.
- For utility arborists, energized lines are part of nearly every job site.

Source: OSHA tree-care hazard guidance; TCIA safety reporting.

CASE FILE

October 2025 · Anna, Ohio

SERIOUS-INJURY ACCIDENT REPORT

An aerial-lift tree trimmer was critically injured when he grabbed an overhead wire he believed was a support cable — it was an energized power line. The contact cost him his hand.

The lesson: Not every line in the canopy is a safe handhold. A conductor mistaken for a guy or support line is still lethal — treat every wire as energized until the utility confirms otherwise.

Source: TCIA accident report; Anna, Ohio, October 2025.

2025 ACCIDENT BRIEFS

The same hazards, across the region

JUNE 2025

Plymouth, Indiana

Bucket-truck worker severely burned by a power line.

OCT 2025

Hopkinsville, Kentucky

Tree trimmer burned by a 7,200-volt line.

NOV 2025

Oldham County, KY

Utility line technician killed on an energized line.

JUNE 2025

Columbus, Ohio

Worker killed by the tree he was helping fell.

Across Ohio, Indiana, and Kentucky, the same fatal mechanisms keep recurring.

Source: TCIA 2025 accident briefs.

HAZARD TWO

Falls

A leading cause of serious injury and death.

- Falls from trees and from aerial lifts remain a recurring fatal event type.
- 2025 case: a tree worker in Nelson County, Kentucky, was killed in a 35-foot fall from a bucket truck while working at a residence.
- OSHA and FACE materials continue to list falls among the most common ways tree workers are killed.

Source: TCIA 2025 accident reporting; OSHA / FACE materials.

HAZARD THREE

Struck-by

Tons of wood, moving on their own terms.

- Split trees, falling limbs, and moving tree sections remain a core risk in 2025.
- TCIA's 2025 briefs include workers killed or severely injured by these failures.
- Struck-by sits alongside falls and electrocution as a leading fatal mechanism.

Source: TCIA 2025 accident briefs.

THE NEAR-MISSES

Beyond fatalities: injuries & rescues

Many high-consequence events don't end in a fatality — but they show how often tree work involves severe trauma potential.

Stranded aloft

Workers stuck in malfunctioning aerial lifts.

Entanglement

Lines and limbs trapping workers in the canopy.

Rescue events

Crews working to free a worker trapped in a tree.

1,000+ injuries a year — and every near-miss caught is a worker who went home and a lesson that makes the next job safer.

Source: TCIA 2025 accident briefs and advocacy materials.

THE UTILITY EXPOSURE

A higher-exposure subgroup

Treat utility arborists as the segment most exposed to the deadliest hazard in the trade.

- Line-clearance crews work near energized conductors on nearly every job.
- Minimum-approach-distance failures are especially consequential in this work.
- No clean standalone national total exists — but the elevated exposure is clear.

Energized lines on site

The factor that sets line-clearance work apart from general tree care.

Source: 2024–2025 OSHA/TCIA evidence on line-clearance exposure.

SECTION THREE

From risk to prevention

The hazards are known and predictable — which means they are preventable. The next three practices map directly to the three fatal mechanisms.

PREVENTION · ELECTRICAL

Respect the line — every line

Hold minimum approach distance

Know the MAD for the voltage and never let any worker, tool, or line cross it.

Treat every line as energized

Assume contact is fatal until the utility confirms otherwise in writing.

Qualify the crew

Only trained, line-clearance-qualified workers operate near energized conductors.

Coordinate with the utility

Plan outages, grounding, or insulating cover-up with the utility before work starts.

Practices reflect OSHA line-clearance guidance and ANSI Z133 industry standards.

PREVENTION · FALLS

Stay tied in, top to bottom

100% tie-in, always

Maintain a secured climbing or work-positioning system whenever a worker is aloft.

Inspect lifts and gear daily

Pre-use checks on aerial lifts, ropes, saddles, and lanyards before they leave the ground.

Use a secondary anchor

Back up the primary tie-in so a single failure can't become a fall.

No unsupported free-climbing

Match the access method to the task and keep a qualified observer in place.

Practices reflect OSHA aerial-lift requirements and ANSI Z133 fall-protection standards.

PREVENTION · STRUCK-BY & PLANNING

Plan the work, then work the plan

Define and clear the drop zone

Keep everyone out of the path of falling limbs, tops, and rigged sections.

Brief every job, every day

Hold a tailgate briefing covering hazards, roles, signals, and the rescue plan.

Rig with discipline

Match rigging to the load and control the descent of every heavy piece.

Be rescue-ready

Train aerial rescue and keep the gear staged so help is seconds away, not minutes.

Practices reflect OSHA tree-care guidance and ANSI Z133 work-procedure standards.

THE GOOD NEWS

These tragedies are preventable

The hazards that make this work dangerous are known, predictable, and answerable — which is exactly why crews keep sending more team member's home.

01

A clear playbook

Proven OSHA and ANSI Z133 safeguards for every fatal hazard.

02

Training that works

Qualification, approach discipline, and 100% tie-in stop incidents early.

03

Crews ready to act

Daily briefings and rescue drills turn close calls into safe ones.

Known hazards are preventable hazards — and the awareness in this room is what keeps crews out of the statistics.

Source: OSHA line-clearance guidance and ANSI Z133 industry safety standards.

THE BOTTOM LINE

Everyone goes home.

~61 fatalities a year. A rate near 110 per 100,000. Over 1,000 injuries. Driven by electrocutions, falls, and struck-by failures — most of all where crews work near energized lines.

Plan it. Brief it. Tie in. Respect the line.

Group Breakouts

First Rotation

Wood & Wire Under Tension – Parking lot – Group 1

Taking a Closer Look at Safety – Green Room – Group 2

Drop Zone/Danger Zone –Parking Lot – Group 3

Safety Up: 5 Ways to Improve Safety Communication Today – Carnations D – Group 4

Group Breakouts

9:50-10:30

Wood & Wire Under Tension – Parking lot – Group 4

Taking a Closer Look at Safety – Green Room – Group 1

Drop Zone/Danger Zone –Parking Lot – Group 2

Safety Up: 5 Ways to Improve Safety Communication Today – Carnations D – Group 3

Group Breakouts

Second Rotation

Wood & Wire Under Tension – Parking lot – Group 4

Taking a Closer Look at Safety – Green Room – Group 1

Drop Zone/Danger Zone –Parking Lot – Group 2

Safety Up: 5 Ways to Improve Safety Communication Today – Carnations D – Group 3

Group Breakouts

Third Roatation

Wood & Wire Under Tension – Parking lot – Group 3

Taking a Closer Look at Safety – Green Room – Group 4

Drop Zone/Danger Zone –Parking Lot – Group 1

Safety Up: 5 Ways to Improve Safety Communication Today – Carnations D – Group 2

Group Breakouts

Fourth Rotation

Wood & Wire Under Tension – Parking lot – Group 2

Taking a Closer Look at Safety – Green Room – Group 3

Drop Zone/Danger Zone –Parking Lot – Group 4

Safety Up: 5 Ways to Improve Safety Communication Today – Carnations D – Group 1

LUNCH

12:05-1:05

ASK ME ANYTING PANEL DISCUSSION

PRESENTED BY:

KRIS KEEFER, ASPLUNDH

DAVE LEDINGTON, TOWNSEND

TK CHRISTIE, DUKE ENERGY

GROUP DISCUSSION/ROUND TABLE/ LESSONS LEARNED

2:00-2:55

MODERATED BY:

WESLEY WASHINGTON, ASPLUNDH,

JEFF HAGFORS, DUKE ENERGY

Lessons Learned

Wood & Wire Under Tension

- Shaving Cuts vs Relief Cuts – Teaching this technique with the industry standard change
- Identifying compression vs tension using the two-stick method
- 4 quadrants of a chainsaw bar and how each affects the cut
- Do the shave cut on the compression side
- Start the chainsaw on the ground for the first start (cold start) of the day
- Importance of inspecting your chainsaw before starting your job
- ***Key Takeaway:***

Safe, effective chainsaw operation depends on understanding wood tension, selecting the correct cutting technique, knowing how the guide bar behaves, and following proper equipment inspection and starting procedures before every job

Lessons Learned

Taking a Closer Look at Safety

- Seeing the whole picture and getting the whole crew to understand why they are doing what they are doing
- Training yourself not to have unintentional blindness on the job-site
- Job Observations should take as long as it takes
- Do a job briefing as a team so that you have different perspectives
- Being aware of the face that focusing on a specific task can lead to tunnel vision and prevent you from seeing the whole picture
- Do you see what you are looking at?
- **Key Takeaway:**

Slow down, look up, and see the whole job—not just the task.

Lessons Learned

Drop Zone/Danger Zone

- Establishment is Key – ANSI standard is **SHALL** establish a zone & should have visual markers
- When possible use a redirect and stay out of the line of fire when felling trees
- 1.5 times the height of the tree for the danger zone for rope pullers and 2 times height of the tree for all other personnel and non rope-pullers and (10 paces from the direction of fell) for employees while using redirects.
- Any modifications to the Drop Zone should be notated and communicated
- Ensure that the drop zone does not encompass the entire work space

Drop Zone = The designated 360 degree area where tools, branches, or logs are expected to fall during pruning or removal

Danger Zone = Active work area where there is an imminent risk of being struck by falling debris rigging gear or the tree itself

Key Takeaway:

A safe drop zone doesn't happen by accident. Establish it before work begins, clearly mark and communicate its boundaries, and update the crew anytime conditions or the plan change.

Lessons Learned

Safety Up: 5 Ways to Improve Safety Communication Today

- **Talk About the Work, Not Just the Rules** — Build understanding, not just compliance
- **Replace Telling with Curiosity** — Ask, don't accuse ("Help me understand...")
- **Make It Safe to Speak Up** — Foster trust so people report concerns without fear
- **Learn More Than You Correct** — Understand conditions before correcting behavior
- **End with Ownership** — Close the loop with recognition and follow-through
- **Key Takeaway:**

"Communication is not the goal. Shared understanding is."

MODERATOR/NOTETAKERS PRESENT BEST PRACTICES AND LESSONS LEARNED

3:00-4:00

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