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| U.S. Department of Agriculture Forest Service JOB HAZARD ANALYSIS (JHA) References-FSH 6709.11 and -12 (Instructions on Reverse) | | 1. WORK PROJECT/ACTIVITY Portable Gas Generator | 2. LOCATION George Washington and Jefferson National Forests | 3. UNIT All Units of the George Washington and Jefferson National Forests |
| JOB HAZARD ANALYSIS (JHA) | | 4. NAME(S) OF ANALYST(S) Michael Salyer, Brandon Olinger, Matthew Helt | 5. JOB TITLE Recreation Program | 6. DATE PREPARED 11 February 2022 |
| Required Standards and General Notes: | Specific operators manual, for remote/field use only. Not for powering grid-connected facilities. | | | |
| Required Personal Protective Equipment | Gloves, hearing protection as required | | | |
| Tools and Equipment | First aid kit, power generator, GFCI cord, fire extinguisher | | | |
| Available Training | Safety Data Sheets (SDS), Manufacturers Operators Manual | | | |
| 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 Inspection | <ul style="list-style-type: none"> ● Perform visual inspection of the generator and area around it. Ensure that there are no leaks and no blocks. Check for damage or loose fuel lines. ● Always wipe and clean the generator so that it remains dry. Keep the operation area clear of dirt, stones etc. ● Check oil levels of the generator. If your generator has been sitting unused for some time, the crankcase might get some water mixed in with the oil. ● Check the spark plug, and clean or replace as necessary. ● Inspect the pull cord. Ensure it is not frayed and is properly tensioned. | |
| Transporting Generator & Related Equipment to Work Site(s) | | Muscle/Back Strain | <ul style="list-style-type: none"> ● Use proper lifting/bending technique, lift with your legs, not with your back; ● Use a load-carrying device if necessary, such as wheelbarrow or power carrier. | |
| | | Injury to Feet | <ul style="list-style-type: none"> ● Wear required appropriate footwear. Typically boots that support and cover the ankle. ● Seek assistance carrying generator if necessary. ● Use load-carrying device if necessary, such as wheelbarrow or pack-frame. | |
| | | Burn Injury | <ul style="list-style-type: none"> ● 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). | |

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| | | <ul style="list-style-type: none"> Tools should be purged of fuel whenever being transported or not in use. |
| | Injury to Others | <ul style="list-style-type: none"> 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 | <ul style="list-style-type: none"> Take care not to pinch or crush your hands/fingers when picking up and setting down tools. |
| | Exposure to Fuel | <ul style="list-style-type: none"> 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 | <ul style="list-style-type: none"> “Plastic fuel containers may not be used (Dolmars are an exception for short-term storage of flammable or combustible liquids). Store fuels in approved metal safety cans with spring-loaded lids. All fuel containers must be clearly labeled. For additional requirements, see the Forest Service Hazmat User’s Training Guide and the Interagency Transportation Guide for Gasoline, Mixed Gas, and Diesel, and 29 CFR 1910.106(d).” Fuel may only be “field transported” and used in: Aluminum 1 quart smaller “Sigg” fuel bottle specifically intended to Carry fuel. Plastic Dolmar fuel container (Fuel-Mix / Bar Oil) Metal Gas and/or Gas Mix fuel containers must be red in color and labeled for its contents and use. Metal 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. |
| Starting Generator | Muscle/Back Strain | <ul style="list-style-type: none"> Ensure generator is flat and securely seated. Inspect/test pull cord prior to first pull by slowly pulling cord out and checking cord condition for fraying and tension. Use proper bending/pulling technique when pulling start cord. |

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| | Damage to Hearing | <ul style="list-style-type: none"> ● Position generator as far away from other workers and the public as possible. ● Let others around you know when you are going to start the generator. |
| Operating Generator | Electrocution Hazard | <ul style="list-style-type: none"> ● Keep generator away from water. ● Do not operate in rain. ● Use only with GFCI protected cables. ● Unit should be grounded directly from panel to metal stake in ground--if connection point is provided |
| | Overload, Damage to Generator | <ul style="list-style-type: none"> ● Use a generator that is rated for the power that you think you will need. Look at the labels on equipment you plan to operate simultaneously to determine the amount of power that will be needed. ● If your generator does not produce adequate power for all your needs, plan to stagger the operating times for various equipment. ● Use a heavy duty, outdoor-rated extension cord that is rated (in watts or amps) for the output of the outlet on the generator. ● Use GFCI-protected cord. ● Check that the entire cord is free of cuts or tears and that the plugs are securely attached to the cord and have all three prongs. ● Test the GFCI prior to running tools or equipment. |
| | Burns | <ul style="list-style-type: none"> ● Many generator parts are hot enough to burn you during operation. Avoid contacting muffler. |
| | Damage to Hearing | <ul style="list-style-type: none"> ● If working in close proximity to generator, wear appropriate hearing protection. |
| | Inhalation of Gases | <ul style="list-style-type: none"> ● Running a generator produces carbon monoxide (CO) poisoning from the toxic engine exhaust. ● Follow the directions supplied with the generator. ● Do not use indoors, in a garage, or within 20 ft of an occupied building or tent. ● Battery operated or back-up (CO) alarms are recommend outside of sleeping areas. |
| Fuel / Refueling Generator | Fire Hazards | <ul style="list-style-type: none"> ● 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. |

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| | Exposure / Inhalation / Ingestion of Fuels / Fumes | <ul style="list-style-type: none"> ● 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. |
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| 10. OFFICIAL SIGNATURE | 11. TITLE | 12. DATE |

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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
