

Manure Spills in Ontario

**ACTUAL
CASE FILES**

Inside: Actual Cases (the events are real)

- ▶ lack of storage capacity
- ▶ over application of manure
- ▶ faulty storage construction
- ▶ equipment failure

As you read these cases, ask yourself :

- ▶ Was the manure spill an accident?
- ▶ What could have been done to prevent this spill from happening?
- ▶ Could this happen on my farm?
- ▶ Do I have a contingency plan if a spill occurs?

The manure spill cases are taken from the Ministry of the Environment's 'Occurrence Reports' which are on public record.

...Lack of Storage Capacity

Background:

- The farm's liquid manure storage lagoon was overflowing into a field.
- An irrigation gun was used to apply liquid manure on a level field of wheat stubble.
- The application was carried out at night in November, following several days of rain and snow.
- The application rate was reported to be 7200 gal/acre but was likely higher.

Result:

- Manure from the overflowing storage lagoon entered a nearby field tile system which drained into a closed municipal drain that crossed the property, and then into an open channel on a neighbour's farm.
- Liquid manure entered the closed municipal drain *via* a tile blowout and open catch basins, eventually contaminating two in-stream ponds in the open channel on the neighbour's farm.

Response:

- Ministry of the Environment and Township officials were informed and investigated the following day.
- Water samples were taken identifying the source of the manure contamination.
- Charges were laid and successfully prosecuted under the Ontario Water Resources Act.

Action:

- The open channel was temporarily dammed to prevent further movement of manure downstream.
- A contractor was called and contaminated water was pumped from the channel onto an adjacent field under supervision of Township and Ministry officials.
- The farmer was convicted and fined.



How Could This Spill Have Been Avoided?

- Ensure adequate manure storage to allow flexibility in application due to weather.
- Do not apply liquid manure when the soil is already saturated from rain and snow.
- Inspect fields prior to manure application to ensure tile blowouts are repaired.
- Take time to monitor tiles for contamination.
- Have a plan in place to deal with any problem that may occur as a result of application.
- If problems occur inform the Ministry of the Environment at the...

SPILLS ACTION CENTRE 1-800-268-6060.

Ensure adequate storage.



...Over Application of Liquid Manure

Background:

- Excessive amounts of liquid manure were applied with an irrigation gun on a level untilled field.

Result:

- Manure leached down into the systematic tile system and drained to the open municipal drainage ditch.
- The water quality was impaired downstream in the municipal drain and watercourse.
- The farmer observed discoloured water and foam being discharged from the field tile into the open drain.

Response:

- The Ministry of the Environment responded to an anonymous call.
- Water samples were taken identifying the source of contamination.
- Discoloured water and foam were observed discharging from the field tile outlet into the drain.
- Charges were subsequently laid under the Ontario Water Resources Act.

Action:

- No action was taken by the farmer.
- The farmer was convicted and fined.



How Could This Spill Have Been Avoided?

- Delay manure application until field tiles stop flowing.
- Consider a split application.
- Till the soil prior to application to break-up the macropore pathways that can carry the manure to field tiles.
- Develop a **Nutrient Management Plan** to help outline the timing of manure applications to maximize nutrient utilization and minimize nutrient loss.
- Observe tile outlets during application.
- If problems develop, STOP APPLICATION, plug the tile outlet and contact the...

SPILLS ACTION CENTRE 1-800-268-6060.

Strive for uniform application.



...Faulty Storage Construction

Background:

- Prior to construction of a new earthen manure storage facility, the contractor cut a trench through the centre of the lagoon site to intercept any field tiles. One tile was missed and remained connected to the existing drainage tile system.

Result:

- Manure from the storage facility leaked into the 'missed' tile, through the subsurface tile system and into the open municipal drain.
- A large fish kill was reported in the drain.

Response:

- The Ministry of the Environment investigated and found a field tile outlet discharging manure at a rate of 1 gallon per minute into the open drain.
- Charges were laid under the Ontario Water Resources Act.

Action:

- The contractor was charged and ordered by the court to provide 24 hours excavator time plus material costs up to \$2,000 to improve habitat in and along the channel where the spill occurred.
- The work was completed and a report provided to the court before the case was closed.
- The landowner installed special catch basins on the tile outlets to allow for observation of tile discharge during manure application.
- Riser pipe style shut off valves were installed on the downstream side of the catch basins to use as a contingency in case contamination occurred.
- The contractor took a course on how to properly trench earthen lagoons around the lagoon's outside perimeter rather than through the centre.



How Could This Spill Have Been Avoided?

- Before constructing a manure storage facility, dig a trench 10' from the planned top perimeter wall to intercept and disconnect all existing field tiles as well as to divert any water running off from up the slope around the outside of the storage facility.
- Monitor the level of manure in storage for unusual fluctuations.

Take proper care in construction of all types of manure storage facilities.



...Equipment Failure

Background:

- An irrigation pipeline was laid out over a bridge to reach a field for the application of liquid manure.
- When the pump was turned on, a section of pipe over the bridge disconnected.
- The farmer wired the pipes back together then continued the manure application.
- Some attempt was made to scoop up the manure pooled near the breakage.
- The farmer notified the Ministry of the Environment two days after the event occurred.

Result:

- Manure leaked from the separated pipes and flowed down the stream bank into the creek.
- Fish were killed in the creek downstream of the spill.

Response:

- Ministry investigators confirmed the spill had caused the fish kill in the creek.
- Charges were laid under the Water Resources Act citing lack of 'due diligence' and 'failure to notify' the Spills Action Centre.

Action:

- No further action was taken by the farmer.
- The farmer was convicted and fined.

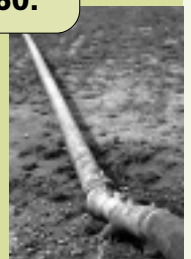


How Could This Spill Have Been Avoided?

- Use a section of flexible pipe to carry manure over bridges.
- Monitor the pipeline during application.
- Be prepared to shut down immediately if a problem develops by having manpower and radios on hand.
- Notify the...

SPILLS ACTION CENTRE 1-800-268-6060.

Ensure proper connections for pipes.





- Based on the manure spill information collected from the Spills Action Centre, mismanagement of liquid manure is the reason for nearly all of the manure spills in Ontario. Many of these spills result in fish kills and degraded water quality.
- These case studies were produced as part of the ongoing effort of the P3 Working Group to encourage farmers to think about the implications of inappropriate manure management practices.
- The Working Group is dedicated to helping farmers identify the best method to apply manure on the land when the crop can best utilize the nutrients.

To receive a copy of either of the two previous brochures, entitled *Manure: Farming and Healthy Fish Habitat*, and *Manure: Farming and Healthy Fish Habitat (issue 2)*, contact the P3 Working Group member organizations listed here or the Working Group Secretariat at the Upper Thames River Conservation Authority, (519) 451-2800 ext. 235.

Look for our upcoming brochure on 'Contingency Planning' due out in the fall of 1998.

PROTECTING OUR STREAMS IS A SHARED RESPONSIBILITY.

Livestock Manure Pollution Prevention Project Working Group Members

Agriculture and Agri-Food Canada
Christian Farmers Federation of Ontario
County of Huron Planning & Development
Dairy Farmers of Ontario
Department of Fisheries and Oceans
Environment Canada
Ministry of Agriculture, Food and Rural Affairs
Ministry of the Environment
Ministry of Natural Resources
National Agriculture Environment Committee
Ontario Cattlemen's Association
Ontario Federation of Agriculture
Ontario Pork
Ontario Soil and Crop Improvement Association
Ontario Farm Environmental Coalition
University of Guelph

