 University of British Columbia Centre for Dairy Education and Research	Document Number	SOP-General-006
	Revision Number	001
	Effective Date	June 24, 2020
CALF BARN AND EQUIPMENT CLEANING		

1. PURPOSE

- 1.1. This Standard Operating Procedure (SOP) instructs Farm Workers and students on the proper methods of cleaning the calf barn and equipment at the UBC Dairy Education and Research Centre.

2. SCOPE

- 2.1. This SOP will describe the methods of cleaning equipment used in the calf barn at the UBC Dairy Education and Research Centre.

3. RESPONSIBILITY

- 3.1. The Operations Manager is responsible for reviewing and updating this procedure as required.
- 3.2. The Operations Manager is responsible for ensuring all staff are trained in this procedure and that training is documented.
- 3.1. Personnel who work in the calf barn are responsible for reading and adhering to the procedure outlined in this SOP.

4. DEFINITION


- 4.1. ***Personal Protective Equipment (PPE)*** - refers to protective clothing, eyewear, and footwear that is used around potential hazards.

5. TRAINING

- 5.1. Training will include SOP overview, animal handling, equipment instruction, and cleanliness administration.

6. SAFETY PRECAUTIONS

- 6.1. Personnel handling chemicals and equipment will follow routine health and safety procedures to protect against human and animal injury.
- 6.2. All personnel entering the calf barn will need to rinse boots off with hot water. Close-toed footwear is to be worn when working with equipment.


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7. GENERAL

- 7.1. PPE is to be worn at all times when handling chlorine, Virkon and other potential hazards. PPE includes; coveralls, chemical apron, gloves, boots, and protective eye goggles.
- 7.2. Only Farm Workers with the proper training are authorized to operate the Bobcat loader.
- 7.3. Bottles and nipples are cleaned daily after use.
- 7.4. Group pens are bedded with fresh shavings weekly, and bedding is fully replaced monthly. See SOP on Calf Housing
 - 7.4.1. When bedding is fully replaced, calves are housed outside the pen for a short period of time.
- 7.5. Group pens are thoroughly cleaned and disinfected between groups of calves.
- 7.6. The cleaning of the milk pasteurizer and holding tank is referenced in this SOP, but not fully described. Refer to the Calf Milk Pasteurization SOP for procedures and cleaning instructions.

8. MATERIALS AND EQUIPMENT

- 8.1. Chlorine – 12%
- 8.2. Bottle brush
- 8.3. Virkon (disinfectant)
- 8.4. Handheld sprayer for Virkon application
- 8.5. Personal Protective Equipment (PPE). Coveralls, disposable latex gloves, rubber apron and goggles.
- 8.6. Bobcat loader
- 8.7. Shovel
- 8.8. Rake
- 8.9. Pitchfork

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8.10. Pressure washer

9. PROCEDURES

9.1. *Daily milk bottle & nipple cleaning*

9.1.1. Put on PPE – including hand and eye protection.

9.1.2. Rinse bottles and nipples with warm (about 38° C) water to remove milk residue.

9.1.2.1. Make sure the water is not too hot. Too high a temperature can adhere proteins to the bottle.

9.1.3. Wash and scrub bottles & nipples using the bottle brush and hot water.

9.1.4. Fill the sink with warm water and add the appropriate number of pumps of chlorine to the water. Follow the chart below for water to chlorine ratio.

9.1.5. Thoroughly rinse the inside and outside of the bottles and nipples in the chlorinated solution. Contact time should be at least 45 seconds.

9.1.6. Store bottles upside down to ensure bottles drain and dry properly. Return nipples to the drying stand.

9.2. *Bucket cleaning*


9.2.1. Rinse manure, dirt, and other containments from the bucket using the hose or sink.

9.2.2. Wash and scrub bucket using a brush. Rinse with warm water when needed.

9.2.3. Fill the sink with hot water and add the appropriate number of pumps of chlorine to the water. Follow the chart below for water to chlorine ratio.

9.2.4. Once the bucket is clean, dip and rinse the bucket in the chlorinated water. Contact time should be at least 45 seconds.

9.2.5. Upon completion, place the bucket on the wall rack upside down so that the bucket can dry thoroughly.

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9.3. ***Esophageal tube feeder cleaning***

9.3.1. Detach esophageal tube from feeder bottle.

9.3.2. Follow steps from the above, “Daily milk bottle and nipple cleaning” to clean the bottle and tube.

9.4. ***Hair Clippers***

9.4.1. Hair clippers (used for disbudding) need to be brushed and oiled after every use.

9.4.2. Using the small brush located in the clipper bag, gently brush remaining hair from the blades.

9.4.2.1. The blade head should be removed to thoroughly clean the unit.

9.4.3. To oil the clippers, turn the clippers on and dispense 2-3 drops of oil (from container in clipper bag) on the top blade. Hold the clippers in a downward position during this time. Wipe away any excess oil.

9.5. ***Group Pen Sanitization (between calf groups)***

9.5.1. Using the Bobcat loader, scoop soiled bedding material out of the pen.

9.5.1.1. Use the pitchfork and shovel to help remove all of the soiled shavings.

9.5.2. Put on PPE – gloves and eye protection included.


9.5.3. Once all bedding has been removed, pressure wash the inside of the pen to remove any remaining manure and debris. This includes the grated area, walls and concrete floor.

9.5.4. Spray Virkon to the whole pen, evenly covering all surface areas.

9.5.4.1. Follow bottle instructions for water to chemical ratio. 1% w/v solution of Virkon.

9.5.5. Allow Virkon to dry completely before moving new animals into the pen, a minimum contact time of 10 minutes.

9.6. ***Calf Milk Pasteurizer Cleaning***

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9.6.1. The pasteurizer tank and pipeline are cleaned every other day. Refer to Milk Pasteurizer SOP for instructions.

9.7. Automatic Milk Feeder Cleaning

9.7.1. Nipples are hosed down with hot water 2x/day –once in the morning and once in the evening.

9.7.1.1. Nipples can be hosed down throughout the day depending on use.

9.7.2. Nipples are cleaned with chlorine solution weekly.

9.7.3. Automatic milk feeders are washed everyday through the Delaval automatic system. Every other day (same day as pasteurization tank and pipeline cleaning) the machines are manually washed with hot water and a brush.


9.7.4. A circuit clean is run once a week on each machine. Circuit cleans are performed by following the prompts given on the Delaval Automatic Milk Machine handheld unit.

10. WATER TO CHLORINE CALCULATION CHART

Water (Sink Level)	Chlorine (Pumps)
¼ Full	1 Pump
½ Full	2 Pumps
¾ Full	3 Pumps
Full	4 Pumps

11. REFERENCES

11.1. Code of Practice for the Care and Use of Dairy Cattle. National Farm Animal Care Council. 2009.

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- 11.2. Dupont. 2009. Virkon® S Disinfectant and Verucide. Accessed November 22, 2019.
- 11.3. Guidelines on the Care and Use of Farm Animals in Research, Teaching and Testing. CCAC. 2009

12. REFERENCE SOPS

- 12.1. SOP-Calf-003 Calf Housing
- 12.2. SOP-General-005 Milk Pasteurizer

13. APPROVAL AND REVISION HISTORY

Author/Approver		Date	Signature
History			
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