Calculating Minimum Separation Distance (MSD)

The MSD calculation in Table D requires you to calculate the base distance (the value for "A" is found in Table D.2), expansion factor (the value for "B" is found in Table D.3), manure system factor (the value for "C" is found in Table D.4)) and the livestock or animal unit factor (the value for "D" is found in Table D.5).

TABLE D.1
Minimum Separation Distances (MSD)

	MSD (metres)
Nearest neighbouring dwelling	A x B x C x D
Residential, commercial or recreational areas	2 x A x B x C x D
Public buildings	3 x A x B x C x D

TABLE D.2

Base Distance as a Function of Number of Animal Units (A)

Animal Units	Base Distance (metres)
0 - 100	300
101 - 200	400
201 - 300	475
301 - 400	550
401 - 500	600
501 - 600	650
> 600	700

TABLE D.3

Expansion Factor as a Function of % Increase (B)

% Increase[1]	Expansion Factor
0 - 50	0.7
51 - 75	0.77
76 - 100	0.83
101 - 150	0.91
151 - 200	0.97
201 - 300	1.04
301 - 400	1.08
401 - 500	1.11
> 500	1.14
New Operations	1.16

(1) % increase = (proposed AU-present AU) ÷ present AU, then x 100.

TABLE D.4

Manure System Factor (C)

Manure System	Factor
Dry litter in-situ	0.7
Solid open manure pile	0.8
Semi-solid or liquid covered concrete tank	0.8
Semi-solid or liquid open concrete tank	0.9
Semi-solid or liquid uncovered earthen tank	1.0

TABLE D.5

Livestock Factor Based on Livestock & Housing Type (D)

Manure System	Type of Housing	Factor
Caged Layers	Manure stored in barn	1.0
Caged Layers	Manure removed daily	0.8
Chicken Breeder Layers		0.8
Chicken Broilers/Roasters		0.65
Pullets		0.7
Turkeys		0.7

For example:

(1) For an existing 5,000 layer operation with less than 50% expansion, semi-solid or liquid manure with an earthen manure storage where the manure is removed daily:

5,000 layers ÷ 144 (from Table D.6) = 35 animal units

MSD to nearest neighbouring dwelling = **300** (Table D.2, base distance for 0-100 animal units) x **0.7** (expansion factor of less than one-half of 5,000 [35 AUs], or 17, which falls within the 0-50 category as shown in Table D.3) x **1.0** (manure system factor in Table D.4) x **0.8** (livestock factor in Table D.5) = **168 metres**

(2) For a new operation using the above example:

MSD to nearest neighbouring dwelling = **300** (Table D.2, base distance for 0-100 animal units) x **1.16** (expansion factor for new operations as shown in Table D.3) x **1.0** (manure system factor in Table D.4) x **0.8** (livestock factor in Table D.5) = **278 metres**

TABLE D.6

Animal Units (AU): Number of Animals Required to Produce the Nitrogen to Fertilize 0.4 Hectares
(One Acre) of Hay

Animal Type	Animals/Ac (@110 kg N/ha or 44 kg/ac)
Layers	144
Broilers	240
Pullets	505
Roasters	141
Broiler Breeders	68
Replacement Broiler Breeders	166
Turkey Broilers	159
Heavy Hens	122
Heavy Toms	61