

FIRESCOPE AVIATION SPECIALISTS GROUP

INVASIVE AQUATIC SPECIES DECONTAMINATION GUIDELINES

4/01/2010

EXECUTIVE SUMMARY

Cross contamination and introduction into water sources, used for fire suppression, with invasive aquatic species are growing concerns. Information on various invasive species and appropriate decontamination procedures of equipment are still in development. Since 2007 information has been developed for seven invasive species and methods, chemicals used, and, chemical solution exposure and drying times vary depending on the target invasive organism. The single best procedure for decontaminating water buckets and fixed tanks uses the broadest of procedures developed from the seven decontamination procedures utilizing a solution of household bleach followed by air drying of the equipment.

BACKGROUND

The interagency fire and aviation community is faced with meeting the needs of fire operations and, at the same time, assisting with the control of the spread of invasive aquatic species.

Various geographic fire fighting agencies have implemented an invasive species control program however the information specific to fire and aviation operations has not been widely shared. Awareness is stronger in some geographic areas than others. The impacts to fire operations can be huge when dealing with various aerial tactics utilizing water sources from nearby areas. This affects all fire suppression equipment from an engine operator drafting water from a stream to helicopters dipping water from ponds, rivers, lakes, or oceans. Equipment must be decontaminated for invasive aquatic organisms, whether it is a mollusk, fungus, microbes, or noxious and invasive plants.

OPERATIONS GUIDELINES

Currently there is no single location to obtain information about the procedures to utilize. This paper is an interim guideline and the following links will provide additional resources.

<http://www.dfg.ca.gov/invasives>

<http://www.fs.fed.us/invasivespecies/relatedlinks.shtml>

1. Obtain maps of where aquatic invasive organisms occur in watersheds within the operational area from local biologists, resource advisors, and fire personnel. One can not be certain that invasive species are not present but at least information about known areas will be gained.
2. Avoid entering water bodies or contacting mud and aquatic plants. Avoid transferring water between drainages or between unconnected waters within the same drainage.

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3. Avoid sucking or dragging organic and bottom material into water intakes when drafting from streams or ponds.
4. External equipment surfaces:
 - a. Prior to demobing or changing sites, power wash all accessible surfaces with clean water and soap, and completely remove all mud and organic materials. Mud snails may insert themselves into small crevices and resist flushing. Unless vehicles are driven through water bodies or helicopter buckets scrape up bottom sediments, snails are unlikely to get on external surfaces.
 - b. Thoroughly drying equipment is generally an effective sanitizing method, however, drying time vary considerably with the species and is impractical for a quick turn around. This usually best performed upon completion of the assignment.
5. Equipment with internal/external tanks:
 - a. Intake hoses, pumps, and tanks can be contaminated with invasive organisms when drafting from water sources, in particular mud snails from the bottom.
 - b. Follow decontamination guidelines below.

HELICOPTER FIXED TANK AND WATER BUCKET DECONTAMINATION INTERIM PROCDURES

For each prepare a solution of 6.15% sodium hypochlorite (household bleach) or dry granular calcium hypochlorite (swimming pool chlorine). Use the attached Technical Chemical Information spreadsheet to calculate the appropriate solution concentration for the targeted invasive organism.

Fixed tank decontamination procedure:

1. Mix the solution in a barrel or tank the bleach solution per 100 gallons of domestic water supply. Set the snorkel pump in the container.
2. Pump the solution into the fixed tank, this flushes the snorkel hose.
3. Continue pumping the solution into the fixed tank until it begins to overflow.
4. Keep the solution in the tank for a minimum of 5-minutes. When releasing the tank contents ensure it does not flow into local water sources.

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4/01/2010

5. Rinse the tank with clean water and leave the tank doors open until the tank is dry.

Water bucket decontamination procedure:

1. Mix the solution the same as for the fixed tank.
2. Set up a portable pump or pressure washer.
3. Dip the bucket completely into the tank or thoroughly spray the solution onto every surface of the bucket and suspension lines that came in contact with local water sources. Keep the surfaces wet with the solution for a minimum of 5-minutes. When emptying the bucket or spraying the surfaces ensure the solution does not flow into local water sources.
4. Rinse the bucket with clean water and allow it to completely air dry.

SAFETY HAZARDS

Use of chemicals can cause permanent eye damage and skin or inhalation burns. Check MSDS's for precautions and use the proper PPE.

Attachment: chemical_tech.xls