



University of Regina

**Development of A Digitized Odour
Control System for Hog Barns
(Interim Report)**

**Faculty of Engineering
Research Report**



DR. G. H. HUANG
UNIVERSITY OF REGINA
Faculty of Engineering
Regina, Saskatchewan
CANADA S4S 0A2

Development of A Digitized Odour
Control System for Hog Barns
(Interim Report)

Prepared by

M. Lakustiak
Faculty of Engineering, University of Regina

E. Jansson
Jansson Consulting Services Inc.

G.H. Huang and G. A. Fuller
Faculty of Engineering, University of Regina

Prepared for

Drs. Nur Gurak and Brian Kybett
NRC/IRAP Youth Initiative Strategy

January 1999

CONTENTS

1. Introduction	1
2. Delineation of Odour Producing Chemicals	2
(1) Hydrogen Sulfide and Ammonia	2
(2) Suspended Particulate Matter	3
(3) Carbon Dioxide	3
(4) Other Contaminants	3
3. Development of Odour Analysis Equipment	3
4. Conceptual Design of A Digitized Odour Control System for Hog Barns	3
(1) Sample Collection	3
(2) Analysis	5
(3) Experiment Setting	5
(a) Abatement of On-Site Contamination	5
(b) Scaled Model	6
5. Odour Control for Manure Effluent	6
(1) Lagoons	6
(2) Snowfluent	7
(3) Composting	7
(4) Solids/Liquids Separation	8
(5) Anaerobic Digesters and Methane Gas	8
(6) Microbial Additives	9
(7) Refeeding	9
(8) Biofilters	10
(9) Oligolysis	10
6. Summary	11
References	12