

SCOE NMP

TABLE 2. WATER BUDGET CALCULATIONS FOR WASTE MANAGEMENT SYSTEM

Water Use				
	Animal Type	gal/day/cow	gal/day	
	Lactating	110	264000	
	Dry/Springers	70	28000	
	Beef Cattle	0	14918	mix water
	Total		306918	
Manure Production				
	Animal Type	gal/day/cow	gal/day	
	Lactating	14	33540	
	Dry/Springers	14	5590	
	Beef Cattle	8	7459	20% to WSP
	Total		46589	
Stormwater to WSP Pond				
Source Area	Area (ac)	Avg Daily Rain* gal/day	24h-25y Storm** gal/day	ft ³ /day
Travel Lane	0.032	255	7472	998.976
Sand Lane and Pit	0.022	175	5137	686.796
Solids Separator Tank	0.09	717	21016	2809.62
Waste Storage Pond	0.7	5737	168128	22477
Total	0.9	6885	201753	26972
* Annual Wet Season Rain July to September (92days) = 27 inches				
** 24-hour 25-year storm event = 8.6 inches				
Volume for 3-Day Storage Requirement =				1,081,175 gallons
24-hour 25-year Storm Event Storage Requirement =				201,753 gallons
Total WSP Storage Requirement =				1,282,928 gallons
Available WSP Storage =				1,650,000 gallons

fields at agronomic rates. Approximately 40% of the phosphorus is removed in each of the solids separation steps. Less nitrogen (~20%) will be removed with the solids, so the majority will still be available for crop use through the effluent irrigation system.

The application rate in the sprayfields (in lbs/acre) will be determined based on the nutrient content analysis of the manure/bedding materials, estimated losses through the waste management system, the receiving field's limiting nutrient, and the nutrient uptake of the crop rotation in the field as outlined below. Records will be maintained on the amount of manure/bedding materials removed, nutrient contents, and application rates by field.

The estimated manure and bedding production rates per animal used in this assessment were taken from the NRCS Animal Waste Management Field Handbook and are provided in the Nutrient Management Section of this NMP. For the cattle barns there will be a significant amount of moisture loss (60%), solids shrinkage (20%), and nitrogen volatilization (10%) losses occurring in the barns prior to clean-out, which will be approximately once a week. About 50% of the P and 10% of the nitrogen is removed with the solids prior to entering the irrigation pond. The solids and their nutrients will be taken spread onsite at agronomic rates on the non-sprayfield pivots (before or after composting) or taken off site as marketable solids. The ultimate amount of nutrients available for crop uptake after delivery losses is also provided in Nutrient Management Section below.