Appalachian National Scenic Trail	1. WORK PROJECT/ACTIVITY **String Trimmer and Brush Cutter Operation**	2. LOCATION **Trail Wide**	Includes work performed on lands of National Park Service, and various states' park and lands
JOB HAZARD ANALYSIS (JHA) **References-FSH 6709.11 and -12** **OSHA** **(Instructions on Reverse)**	**3. NAME(S) OF ANALYST(S)** **Keith Stegall**	**4. Work Supervisor** **Various**	**5. DATE PREPARED** **2/19/2021**

Required Standards and General Notes:	
Required Personal Protective Equipment	Safety glasses, hearing protection, long pants, gloves, sturdy boots. Hard hat provides additional protection. Face shield is optional. Long sleeves will protect arms. Dust mask optional.
Tools and Equipment	First aid kit
Available Training	Receive instruction from trained and experienced operator.

7. TASKS/PROCEDURES	8. HAZARDS, POTENTIAL HAZARDS / INJURY SOURCE	9. ABATEMENT ACTIONS OR PROCEDURES Engineering Controls * Substitution * Administrative Controls * PPE
Pre-Operation Inspection	Injury Due to Lack of Knowledge	● Review manufacturer's operating manual for each piece of equipment to be used. This is to be done at the beginning of each season, by any new operator, and/or sooner, if conditions change. ● Supervisor must ensure operator's proficiency/knowledge in operation prior to being allowed to perform work with equipment and verifies documented training.
	Injury from Lack of Inspection	● Ensure throttle and stop switch are working. ● Ensure cutting tool/head/string is properly tightened. All guards, shields, and safety devices are in place. ● Use caution and wear gloves when inspecting or changing blades or knives. ● Thoroughly inspect equipment prior to operation. ● Ensure all safety components are in tact, pull cord is not frayed, nut and bolts are tight, etc. ● Ensure blade is sharp / wire is properly coiled. ● If parts are missing or faulty, lockout/tagout equipment until deficiencies are addressed.
Transport String-Trimmers in the Field	Injury to Feet / Ankles	● Wear appropriate footwear. ● Determine and use safest path that provides the best option for firm and stable ground with least protrusions.
	Back / Muscle Strain	● Use proper lifting technique when carrying tool, lift with your legs, not your back. ● Use pack frames, wheelbarrows, handcarts, etc. to transport tool when possible. ● Do not carry more weight than you can handle comfortably, seek assistance if necessary.

		● Take frequent breaks, switch-off with co-workers often.
	Burn Injury	● Be aware of muffler and other hot parts when carrying tool after operation. Whenever possible, let tool cool down prior to transporting. ● Wear gloves and long-sleeved shirt (recommended). ● Tools should be purged of fuel whenever being transported or not in use.
	Injury to Others	● Be aware of and communicate with others around you. ● Do not swing tools around carelessly. ● Tools should never be leaned against anything (e.g. a tree) where they can slip, slide, or fall. ● When necessary, use a spotter to ensure others do not access your workspace and are not injured.
	Injury to Hands/Fingers	● Take care not to pinch or crush your hands/fingers when picking up and setting down tools.
	Exposure to Fuel	● If not familiar with related fuel SDS, review prior to transport. ● If transporting long distances, empty fuel tank before transport. ● If transporting short distances, ensure fuel caps are tightly secured. ● If exposed to fuels, follow related SDS guidance for treatment.
Transporting Fuel in the Field	Injury / Exposure to Fuel	● Fuel may only be “field transported” and used in: ○ Original manufacturer's container ○ OSHA approved fuel container ○ UL-labeled plastic fuel container ○ Aluminum 1 quart smaller “Sigg” fuel bottle specifically intended to carry fuel. ○ Plastic Dolmar fuel container (Fuel-Mix / Bar Oil) ● Gas and/or Gas Mix fuel containers must be red in color and labeled for its contents and use. ● Diesel fuel containers must be yellow in color and labeled for its contents and use. ● Ensure fuel cap(s) is secured properly and tightly. ● Do not fill containers above the fill line (or leave at least 2” of space between fuel and top of bottle). ● Do not use fuel container for any other liquid containment. ● Wear eye protection.
Fuel / Refuel String-Trimmer	Fire Hazards	● Turn off the equipment while fueling. ● Keep sparks and open flames away when refueling equipment. ● Avoid spilling gas by using a fuel funnel. ● Do not overfill. ● Allow fuel spills to dry up before operating equipment.

		● Use the type of fuel recommended in the instructions or on the label on equipment.
	Exposure / Inhalation / Ingestion of Fuels / Fumes	● If not familiar with related fuel SDS, review prior to fueling. ● Running equipment produces carbon monoxide (CO) poisoning from the toxic engine exhaust. ● Fuel/Re-fuel in well-ventilated area. Do not use indoors, in a garage, or within 20 ft of an occupied building. ● Wear eye protection. ● Wash hands after handling fuel/fuel container ● Remove/replace clothing if exposed to fuel. ● If exposed to fuels, follow related SDS guidance for treatment.
Operating with Harness and Handles	Back Injury / Fatigue	● Properly adjust harness and handles to suit your size and to obtain proper balance and comfort. ● Ensure harness/strap does not create a trip hazard.
Start Engine	Damage to Starter / Operator	● Perform per equipment operator's manual for each specific model. ● Do not allow the grip to snap back, but guide starter rope to rewind properly and smoothly. ● Inspect and replace if damaged--or remove tool from service.
Operate Machine	Injury to Others	● Maintain a safe distance of at least 20 feet from bystanders or co-workers.
	Loss of Control	● Always hold unit firmly with both hands. Make sure grips are in good condition.
	Slips and Falls	● Watch for obstacles such as roots, rocks, uneven terrain. Maintain a solid stance with firm footing and balance at all times.
	Struck by Thrown Objects	● Use properly mounted deflectors. ● Before cutting, inspect the area for stones, glass, pieces of metal or other solid objects. ● Required to wear ANSI approved safety glasses. Other body protection, as needed. ● When using brush blade, the blade and head should be parallel to the ground.
	Strains & Sprains	● Use properly adjusted harness and handles. ● Use smooth, even sweeping motions when cutting. ● Take adequate rest breaks to prevent fatigue and repetitive motion injuries.
	Kick Back / Kick Out	● When using circular saw blade, begin cut on right side of tree or sapling using the left side of blade. ● Work into the rotation of the tool head. ● Never use a circular blade on a unit with a loop handle.

	Cuts / Abrasions	Do not raise the cutting head above waist height. Wear leg protection, as needed.
	Environmental Exposure	● Prior and while operating equipment take time to understand the vegetation and general environmental conditions within your work space. ● Take necessary / required precautions as situations dictate.
	Muscle Strains / Fatigue	● Ensure equipment is properly fastened and appropriate body mechanics are used. ● Take breaks and/or switch out with coworkers as needed to reduce muscle stress.
Performing field maintenance	Struck by Cutting Attachments	● Always stop the engine and make sure that the cutting tool has stopped rotating before performing any maintenance or repair work. ● Disconnect spark plug.
	Malfunctions and/or Faulty Repairs	● Follow the maintenance and repair instructions in the owner's manual. ● Use only approved replacement parts.
10. OFFICIAL SIGNATURE Kurt W Speers	**11. TITLE** **Kurt W. Speers** **Acting Chief Ranger**	**12. DATE** **04/01/21**

JHA Instructions (References-FSH 6709.11 and .12)

The JHA shall identify the location of the work project or activity, the name of employee(s) involved in the process, the date(s) of acknowledgment, and the name of the appropriate line officer approving the JHA. The line officer acknowledges that employees have read and understand the contents, have received the required training, and are qualified to perform the work project or activity.

Blocks 1, 2, 3, 4, 5, and 6: Self-explanatory.

Block 7: Identify all tasks and procedures associated with the work project or activity that have potential to cause injury or illness to personnel and damage to property or material. Include emergency evacuation procedures (EEP).

Block 8: Identify all known or suspect hazards associated with each respective task/procedure listed in block 7. For example:

- **a. Research past accidents/incidents.**
- **b. Research the Health and Safety Code, FSH 6709.11 or other appropriate literature.**
- **c. Discuss the work project/activity with participants.**
- **d. Observe the work project/activity.**
- **e. A combination of the above.**

Block 9: Identify appropriate actions to reduce or eliminate the hazards identified in block 8. Abatement measures listed below are in the order of the preferred abatement method:

- **a. Engineering Controls (the most desirable method of abatement). For example, ergonomically designed tools, equipment, and furniture.**
- **b. Substitution. For example, switching to high flash point, non-toxic solvents.**
- **c. Administrative Controls. For example, limiting exposure by reducing the work schedule; establishing appropriate procedures and practices.**
- **d. PPE (least desirable method of abatement). For example, using hearing protection when working with or close to portable machines (chain saws, rock drills, and portable water pumps).**
- **e. A combination of the above.**

Block 10: The JHA must be reviewed and approved by a line officer. Attach a copy of the JHA as justification for purchase orders when procuring PPE.

Blocks 11 and 12: Self-explanatory.

Emergency Evacuation Instructions (Reference FSH 6709.11)

Work supervisors and crew members are responsible for developing and discussing field emergency evacuation procedures (EEP) and alternatives in the event a person(s) becomes seriously ill or injured at the worksite.

Be prepared to provide the following information:

- **a. Nature of the accident or injury (avoid using victim's name).**
- **b. Type of assistance needed, if any (ground, air, or water evacuation).**
- **c. Location of accident or injury, best access route into the worksite (road name/number), identifiable ground/air landmarks.**
- **d. Radio frequencies.**
- **e. Contact person.**
- **f. Local hazards to ground vehicles or aviation.**
- **g. Weather conditions (wind speed & direction, visibility, temperature).**
- **h. Topography.**
- **i. Number of individuals to be transported.**
- **j. Estimated weight of individuals for air/water evacuation.**

The items listed above serve only as guidelines for the development of emergency evacuation procedures.

JHA and Emergency Evacuation Procedures Acknowledgment

We, the undersigned work leader and crew members, acknowledge participation in the development of this JHA (as applicable) and accompanying emergency evacuation procedures. We have thoroughly discussed and understand the provisions of each of these documents:

SIGNATURE	DATE	SIGNATURE	DATE