Bear Creek Watershed Association

Approved: August 9, 2006

Policy 4: Review Policy for Manure Management and Stabled or Confined Animal Nutrient Generation

Statement of Basis and Purpose

This policy shall apply to new facilities where animals are or will be stabled or confined and fed or maintained for a total of 45 days or more in any 12-month period ("Animal Facility") within the Bear Creek Watershed. It shall also apply to existing *Animal Facilities* that are enlarged, expanded, extended, increased, altered, or moved for any reason within the Bear Creek Watershed. If an existing *Animal Facility* discontinues use for any reason for a period of more than 12 consecutive months, the facility shall comply with this Policy.

Estimated Nutrient Loading Numbers Generated by Animal Manure Wastes

The Association will apply the estimated nutrient loading numbers from Table 1 when reviewing *Animal Facilities* involving manure and associated liquid waste stream management.

Table 1 Approximate quantity per 1000 lb animal equivalent per year and fertilizer nutrient composition of various types of animal manure at time applied to the land[1]

Type of livestock[3]	Bed vs. no bedding	Manure Tons	Dry matter	Total Nitrogen	Ammonia	Phosphorus	Potassium
			%	lb/ton of Manure			
Swine	w/bedding	6.1	18	8	5	3.08	5.81
	w/o bedding	6.1	18	10	6	3.96	6.64
Beef Cattle	w/bedding	2.6	50	21	8	3.52	21.58
	w/o bedding	2.5	52	21	7	1.76	19.09
Dairy Cattle	w/bedding	9.1	21	9	5	1.76	8.3
	w/o bedding	10.6	18	9	4	1.76	8.3
Sheep	w/bedding	6.5	28	14	5	3.96	20.75
	w/o bedding	6.5	28	18	5	4.84	21.58
Poultry	w/litter	4.4	75	56	36	19.8	28.22
	w/o litter	7.3	45	33	26	21.1	28.22
Poultry Deep Pit	(compost)	4.3	76	68	44	28.2	37.35
Turkey	w/litter	7.2	29	20	13	7.04	10.79
	w/o litter	9.5	22	27	17	8.8	14.11
Horses/ Mules/ Donkeys[2]	w/o bedding	8.2	21	12	2	2.8	7.5
	w/bedding	9.7	46	19	4	1.76	11.62

1 – Adapted from multiple sources. Colorado data was included where available. (See references)
2- Values for horses, but assumes other equines such as mules and donkeys
3- Data for other large domestic animals such as Lamas, Buffalo, Elk and Deer will be determined on a case-by-case basis

Manure Management References

J.G. Davis and A.M Swinker. 2004. Horse Manure Management. CSU Cooperative Extension Bulletin No. 1.219. Colorado State University.

Waskom and Davis. 1999. BMPs for manure management, Colorado State University Bulletin No. 568a.

D.F. Leikam and R.E. Lamond. 2003. Estimating Manure Nutrient Availability. Department of Agronomy Bulletin MF-2562. Kansas State University Agricultural Experiment Station and Cooperative Extension Service.

Saskatchewan Agriculture and Food. 1999. Nutrient Values of Manure. Farmfacts 5M ISSN 0840-9447 LON0299.

Natural Resources Conservation Service (NRCS) www.nrcs.usda.gov (This site has multiple listings on manure management, assessment tools (e.g., The Phosphorus Index) and manure characteristics)

Texas Animal Manure Management Issues (TAMMI) Website is an electronic informational clearinghouse, developed and designed with a mission to provide agricultural waste management education and information on demand. http://tammi.tamu.edu/

United States Department of Agriculture. Confined Animal and Manure Nutrient Data System - http://www.ers.usda.gov/

BCWA Policy Statement
The BCWA recognizes animal manure and associated liquid waste stream is a contributing factor in nonpoint source pollution within the Bear Creek Watershed.

1. The BCWA asserts that an *Animal Facility* or similar project (e.g., pasture, stables, corrals, manure storage site, and holding pens) can lead to an accumulation of manure that unmanaged can cause an excess of nutrients in site-specific locations over the long term, especially in areas with repeated applications.

2. Excessive loading of nutrients caused by manure accumulations can degrade surface and alluvial groundwater water quality and cause exceedances of water quality standards and risks to human health and the environment.

The BCWA supports the beneficial reuse of manure as a compost product when applied at acceptable agronomic rates.

Manure management strategies (solid waste and liquid waste stream) used in the Bear Creek Watershed should not increase the total annual load of total nitrogen or total phosphorus above ambient conditions where such waste can or potentially can reach surface waters in the watershed or within alluvial groundwater.

The BCWA expects Animal Facilities to store manure in a contained area and use appropriate management practices to prevent discharges into the waters of the watershed. If the Animal

Facility does not prefer to manage the waste product, then the BCWA expects the facility tol haul the manure out of the Bear Creek Watershed.

An Animal Facilities may secure a waiver from the Association to keep manure in the watershed for beneficial reuse provided the following three steps are met by the applicant:

1. Calculate the estimated annual wasteload based on 1,000 pound animal equivalents as per Table 1 for nutrients;

2. Identify best management practices and mitigation strategies to reduce nutrient contributions; and

3. Outline a monitoring and reporting plan that should prove the effectiveness of the proposed management strategy.

If monitoring or inspection indicates that manure or nutrients is not adequately retained or may be contributing nutrients into the watershed, the waiver will be revoked and the owners will be required to store and haul manure to an off-watershed location.