Agriculture Canada
Research Branch

Report I - 673

November 1984

A FARM SCALE ANAEROBIC DIGESTER PHASE 1. CONSTRUCTION START UP AND OPERATION

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surface of the liquid and various solids in the manure can settle to the bottom of the digester. The scum layer prevents gas from escaping and solids can block the mixing apparatus causing it to fail.

Safety standards at the digester site should be maintained at a high level. Because the biogas is both toxic and explosive, extreme care should be taken when working in areas exposed to possible accumulations of biogas. No smoking signs should be prominent and displayed in all areas. Explosion proof switches, fixtures, and motors, should be installed in any area where biogas can possibly collect. Safety standards for utilization of digester gas such as CGAB105 and B149 are available from the Canadian Gas Association and should be reviewed and followed where applicable.

The digester site itself should be well maintained. Ditches, uncut grass, wood planks and scrap steel all present safety hazards of one form or another, thus good housekeeping is essential. Corrosion of various components at the digester site was common. Special attention should be paid to the choice of materials used for specific applications where exposure to the biogas is common. P.V.C. and polycarbonate materials should be used where possible. To avoid corrosion any instrumentation or controllers should be housed away from any source of biogas contamination.
These recommendations can only serve as guidelines to aid in the construction and operation of a farm scale digester.

7.0 CONCLUSIONS

The digester operation at Millbrook, Ontario provided Agriculture Canada through its contractor with "hands on" experience in the construction, maintenance and operation of a farm scale anaerobic digester. Total expenditures to install the digester and bring it into operation were $16,385. A breakdown of these expenses is outlined in Table 2.

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