

Hydro AIS Prevention and Decontamination Protocols

In support of the PacifiCorp Energy Aquatic Invasive Species (AIS) Policy, and to help prevent costly and damaging invasions of AIS such as zebra/quagga mussels or Eurasian watermilfoil in generation units, irrigation canals, reservoirs, streams, and rivers, the following protocols are required to be followed by all PacifiCorp Energy personnel, management, and volunteers. Hydro Resource contractors must adhere to the **Aquatic Invasive Species Assurance Program** (Exhibit A, attached).

In general, the protocols require that all water-related equipment be dedicated to a single waterbody or specific project area, as defined the subject matter experts (SME) in each generation unit. If any equipment must be used in a different area than its' dedicated use area, it must be appropriately decontaminated, as specified below. Also, visual inspection of the local aquatic habitats and any in-water equipment will be conducted routinely whenever personnel are working in water; reports of any suspicious aquatic mussels or plants observed must occur promptly to designated staff.

Protocol steps:

1) Ensure Dedicated Use of Equipment—

- Only use water-related equipment that is **dedicated** to a single hydro area or waterbody;
- Keep and use the provided equipment log for equipment used in water for each use at all locations (boats, trailers, etc.). [Attached]
- If other equipment must be utilized, plan for and use proper decontamination procedures;
- Get Production Manager pre-authorization before moving any water-related equipment between hydro plants or other locations; follow appropriate decontamination procedures for 'small' (submersible/freezable) or 'large' gear.
- **Contractors** must adhere to the protocols of the Aquatic Invasive Species Assurance Program (as specified in Exhibit A and as per standard contract language) and **must provide** an Aquatic Invasive Species Assurance Program (AISAP) to the Company to demonstrate how the Contractor will manage the work in compliance.

2) Use Appropriate Decontamination Protocol—

- Decontamination is required for all non-dedicated water-related equipment that has come in contact with canal, reservoir, river, forebay, or tailrace water and that has been approved by the Production Manager for use at another location.
- In winter or if a chest-type freezer is available, freezing may be used as an effective tool (see Step 2A, Procedure A, attached). Exposing equipment to **continually** freezing (<30F) temperatures for **three days** will produce 100% mortality.
- To decontaminate **small** equipment (must be submersible in 5-50 gal chemical disinfectant container or freezable, i.e., waders, tools, measuring equipment, etc.), use **Procedure A**, attached) or to decontaminate **large** equipment (boats, trailers, winches, 4-wheelers, truck tires, etc.; use **Procedure B**, attached)
- Because adult zebra/quagga mussels can close up and survive for extended periods of time under extreme conditions, chemical disinfecting requires a contact time of several hours-days, depending on the chemical used. Chemical disinfectants are therefore **not** recommended for large equipment that cannot be submerged.

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3) *Inspect/Monitor/Report—*

- Whenever PacifiCorp Energy personnel are conducting water-related work, visual inspections will be conducted on all fixed equipment (boat docks, pilings, staff gages, etc.), as well as conducting a brief inspection of the surrounding habitat (inspecting submerged rocks, etc.), using the laminated pictures provided during AIS training.
- If any suspicious mussels or plants are observed during routine monitoring/inspections, personnel will report their observations as soon as possible to both the Production Manager and the Hydro Area SME (Eve Davies, Frank Shrier, or regional Compliance Analyst). If observations are suspected or confirmed to be AIS, SME will contact the PacifiCorp External Communications staff, Hydro Management, and the appropriate state agency.

4) *Coordinate with stakeholders for appropriate signage at public recreation sites—*

- Hydro implementation/compliance staff will work with appropriate state and federal agencies to ensure relevant AIS signage is in place at all public recreation areas.
- Additional signage will be installed where there are known infestations (e.g., New Zealand mud snails in the Black Canyon area of the Bear River) so that the public knows areas of highest potential risk of transport of AIS, particularly if gear is not decontaminated.
- Hydro staff will look for opportunities to collaborate with state and federal agencies in public education/outreach efforts regarding the risks to power generation, irrigation, and ecological resources, and publicize known areas of infestation.

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Procedure A—Small equipment (freezable/submersible: waders, tools, measuring equipment, etc.)

- Step 1A: **INSPECT** equipment: visually inspect and remove any clinging materials (plants, snails, mud, etc) and dispose of in a dry trash receptacle.
- Step 2A: **PREFERRED METHOD**—If a chest-type freezer is available, place equipment in the freezer for **three days**, subject to freezing temperatures (<22°F) continuously.
- Step 2B: **DISINFECT** equipment (if no freezer available): **Bleach method**: For each 5-gal unit of disinfecting solution, mix 5 gallons of water with 1/3 cup of household bleach (1 cup bleach per 15 gal, etc.). Place gear in a large plastic bucket or garbage can. Add bleach solution to cover gear/equipment and treat for a minimum of **two days** (adult mussels can close up in toxic environments and survive for a period of time). Dispose of solution in wastewater drain or sink. Never dump disinfectant solution to the ground or to sumps or drains that return to a waterbody. **Virkon method**: For each 5-gal unit of disinfecting solution, mix 5 gallons of water with 1 cup of Virkon; treat for **30 min** (metal may corrode if left over 30 min, other materials ok). Follow disposal steps as above for bleach solutions. Both solutions may be kept and re-used for a **maximum** of 5 days.
- Step 3A: **DRY** disinfected gear: After a minimum of **two days** in bleach solution or **30 min** in Virkon solution, remove gear, rinse with clean (hot if possible) water and allow to air dry before re-use in other waters.

Procedure B—Large equipment (non-submersible: boats, trailers, 4-wheelers, truck tires, etc.)

- Step 1B: **DRAIN** larger equipment: Bilges, wet wells, live wells, and any other compartments that could hold water from any potentially infested site should be drained of water at the boat ramp before leaving the area. If a boat has carried water from another location, remove all water and treat that water with household bleach at 1/3 cup of bleach per 5 gallons of water for a minimum of 1 hour before disposing in wastewater drain. Never dump disinfectant solution to the ground or to sumps or drains that return to a waterbody.
- Step 2B: **PURGE** (Only for boat engines): In order to kill and purge larvae that may be in the engine's cooling system, run hot water through the motor for at least 1 minute. Disinfecting water should be heated to >140 °F.
- Step 3B: **SCRUB**: Scrub all surfaces with hot, soapy water to remove any clinging material (plants, animals, mud, etc.), then visually inspect as well as feel the surface and remove anything remaining. Pay special attention to cracks and crevices in which mussels may become trapped, and aquatic plants that may be present on trailers or propellers. The goal is to remove any and all living organisms as well as mud and other debris.
- Step 4B: **RINSE**: Hose down everything with hot (> 140 °F) high pressure water, including boat, anchors, trailer, and anything else that came in contact with the water. Work a small section at a time with a minimum exposure of **3 min. for each area**. Pay particular attention to trailer pads made of carpet and foam rubber, which could trap tiny mussels.
- Step 5B: **DRY**: After thorough scrubbing, power washing and visual inspection, dry the equipment and keep everything out of the water for at least **2 weeks if temperature <70°F** or **1 week if weather is warm and dry (>70°F and <40% relative humidity)**.

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Dedicated Water-related Equipment Log Sheet (to be kept with equipment)

Dedicated Plant Name _____ Location _____
 Type/Name of Equipment _____
 Number or other identifying description _____

Last used location	Last used date	Equipment decontaminated?	Decontamination method, if any	Production Manager approval if use other than dedicated site? (Y/N and your initials)

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EXHIBIT A

Aquatic Invasive Species Assurance Program

- 1.0 The Contractor shall perform all work in conformance with federal, state, and local laws that pertain specifically to aquatic invasive species. Relevant Idaho requirements may include, but are not limited to the following:

IDAHO STATUTES

The Idaho Invasive Species Act of 2008

22-1901 through 22-1917

<http://www.legislature.idaho.gov/idstat/Title22/T22CH19.htm>

IDAHO HOUSE BILLS

HB 213 Relating to vessels; amending chapter 70, title 67 Idaho code by the addition of a new section 67-7008A, Idaho code, to provide for additional fees for specified vessels, to provide for certain stickers, to provide for collection and deposit of fees in the invasive species fund, to define a term and to provide exceptions; and declaring an emergency.

<http://www.legislature.idaho.gov/legislation/2009/H0213.pdf>

HB 643 Relating to invasive species; amending Title 22, Idaho code, by the addition on a new chapter 19, title 22, Idaho code, to provide a title, to provide findings of the legislature, to provide for administration, to define terms, to prohibit certain actions and to provide exceptions, to provide for duties of the department and director, to provide for rules and orders, to provide for inspections, to provide for the disposition of invasive species, to provide for hold orders, to provide for the invasive species fund, to provide for control and eradication costs, to provide for penalties, to provide for cooperative agreements, to authorize the department to conduct certain control measures, to provide for delegation of certain authority by the department, to clarify that designated provisions shall not terminate or modify existing civil or criminal liabilities relating to plant pests, to provide that certain persons and entities shall be held harmless in relation to implementation of designated provisions and to provide for severability; and declaring an emergency.

<http://www3.state.id.us/oasis/2008/H0643.html>

IDAHO ADMINISTRATIVE CODE

IDAPA .02.06.09 Rules Governing Invasive Species

<http://adm.idaho.gov/adminrules/rules/idapa02/0609.pdf>

IDAHO AQUATIC NUISANCE SPECIES PLAN

<http://www.agri.state.id.us/Categories/Environment/InvasiveSpeciesCouncil/documents/Idaho%20Aquatic%20Nuisance%20Species%20Plan.pdf>

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OUAGGA/ZEBRA MUSSEL 2010 ROAD-SIDE INSPECTION SITES

http://www.agri.state.id.us/Categories/Environment/InvasiveSpeciesCouncil/Inspection_Stations_2010.php

IDAHO INVASIVE SPECIES PROGRAM FAQ'S

http://www.agri.state.id.us/Categories/Environment/InvasiveSpeciesCouncil/IISF_FAQ.php

a) **Plan and Action**

At the time of the bid the Contractor shall submit an Aquatic Invasive Species Assurance Program (AISAP) to the Company to demonstrate how the Contractor will manage the work in compliance with applicable laws, statutes and regulat

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UTAH

UTAH CODE

23-27-201 Invasive species prohibited

http://le.utah.gov/~code/TITLE23/htm/23_27_020100.htm

23-27-202 Reporting of invasive species required

http://le.utah.gov/~code/TITLE23/htm/23_27_020200.htm

23-27-301 Division's power to prevent invasive species infestation

http://le.utah.gov/~code/TITLE23/htm/23_27_030100.htm

23-27-302 Conveyance or equipment detainment or quarantine

http://le.utah.gov/~code/TITLE23/htm/23_27_030200.htm

23-27-303 Closing a water body, facility, or water supply system

http://le.utah.gov/~code/TITLE23/htm/23_27_030300.htm

23-27-401 Rulemaking Authority

http://le.utah.gov/~code/TITLE23/htm/23_27_040100.htm

UTAH ADMINISTRATIVE CODE

Aquatic Invasive Species Interdiction UAC R657-60

<http://www.rules.utah.gov/publicat/code/r657/r657-060.htm>

UTAH DIVISION OF WILDLIFE RESOURCES – 2010 UTAH AQUATIC INVASIVE SPECIES MANAGEMENT PLAN

<http://wildlife.utah.gov/mussels/plan.php>

DECONTAMINATION PROTOCOL TO CONTROL SPREAD OF AQUATIC INVASIVE SPECIES IN UTAH

http://wildlife.utah.gov/mussels/PDF/COR_decon_protocol.pdf

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