Standard Tailgate Briefing – Hemlock Treatment

1. **Welcome team leaders and volunteers** as they arrive. Introduce self, other project leaders, and team leaders.

2. After everyone has signed the Participant Release & Waiver of Liability form and made a name tag, **explain the significance of the treatment project** to the natural and human communities (*adjust depending on audience*):
   - **Aesthetically**, these beautiful trees contribute greatly to the enjoyment of those who live, work, and play among them, as well as the many people who come to north Georgia for tourism and recreation.
   - **Ecologically**, hemlocks help maintain the health and biodiversity of our forests and provide food and habitat for a diverse population of birds and other animals, shade for native plants, and cool temperatures for trout streams.
   - **Environmentally**, hemlocks are vital for protecting the quality of our waterways and watersheds, preventing soil erosion on mountain slopes and around waterways, and maintaining our air quality.
   - **Economically**, healthy mature trees such as hemlocks support jobs and local tax revenues associated with tourism and recreation and supporting the value of private properties and the community as a whole.
   - **And on a personal note**, hemlocks are the favorite tree of so many people who grew up visiting the woods, taking their children and grandchildren to the woods for memorable family outings, and teaching lessons of respect and personal responsibility, wise use of resources, and environmental stewardship.
   - **Add any information** that is specific to this project or site, such as protecting endangered species.
   - **But the hemlocks are under attack** by an invasive insect, Hemlock Woolly Adelgid (HWA), and most will die unless action is taken to prevent it – which is where we come in. By treating the trees chemically, as we will do today, we will be protecting them for another 5-6 years.

3. **Describe the nature of the project:**
   - We'll be **treating or retreating _____ hemlocks** for the woolly adelgid.
   - We'll be using a **chemical containing the active ingredient Imidacloprid**, a synthetic nicotine derivative that's also in flea collars. It kills the insects, isn't toxic to humans, and provides residual protection for an average of 5-6 years after treatment. However, just for safety, anyone who is handling the chemicals or application equipment will wear gloves.

     Note: If using Safari, indicate that it's a nicotine-based fast-acting treatment that gains control over HWA within 3 to 8 weeks. It lasts only about 2 years but is very effective in saving heavily infested hemlocks or very large infested hemlocks. It's also very expensive and must be mixed and dosed accurately so avoid using more than is needed. Anyone spraying Safari will also wear mask and goggles.

   - The application method will be **soil injection using a Kioritz or EZ-Ject soil injector** to place the treatment material directly into the feeder root zone. The tree takes up this systemic material and disperses it throughout the entire plant. The treatment material binds quickly to the organic matter in the soil and migrates less than a foot from each injection point.

     Note: If using Safari, indicate how and where it will be applied – soil injector, soil drench, or basal trunk spray.

4. **Briefly describe jobs** on team and suggest rotation to give everyone a chance to learn and practice different activities.
   - mixing chemical and loading injector
   - finding the trees
   - measuring & recording dbh
   - clearing ground cover from base of trees
   - indicating number of holes & pumps per hole
   - doing the injections
   - marking the tree or tag to show treated
   - replacing ground cover

5. **Give each team leader:**
   - A **map** of the project area with their assigned work site marked; mention stream crossings or other hazards.
   - A set of **data sheets** for the trees at their work site
   - The names of their team members (if known in advance) and any special information about abilities/disabilities if known

6. **Give each team a work bag, a supply of chemical, and other necessary equipment/supplies** (*see Checklist*), and go over contents of bag:
   - Safety vest for team leader.
   - Clipboard, treatment log sheets, and pen – Use to record tree diameters and any special notes.
   - Apron – Someone other than person with injector or sprayer should wear this.
   - Diameter tape – Keep in apron and use to measure trees.
   - Laminated mixing / dosing card – Keep in apron and use to determine number of pumps based on tree diameter and wet/dry mixture. If any injectors have nonstandard output, point out the attached mixing/dosing card with adjusted mixing instructions.
   - Permanent marker – Use to make check-mark on metal tags of treated trees if trees already have tags
   - Nitrile gloves – Use when mixing, pouring, or cleaning up chemical.
   - Hand sanitizer and towels – Use to clean skin if contacted by chemical and clean up before lunch.
   - Small measuring cup w/bottle cap – Use to check calibration of injector if this hasn't already been done.
   - Funnel and paper paint filters – Use for filling injector tank or sprayer tank.
   - Gallon baggie – Put used funnel, gloves, and filers in it to keep work kit clean.
   - Strap with carabiner clip – Use as shoulder strap to carry injector if desired.
   - Box of pre-numbered tags, aluminum nails and small hammer or can of spray paint to mark each tree as it is treated.
   - Flagging tape – Use to mark start/finish points or to mark treated trees if tags aren't available.
   - Trash bag – Use for woods clean-up and end-of-day clean-up.
   - Walkie talkies – If using these, provide instructions and do radio check.

7. **Explain and demonstrate special features of Kioritz injector:**
   - The Kioritz injectors are no longer made and parts are not available, so PLEASE take good care of them. If you notice one is not working properly or if something happens while you're using it, please let me know.
   - Make sure the calibration ring is all the way down, the white plastic collar just above the tank is tight, and the baffle and all probe parts are tight.
   - The tip has 4 emitter holes. Make sure they're open before using the injector. If a hole is clogged, clear it using a metal paper clip or large safety pin affixed to work bag. It should go all the way through and out the other side.

CAUTIONS

- Do not carry the injector with the pummel knob down – it will leak.
- Do not use the depth gauge for foot pressure. It's there to prevent the injector from going too deep in the soil but will break under hard use.
- Use shoulder power to push the injector probe into the soil. Do not jam it in.
- Be careful to pull it back out at the same angle.
- The tip is not a jack hammer. If you hit rocks or roots, move the injector over a few inches
- Do not let the injector sit still for more than 10 minutes while there's mixture in the tank. Shake / agitate unit periodically to keep mixture from settling out.
- Should you have a problem with the injector, deliver it to the project coordinator immediately.

8. **Explain and demonstrate mixing and loading of chemical**.
   - Show volunteers that chemical mixing jugs are marked with orange tape and must never be dipped into any water source, even if they look clean. Jugs marked with green tape are for clean water only and can be dipped into water sources. Point out the ounce markings on the orange tape.
   - Central mixing station will handle all chemical mixing.
   - When using Imidacloprid, soil condition – "dry to normal" or "moderate to wet" – determines how chemical is to be mixed.
     - For "dry to normal" soil condition: 96 oz mixture = 75 oz water + 21 oz chemical.
     - For "moderate to wet" soil condition: 96 oz mixture = 54 oz water + 42 oz chemical.
     - TODAY we will use "moderate to wet" mixing ratio so we don't have to do so many refills.
   - Push injector into ground at 45° angle so fill cap faces straight up. Remove cap and filter (if present).
   - Slowly pour 96 ounces of mixture through funnel and paper paint filter into injector tank. **Always use a funnel and paint filter EVERY TIME when filling or refilling soil injector.** Replace fill cap before standing injector upright. Also use funnel and filter for filling sprayers.

9. **Present brief refresher** of treatment process and any new or project-specific procedures:
   - **Finding trees** – Trees in your assigned area to be treated are generally located within approximately 100 to 150 feet of a camp site, picnic area, trail, stream or road. Indicate whether trees to be treated are already tagged/marked.
   - **Treat or retreat** all the healthy hemlocks in each treatment area, including trees that have tags and are still viable and trees that do not have tags but are still viable and are at least _____ inches dbh.
   - **Clearing ground cover** at base of tree, using your feet, not your hands – just 1 foot from trunk, replacing after treatment. For trees growing on steep slope, clear ground cover from upper side and apply majority of the chemical on the upper side so the chemical can and flow downward into feeder root zone.
   - **Measuring** – For anyone unfamiliar, demonstrate use of diameter tape; reading tape at zero mark, not metal tip; measuring each stem of multi-trunk trees and adding for total, measuring trees on slope from the up-side, rounding up to next inch if ½ or greater.
     Suggestion: Have each person determine where 4.5 feet comes to on their own body
   - **Applying treatment** – Indicate number of holes for soil application equals diameter but minimum of 4 holes; within 1 foot of trunk, 4-5 inches deep.
     - The Imidacloprid label specifies no setback for proximity to water; however, if a tree is growing with no space between it and the water, apply the full dosage on the side away from the water.
     - Trees growing from rock cannot be treated via soil injection NOR can trees on stream edge if soil is saturated or sandy. Record the DBH on your treatment log and indicating not treated (N/T) and the reason.
   - **Using Quick Reference Card** -- On the Imidacloprid side of the Quick Reference Card, refer to the Dosing section. Locate the soil moisture column for the mixing ratio specified for today. Note that there are four size ranges, each with its own application rate. Give several examples, including how to do 1.5 pumps for the 12-18" range.
   - **Marking treated trees with spray paint** – Put a very small dot of paint at breast height on the side away from a trail, road, or camp site.
   - **Updating data sheets** – Indicate info to record; how to mark if unable to locate tree, if tree is dead, or if new tag is applied; any other info that would help identify tree in the future.
   - **Getting refills** -- Call the project leader via the radio to request a refill if you believe it will be needed. If contact cannot be established via radio, send a team member to the mixing station to pick up a refill jug of chemical

10. Indicate that **team leaders will provide OJT** as needed for new or less experienced volunteers and instruction for any unusual circumstances.

11. **Point out location of general / replenishment materials** that are on hand if needed (*see Checklist*).

12. Remind everyone of **environmental safety**:
    - Don't allow chemicals to spill into waterways or go down drains.
    - Don't wash equipment in waterways or down drains.
    - Trees that are right on waterway and don't have at least a ring of basketballs of space around the trunk should be treated on side away from stream.
    - Don't use more or less chemical than is called for.

13. Remind everyone of **personal safety**:
    - Ask if anyone has serious allergies and whether they've brought what they need with them.
    - Wear PPE, face masks during Covid, nitrile gloves if handling chemical, hard hats.
    - Look out for holes, snakes, bees, poison ivy, briars / tangling vines, eye-level branches, steep / slippery terrain.
    - Tuck pants into boots if possible and use insect repellant for ticks and mosquitos.
    - Be careful crossing streams; avoid slippery rocks and logs; don't get wet if weather is cold.
    - Be mindful of heat and adequate hydration, cold and hypothermia, changing weather conditions.
    - Keep eyes open for hazards and ears open for falling branches or trees.
    - Stay within sight/speaking distance of other team members.
    - Seek project leaders immediately in case of spill, accident, or other emergency.

14. Go over **schedule for the day** and indicate how teams will get to their work site. Indicate lunch time and advise volunteers to take their **lunch** with them to work site. Indicate whether everyone will get together for lunch (time and place) or each team will eat at their work site when they choose.
    - If your treatment area has not been completed before lunch, use the flagging ribbon in your work kit to mark your stopping point so you'll know where to resume after lunch.
    - When we pause for lunch and at the end of the day, we'll pour off any unused mixture and clean the injectors by triple rinsing and pumping them with clean water away from any waterway or drain, and set them upside down to drain.
    - If your treatment area has not been completed at the end of the day, use the flagging ribbon in your work kit to mark your stopping point and write the date on it. Note location of stopping point on treatment log sheet.
    - If anyone needs to leave early, you must check out with project leader and turn in work kit, log sheets, and all equipment and supplies.

5. **Ask if there are any questions** and let teams know the project leader(s) will be traveling from team to team throughout the day to replenish supplies, handle communications, or address any issues that may arise.

GET TO WORK, BE SAFE, AND HAVE FUN!