Manual Cage Washing and Sanitation
STANDARD OPERATING PROCEDURES
UNIVERSITY OF WYOMING

Office of Research and Economic Development

TITLE:	**Manual Cage Washing and Sanitation**
SCOPE:	All Animal Program Personnel
RESPONSIBILITY:	Principal Investigators, Facility Managers, Veterinary Staff, Research Office Staff, All Animal Personnel
PURPOSE:	To Outline Procedures for Hand Washing Caging and Equipment, particularly during the annual UW steam shutdown period

I. PURPOSE

- To ensure the highest quality of health among animals used for research and teaching purposes, and to ensure the consistency and integrity of research data. The purpose of this SOP is to describe the procedures for hand washing caging and equipment.

II. RESPONSIBILITY

- It is the responsibility of the Principal Investigator (PI) to ensure that all research animal cages, racks, feeders, watering devices, and other equipment is properly cleaned and sanitized on the appropriate schedule.

- The Facility Managers ensures implementation of all procedures.

- The Attending Veterinarian oversees all aspects of animal health, and are assisted by Office of Research and Economic Development staff, Facility Managers, and the PI's project personnel.

III. GENERAL PROCEDURES

The following procedures contribute to a high quality of animal health, and the consistency and integrity of research data.

A. Notes & Preparation

- Cleaning items by hand-washing relies on physical removal of gross dirt, debris, scale, and the use of an effective method of sanitation.

- Hand-washing/sanitation procedures must be designed and implemented so that caging/equipment moves from dirty to clean areas with no overlap. Separate areas should be designated for bedding removal, scraping/pre-wash, wash, rinse, and sanitization procedures. Similarly, the cleanest items are to be washed first and heavily soiled items should be washed last to reduce contamination of wash water.

- If available, all washing/rinsing/sanitizing is performed in water that is approximately 110° - 120°F (i.e., domestic hot water temperature) if available. If hot water is not available, cold/room temperature water will suffice **if** all washing and sanitizing steps are thoroughly carried out.

B. Dump Debris & Pre-Rinse

1. Transport dirty caging/equipment to the cage-wash area. Feed and water is dumped prior to washing. Caging that contains soiled bedding/litter is removed/dumped into a receptacle in a manner so as to reduce the formation of aerosols. Soiled bedding that is not readily dumped

may have to be scraped or rinsed from the caging. Extremely soiled caging may need to be pre-soaked to remove all debris. Personnel performing procedures that produce dust or aerosols must wear an appropriate particulate mask detailed by the UW Safety Office.

2. Caging is to be pre-rinsed to remove all visible particulate matter prior to washing to reduce contamination of wash water. Pre-rinsing can be performed with a water hose, warm water, detergent and or acid solution as needed.

C. Wash & Scrub

3. Hand-washing of caging/equipment is performed in water that is approximately 110° - 120°F (i.e., domestic hot water temperature) if available. Wash water must contain adequate amounts of detergent as recommended by the manufacturer. Fresh wash water will need to be prepared as often as necessary to maintain desired temperature and when excessively contaminated. Detergents with strong scent additives should be avoided. Consider using unscented dishwashing soap, or Alka-Det HW® (Pharmacal Research Laboratories).

4. Hand washing should be performed using a sponge, scrub brush, bottle brush, or suitable material to physically remove all foreign material. All visible dirt, debris, and scale should be removed by the washing process. Items are visually inspected to ensure items appear clean. If items do not appear clean they must be rewashed prior to use.

D. Rinse

5. All detergent must be rinsed from washed items. Rinsing should take place using water that is approximately 110° - 120° F (i.e., domestic hot water temperature) if available. When rinsing is performed by dipping, fresh rinse water will need to be prepared as often as necessary to maintain desired temperature and when it contains excessive amounts of detergent.

E. Sanitize

6. Sanitization of caging/equipment is achieved using appropriate chemical sanitizing agents (see Table 1 for suggested agents, but the suggested preference is Chlorhexidine). Sanitization should take place using water that is approximately 110° - 120° F (i.e., domestic hot water temperature) if available. When sanitization is performed by dipping, fresh solution will need to be prepared as often as necessary to maintain desired temperature. Items too large to dip may be wiped down or sprayed with suitable sanitizing agent. Allow items to remain in contact with sanitizing agents for the indicated contact time. All items must be rinsed well after exposure to sanitizing agent.

7. After final rinse caging is stacked in a clean area in a manner to facilitate drying.

F. Notes

- All chemicals (e.g., detergents, acids, sanitizing agents) must be handled properly. **All chemicals must be properly stored, mixed, and used in accordance with the manufacturer's label directions and Safety Data Sheets (SDS, formerly MSDS)**.

- When choosing a suitable disinfectant/sanitizer (e.g., Chlorhexidine, Oxivir, Clidox-S, etc.) consider safety concerns for both personnel and animals, efficacy against specific microbial agents, required contact time, useful life of mixed solutions.

- Chlorhexidine is UW's suggested reagent for sanitization, due to its cost, ease of use, and effectiveness. That said, chlorhexidine is not effective against adeno-associated virus (AAV), and is toxic to reptiles. In cases where chlorhexidine is not viable, UW recommends a 3% solution of sodium hypochlorite (bleach).

- Chlorine (e.g., Clorox) is a readily available and inexpensive sanitizer/disinfectant that produces an excellent kill of bacteria and viruses. It is generally used as 10% solution for sanitization which can be made by diluting ½ oz. (1 tbs)/gal of water or can be used as a disinfectant by diluting 6 oz./ gal of water.

G. Safety Procedures

- Wear appropriate personal protective equipment when working in cage wash areas. Equipment to consider includes heavy rubber gloves, eye protection, waterproof apron, and rubber boots when appropriate.

- Protective eyewear must be worn when working with caustic/corrosive chemicals.

- An eyewash station must be located in the designated cage-wash area.

- Read label directions and SDS (MSDS) for all cleaning chemicals. Never mix chemicals unless authorized to do so or it is described on the label directions. SDS forms **must** be on site.

- Certain sanitizing agents should be avoided on surfaces that may come into contact with animals (e.g., agents difficult to rinse from surfaces, and phenol compounds can be toxic to felines).

Table 1. Sanitizing/disinfecting agents:

AGENT	DILUTION	CONTACT TIME	EXPIRES	COMMENTS/USES
Chlorine bleach	½ oz/gal	2 min	Make daily	Sanitization/hard surfaces
	6oz/gal	5 min	Make daily	Disinfection/hard surfaces
Clidox -S	1base:5 water:1activator	5 min	24 hours	Disinfectant,/Non metallic surfaces
	1base:18 water:1activator	5 min	14 days	Disinfectant/ Non metallic surfaces
Oxivir	Undiluted	5 min	> 1 year	Disinfection/hard surfaces
Sporicidin	Undiluted	10 min	> 1 year	Sanitization /Hard surfaces
Chlorhexidine	**1 oz/gal**	**1 minute**	**Make Daily**	**Disinfection/hard surfaces**

Adapted from the University of South Florida SOP# 1012.3