APPENDIX E

Nitrogen Losses From Manure Storages And Dangerous Gas Production

Nitrogen Loss Summary (Percent Loss)

System	Storage[1]	N loss (%)[2]
Liquid	Enclosed	10 – 20
	Open	10 – 30
	Earthen	30 – 50
Solid	Daily Scrape	15 – 35
	Manure Pack	20 – 40
	Open Lot	40 – 60

[1] Losses can vary widely depending on climatic and management factors. The values in this table are based on typical practices.

[2] Nitrogen losses after fall applications will be approximately 20 per cent greater than spring or summer applications.

Characteristics Of Dangerous Manure Gases

Gas	Symbol	Density	Odour	Concentration (ppm)[2]		
				TLV-TWA[1]	Effect on Humans	
Hydrogen Sulphide	H_2S	1.19	Rotten Eggs, Nauseating	10	5 150 700	Offensive odour Olfactory paralysis, death in 30 minutes Rapidly fatal
Carbon Dioxide	CO_2	1.53	None	5000	30,000 40,000 300,000	Increased breathing rate Drowsiness, headache May be fatal in 30 min.
Ammonia	NH_3	0.60	Sharp, Pungent	25	100-500 5,000	Irritation of eyes, nose and throat in 30 min. Respiratory spasm, may be fatal
Methane	CH_4	0.55	None		500,000	Could asphyxiate by displacement of oxygen

[1] TLV-TWA (Threshold Limit Value, Time-weighted Average), the concentration under which nearly all workers may be repeatedly exposed for an eight-hour work-day and 40-hour work week without apparent adverse effects. Established by the American Conference of Government Industrial Hygienists, P.O. Box 1937, Cincinnati, OH 45201, U.S.

[2] ppm (parts per million) of a gas in atmospheric air; to convert to percentage by volume, divide ppm by 10000.

Source: Canada Plan Service Plan M-10710 Manure Gas