# APPENDIX B

Stakeholder Workshop

# 1. Meeting Notice

# MEETING NOTICE

WATER ENVIRONMENT ASSOCIATION OF ONTARIO
SEWAGE BIOSOLIDS STUDY

STAKEHOLDER WORKSHOP ON SEWAGE BIOSOLIDS CONTAMINANTS

Wednesday December 1, 1999
Black Creek Pioneer Village (Victoria Room) – **NEW LOCATION**

*The purpose of the project is to identify knowledge gaps from a scientific basis and develop a program of scientific research to fill those gaps, ensuring that biosolids application to agricultural land continues to be safe for human health, the environment and soil quality. The workshop will therefore focus on the science and not on the regulatory aspects. At the end of the workshop we hope to have identified, and perhaps reached a consensus on those contaminants which are of most concern for the future. This input will be useful to the project team as the literature search is completed and the program of future research is developed. We will be involving the Stakeholders again, when the draft research program is ready for review.*

The workshop will start at 8.30am and finish at 5.00pm. There will be two coffee breaks, and lunch will be served. Please let me know if you have any special dietary requirements.

The workshop agenda will include:

- presentation and discussion of stakeholder survey results
- presentation and discussion of outside-Ontario-expert input
- presentation and discussion of risk assessment
- comment from invited experts
- facilitated discussion groups
- search for consensus

A detailed agenda will be provided at the meeting.

We have had an excellent response to our survey and are expecting at least 40 participants at the Workshop. It promises to be a very interesting opportunity to discuss biosolids issues with other stakeholders. Please let me know (by November 25, 1999) how many will be attending from your organization. Please provide names of attendees.

*****RSVP***** to Tony Ho at email hoto@ene.gov.on.ca, or Fax (416) 235 6059

Organization: _____

Name(s) of Attendees: _____

Special Dietary Requirements:

_____

**Directions to the Black Creek Pioneer Village**

The Village is on the south side of Steeles Avenue, between Jane Street and Keele Street (York University is to the east of the Village)

From Hwy 400 (Northbound) take Steeles exit; turn left onto Steeles (east), past Jane and look for sign on the south side.

From Hwy 400 (Southbound) take Hwy 7 exit; East on Hwy 7 to Jane (about 3 lights from exit); turn right (south) on Jane to Steeles; turn left (east) on Steeles and look for sign.

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# 2. Stakeholder Workshop Agenda

WATER ENVIRONMENT ASSOCIATION OF ONTARIO
Sewage Biosolids Study

WORKSHOP ON POLLUTANTS FOR FURTHER STUDY
Wednesday December 1, 1999
Black Creek Village

AGENDA

| | | |
|---|---|---|
| Introduction | Steve McMinn | 8.30 am |
| General Project Description | Tony Ho | 8.35 |
| Goal of this Workshop | Steve McMinn | 8.45 |
| Presentation and Discussion of Survey Results | Mel Webber | 8.55 |
| Coffee break | | 10.00 |
| Presentation and Discussion of Outside-Ontario Expert Input | Mel Webber | 10.15 |
| Presentation and Discussion of Risk Assessment Procedures | Doug Chambers | 11.00 |
| Lunch | | 11.45 |
| Summary of Morning Session | Steve McMinn | 1.00 |
| Facilitated Discussion Groups | | 1.15 |
| Coffee Break | | 2.45 |
| Groups Report Back | | 3.00 |
| General Discussion | | 3.30 |
| Consensus for Further Study | | 4.30 |
| Adjourn | | 4.30 p. m. |

# 3. Stakeholder Workshop Notes

**WATER ENVIRONMENT ASSOCIATION OF ONTARIO**

Study

**SEWAGE BIOSOLIDS STAKEHOLDER WORKSHOP**
Wednesday December 1, 1999
Black Creek Village

**Objectives of the Study** (Tony Ho)

1. To identify knowledge gaps
2. To identify the issues
3. To identify how current guidelines need adjusting

**Goals of the Workshop** (Steve McMinn)

1. to identify knowledge gaps
2. to share information with stakeholders
3. to hear expert input on biosolids

**Summary Presentation on Stakeholder Survey Results** (Mel Webber)

1. **Inside Ontario** - Responses during the presentation:

- Oregon State publication, "Manual of Good Practices" , excellent reference (Jack Bryden)
- Liquid waste applied to tiled land where flow is very quick.- research required (GRCA)
- SAR = Standard Approval Regulation
- Need for shared liability of land owner (farmer) and regulatory body if long term problems arise
- Note that NGO's did not respond to questionnaire - they will continue to receive communications and their participation will be invited again along the way
- Why were lower tier (rural) municipalities not invited to participate? (Hard to identify. Contact ROMA - Rural Organization of Municipalities of Ontario - part of AMO

2. **"Outside Ontario Experts"** - Responses during the presentation:

- What does the sampling methodology for different 'retail product' biosolids mean?
- Much interest shown in the U.K.'s "Safe Sludge Matrix": who's is it, how does it compare to Ontario? More background information about it? Participants want copy.**
- Comment by Jane Forste: Personal experience re: use of biosolids on marginal land producing dramatically better crops, where biosolids were actually helping to create a new top soil.
- Comment by Jack Bryden: 'limited public access' can be defined as 'difficult to access' e.g. mountain slopes.
- Long discussion around 'limited public access' re: does this properly include farm land.. Maureen Reilly asks MEAO to be *mindful* of farm family proximity: children and vulnerable people, not trained to work in pathogenic environments as sludge plant workers are, but who are exposed 24 hours a day. Animal health was also mentioned - concerns about ingesting biosolids.

- Jane Forste noted an older (mid-1980s) but pertinent American epidemiological study of farm families tested for illness who lived on farms where sludge had been applied ten or twenty years, compared with families where no sludges applied. No adverse health effects of sludge application were identified.
- Maureen Reilly asked about new E.U. data on standards re: metals, and for (other data ???) Steve McMinn had them with him and offered to post them during the lunch break

**Presentation on Risk Assessment for Sludge Management** (Doug Chambers)

Acceptable public risk is "hugely subjective" - requires a societal decision

Maureen Reilly argued Chamber's risk assessment model for PCBs unrealistic because it considered biosolids treated soil as the only source and ignored milk, vegetables, etc.

Chambers emphasized that biosolids management can't be "no risk". Also, biosolids only one factor in overall health risk assessment.

Responses to presentation

- nowadays almost no environmental activity can go on without public information and input (NGOs)
- Comment by Maureen Reilly: "no net degradation" is the Canadian standard, so why is this assembly talking about "risk management"? (Corrected to mean Ontario standard) Jack Bryden responded that here is an area in which there is fundamental difference between USA and CAN. - According to 503, elevations of metals does not constitute risk.
- It is a fact that biosolids are produced. Risk assessment asks the questions, Can it be used profitably? Can it be used without significant risk? Can managers get the public on side to support the uses of it?

**Comments by Jane Forste**, Biosolids Expert from Maryland USA

- Mel's survey materials provide excellent data from which to do careful planning
- They clearly indicate a need for a) social science research, and b) hard scientific research in order to make the best use of limited financial resources.
- Dangers to watch out for: inflammatory news coverage which leads to misinformation and even disinformation in the general public.
- Two different perspectives must be acknowledged and taken into account: a) Scientific perspective (e.g. risk assessment) and b) philosophical perspective. Good two way communication is essential to ensure these work together rather than against each other
- Rather than each dismissing the other's point of view, they must *listen* and *learn* from one another
- Scientists sometimes fail to listen and speak to other stakeholders
- Philosophers need to listen to scientific experts e.g:
- Ohio Study (Jane will provide copy**), and
- "503" which is on a user friendly CD ROM (Jane will send one to Steve McMinn**), and
- EPA Office of Water publication "Biosolids Recycling…" #832-R-94-009 - available, user friendly and excellent content.

**Comments by Jack Bryden**, Biosolids Expert from British Columbia

- recent trend away from landfill and incineration of sludges to land application
- on the west coast there is much information sharing going on between U.S. and Can.
- this doesn't seem to be happening in eastern Canada, even among the provinces
- there is a legal difference: in the U.S. environment is a federal responsibility, in Canada it falls under provincial jurisdiction
- Americans all refer to "503", whereas reference in Canada is fractured
- B.C. has experienced pathogen problems and there is now strong pressure to use pasteurized sludge on agricultural land. Biosolids are also being composted, but there is also a problem of groundwater pollution by nitrates. Municipalities are being encouraged to develop products in which N is less available, and as a result, there is not much going on with pelletization
- Toronto's arrangement to pay contractors to haul pellets could lead to dumping, vs. B.C. arrangement to treat sludge to the Tertiary stage and sell it as a product. At $\$17/m^3$ no one is inclined to over spread or dump

**Comments by Ed Topp,** Biosolids Expert from London Ontario

Agriculture Canada's current biosolids research has focussed on animal waste studies (which are comparable to but different from human waste issues):

1. Studies on animal waste:
    - Persistent pollutants
    - Antibiotics
    - Hormones (e.g. estrogenic hormones making their way into streams, causing feminization of fish

2. Studies on use of lime-stabilized sewage biosolids:
    - use as a benign replacement for agricultural lime products

3. Studies on endocrine disruptors:
    - rapidity of the breakdown (they appear to be very labile in aerobic conditions and stable in anaerobic conditions

        (Concern about phosphorous mentioned here)

**Discussion Group Reports:**

**Group 1 Concerns**: (Reporter - Doug Chambers)

(Notes below taken by Pat Webber during the group discussion)

- Farmer liability issues. E.g. assurance that haulers are not hauling toxic wastes today and biosolids to my farm tomorrow, for which I, the farmer, could be held liable at some later date
- Issues of trust/communications: people generally are suspicious but willing to listen. E.g. SAR may be great for the ministry, but problematic for the farmer (consistency)
- Monitoring and enforcing issues all down the line
- Study needs to be done, especially re: pathogens, on tiled land (60% of prime agricultural land in ON is tiled
- After treatment and application of biosolids to land, what is left that is going into the stream? (standards)
- Ontario regulatory issues are generally well administered, but there is the occasional "bad actor"
- Regulations need to be sound. Don't waste time reviewing them unless we are prepared to change them
- Current guidelines only mention pathogens once. Pathogens definitely need more study. E.g. Application of the 5 year limit all in one year is very risky re: pathogen/tiled land situation. But from the farmer's point of view it is more feasible financially and for soil compaction problems. So could consider the value of reducing the application amounts allowable per year, and maybe even increase the total allowable
- Management practices need review. E.g. water content in sludge is a problem and over the next few years it will need to be reduced
- Scientific concerns: Which Contaminants? Sources? Background Levels? Safe levels? These require first a literature search, then risk assessments, then management
- Question raised about how constant were analyses from biosolids. Because of holding time (6 months) periodic variations in sludges are evened out. (Mark from City of Toronto had graphs on overheads that were quite useful to demonstrate that analyses were fairly constant. Graphs were found very helpful, and people would appreciate having copies.)
- Revision of the current guidelines (written in 1960's? and up-dated in 1996) did not change the figures for pathogens, hormones, endocrine disrupters, etc.
- Noted that public perceptions/fears of contaminated land drives farmers' decisions re: biosolids
- Concern about N availability as well as amounts in biosolids - fear of mineralization and water contamination
- Noted that communications from scientific community to the farming community currently flows through the haulers (or the municipality's employees or hired consultants). Haulers provide farmers with record sheets re: what has been applied (N, P, etc) and amounts. What more does the farmer need to know, and how does s/he get that information? Farmers need user friendly summaries of scientific research information (with reference to web-sites for more detailed info) to tell them what these applications will do to/for the land and crops.
- Study mentioned re: comparison of effects of applications of sludges to fields over twenty years, ten years and no years - results showed conservative approach of ON applications guidelines, but did not address pathogens etc.
- Many stake holders are not scientifically educated ('good high school kids') and need basic information about what is a pathogen , a virus. What are the concerns? Are they in sludge? What is the concern if they are? What needs to be done re: the concerns?
- If research is done first and communicated clearly to farmers, it may allay their fears about liability

- There has already been good work done and conclusions derived. Do we need to go further?

Summary:

INFORMATION
- What's already known?
- What's not known?
- What needs to be known?

TWO WAY COMMUNICATION
- Scientific community
- Stakeholders

REGULATION
- Complete, current, appropriate guidelines
- Monitoring
- Regulation

**Group 2 Concerns** (Reporter - Mel Webber)

- pathogens - consensus that no need for advanced treatment (e.g., pasteurization) of biosolids applied to "limited public access" land
- pellets - what is effect of pelletization and other advanced treatments on biosolids constituents e.g., nitrogen, trace organics, etc?
- pharmaceuticals - information needed
- nonylphenols - not a problem in soil
- other endocrine disrupters - information needed
- organic contaminants - review literature, assess available information and need for more information
- SARS (typical Ontario down-loading of responsibility and costs to municipal level)

**Group 3 Concerns** (Reporter - Tony Ho)

- knowledge gaps
- applications/guidelines/data

**Group 4 Concerns** (Reporter - Maureen Reilly)

- policy, planning, procedures, finance
- dioxins reduction - related to source
- phenols
- brominated flame retardents (Sweden)
- path of heavy metals beyond the farm (only mercury is known)
- PCBs
- endocrine disrupters
- pharmaceuticals
- phosphorous
- pesticides
- health effects (on-site/off site) of pathogens, parasites

- contaminants (whole grocery basket - what's in there now?  What is impact of land application of biosolids - cumulative effect?)
- bioaerosols
- fungus
- funding could be created by having sludge generators contribute monies voluntarily, according to their level of production, to be used for research