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GUIDANCE

DISPOSAL OF WASTE WATER FROM ON FARM PROCESSING OF LARGE (OVER 25 LBS.) ANIMALS

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Many farms in Maine raise large animals such as sheep, goats, cows, pigs etc. for their own use. Some of these farms also slaughter and process large animals for sale to others and/or for other farms as a commercial venture to supplement their farm income. Slaughtering and processing large animals results in the generation of offal and other waste materials that need to be disposed of so that they do not create a nuisance. *For large scale slaughter/processing operations, the farm should have an engineered/designed disposal plan approved by the Maine Department of Agriculture, Conservation and Forestry or other responsible agency.* For small scale operations, it is not necessary to have an engineered disposal plan but the farm should dispose of waste material in an appropriate manner.

Waste materials generated by the slaughter and processing of large animals includes: skin, fur, bones, hooves, horns, offal (entrails), blood and other body fluids, and pieces of fat and flesh. It is very important for small scale slaughter and processing operations to collect as much of the skin, fur, offal, hooves, bones, blood and other body fluids as possible. These materials can be disposed of by rendering, utilization, burial, incineration or composting. Rendering is a good option but availability and cost tends to fluctuate a lot. Incineration is quite expensive. Burial is a possibility but can only be done in soils that are relatively deep to seasonal groundwater table, hardpan or bedrock and only when the soil is not frozen. Burial causes significant soil disturbance, results in very slow decomposition of the animal remains, may cause odors and may contaminate the seasonal groundwater table. *Composting the remains is the method preferred by the Department when disposal of the waste materials is done on the farm.* It does not generally require soil disturbance, only requires a small area that can be used over and over again, does not create an odor problem, can be done in the winter and will not contaminate the groundwater table when done properly. Visit the Departments web site and refer to Best Management Practices for Animal Carcass Composting to obtain guidance on techniques for composting animal carcasses and/or large volumes of offal. *Any of these disposal methods must be done in accordance with Chapter 211 – Rules for the Disposal of Animal Carcasses, which are available on-line.*

In order to have a clean and sanitary slaughter and processing operation, washing down of the work site is necessary. This wash down water should be disposed of in a manner which will not result in the generation of offensive odors, attract large numbers of flies or rodents, contaminate the groundwater table, contaminate any waterbody, or travel off the farm property. *Acceptable methods (Best Management Practices) for the disposal of wash down water from the slaughter and processing of large animals include the following:*

1. **Land Apply Waste Water** – you can collect wash water in a tank or barrel from the slaughter and processing of large animals and then transport it to a field or forest to be spread on the land as a nutrient during the growing season. Care should be taken to apply in light applications over a broad area so that it can sink into the ground and not run off site or into a waterbody. Spraying the water is a good way to accomplish this. It is also acceptable to use a level spreader at the end of a concentrated flow discharge (usually a pipe) to make a more permanent land application system. *A permanent land application system, in one location, is only suitable for smaller operations.* For larger operations, it is best to land apply the waste water in different locations, depending on soil tests and vegetation nutrient requirements. A suitable level spreader for this type of water dispersal would be 1” – 3” stone placed along the contour and curved slightly up at the ends (so water can’t escape around the ends) in a berm. The berm should be at least a foot high and about 18” wide at the base. Its length will depend on the amount of water being discharged to it. Bark nuggets or wood chips may also work instead of stone for smaller operation if the flow against the berm is slow (not strong enough to wash away the light bark nuggets or wood chips). You may need to replace a bark nugget or wood chip berm every few years if decomposition eliminates the pores between the bark nuggets/wood chips. Erosion control mulch is an even better option as it consists of elongated fibers of wood and some soil material to weight down the berm. You can also use a small diameter perforated pipe placed along the contour. If perforations in the pipe are too small, they may plug up due to the growth of algae, bacteria etc. that utilize the nutrients and particulates in the waste water. The type of level spreader and size depends upon the type of soil, slope of the land, distance from property lines, buildings, roads, wells or sensitive areas and amount and strength of waste water to be disposed of. Contact the Department if you have any questions about this disposal method. *The department does not recommend land applying this waste water when the soil is saturated, frozen or snow covered.* If large animals are bled in the slaughter house, the blood should be collected in a separate tank and disposed of through a septic tank pumper, used in a compost recipe, utilized or land applied during the growing season and then tilled into the soil unless large volumes of water are used so that the resulting solution becomes dilute. Tilling blood and other concentrated animal body fluids into the soil will prevent odors, flies, vermin etc. from being attracted to the field. This should be done on the basis of soil tests and crop needs.
2. **Sink/Floor Drain Pipe to Level Spreader** – *This disposal method is only appropriate for small scale operations with relatively dilute waste water to dispose of.* If conditions are right, it may be possible to dispose of the waste water by piping it from the sink or floor drain in the slaughter/processing building to a suitable filter strip. In order to assure that the waste water flows through the filter strip as thin sheet flow, a level spreader should be used, constructed along the contour. Applicability and design of this method depends on a number of variables including: soil type; slope of the land; set back distances from wells, buildings, roads, waterbodies, property lines or other sensitive areas, strength of waste water generated, amount of waste water generated and time of year waste water is generated. If the processing

operation will take place during winter months, you will need to incorporate design methods to assure proper function when the temperatures are below freezing. This may include insulating the pipe from the sink drain (depending on whether or not it can be buried in the soil and how deep it can be buried). A suitable level spreader design for winter use would be to place a layer of small diameter stone on the ground surface where the level spreader will be constructed (3" thick would be appropriate). Then place a small diameter perforated pipe on the stone and then cover it with another 3" thick layer of stone. A 6" thick or thicker layer of bark mulch should then be placed on the stone to provide insulation (for times when there is not enough snow cover to provide insulation). As with the land application method described above, it is important to collect blood and other body fluids in a tank that can be disposed of by a septic tank pumper, used in a compost recipe, utilized or land applied during the growing season and then incorporated into the soil. If the BOD5 and TSS are too high, this disposal system is likely to plug up and fail and will attract flies, vermin etc.

3. **Disposal Pit or Trench** – Some of the smaller operations may be able to utilize a soil pit or soil trench, depending on soil type, slope of the land, setbacks from wells, buildings, roads, property lines, waterbodies or other sensitive areas and amount and strength of waste water generated. *The smaller the operation and the more seasonal it is, the more applicable this option is.* To use this method, you should have well drained soil with moderate permeability that is deep to bedrock. It is not suitable for use in sand or gravel soils as their permeability is too great and they have little ability to renovate the waste water. Heavy clay soils and soils with shallow hardpans are also generally unsuitable as they are not permeable enough. The bottom of a soil pit or trench should be at least 12" above the seasonal groundwater table and 24" above bedrock. A soil trench would need a perforated pipe surrounded by crushed stone to function properly. If the stone clogs or the pit seals off due to a biomat formation, you can construct another one. Resting a soil pit or trench for at least 6 months should be long enough to decompose the biomat. You can then alternate between the two. As with the above two disposal methods, it is important to collect blood and other body fluids in a tank that can be disposed of by a septic tank pumper, used in a compost recipe, utilized or land applied during the growing season and then incorporated into the soil. Mixing in large volumes of water to make the solution more dilute is not an option for this disposal method as it would likely overwhelm the soil pit or trench. If the BOD5 and TSS of the waste water is too high, it will cause premature failure of the pits or trenches and will likely result in attraction of flies and other vermin. The Department recommends that a farmer interested in this method contact us for advice, consultation and/or a site visit.
4. **Manure Lagoon** – For dairy farms that have a manure storage lagoon system, the waste water can be added to the lagoon(s) and disposed of by land application in accordance with a nutrient management plan. It is important that the lagoon(s) have the storage capacity to handle expected volumes of waste water from the slaughter/processing operation. *This option can handle blood and other body fluids from the slaughter and processing operation.*
5. **Residential Subsurface Wastewater Disposal System (Septic System)** – *unless the septic system designed for your home residence has been designed to accommodate the wash down water from the slaughter and processing of large animals, you should not use it for that purpose.* Not only can the additional water cause a hydraulic overload of the septic system, BOD and Total Suspended Solids levels may increase significantly causing the septic system to clog and fail. The degree of impact on your septic system is not only a function of the total number of animals slaughtered and

processed during a year but the number processed at any one time and the strength of the waste water. Many animals handled in a short period of time can cause an overload forcing solids out of the septic tank and into the leach field, plugging soil pores which will cause a backup or forcing effluent to surface over the leach field. You should check with the Site Evaluator who designed your residential septic system to see if it has the capacity to handle the number of animals you intend to slaughter and process or can be modified to handle the additional waste water. This disposal method should not be used if blood and other body fluids are part of the waste stream. They need to be separated from the waste stream and disposed of by a septic tank pumper, land applied and then incorporated into the soil or utilized. It is also likely to require an advanced treatment unit (small package treatment plant or introduction of air) to reduce the BOD5 and TSS levels in the waste stream, particularly if not enough of the blood and other body fluids are removed from the waste stream.

6. **Subsurface Wastewater Disposal System designed for the animal slaughter and process water** – You can contract with a Licensed Site Evaluator to design a septic system specifically for the waste water generated from the slaughter and processing of large animals. This option is more applicable to larger operations and is also the most costly option. For this option to work properly, you would need to separate the blood and other body fluids from the waste water stream or utilize an advanced waste water treatment unit to significantly reduce the BOD5 and TSS. These units are basically small treatment plants and/or they add air to the holding tanks to speed up decomposition.
7. **Other Methods with Appropriate Justification as Approved by the Department** – The Department may approve other methods provided that justification can be provided by the farmer that the method will result in the disposal of process water in an environmentally safe manner and will not cause a nuisance.

Recommended setback distances for process waste water disposal areas for new slaughtering/processing operations:

Perennial waterbodies	100'
Intermittent waterbodies	50'
Property owners well	100'
Other wells	100'
Property Lines	50'
Public Roads	50'
Property owner buildings	20'
Other buildings	50'

Contact the Department of Agriculture, Conservation and Forestry if you can't meet these setback distances or if you have a very small operation. It may be possible to use reduced setbacks, depending on site specific conditions. Reductions may also be needed for operations in existence prior to the development of these guidelines, based on site specific conditions.

The bottom line is that it is your responsibility to properly dispose of any waste water generated from your farming operation that has the potential for an environmental impact or becoming a public nuisance (health threat, odor, disease, flies, rodents, etc.). Contact the Maine Department of Agriculture, Conservation and Forestry at 287-7608 if you have any questions or would like assistance in selecting and siting your wastewater disposal option.

