

EX. 80

IN THE MATTER OF
AN APPLICATION BY
THE REGIONAL MUNICIPALITY OF HALTON
FOR THE CONTINUED USE OF
THE BURLINGTON LANDFILL SITE

WITNESS STATEMENT

OF

Gerald A.V. Rees
Manager
Trace Organics Section
Laboratory Services & Applied Research Branch
Ministry of the Environment

C U R R I C U L U M V I T A E

Gerald A.V. Rees

I. EDUCATION

Honours B.Sc. Chemistry, 1965
University of St. Andrews
Scotland, U.K.

II. EMPLOYMENT EXPERIENCE1. Ministry of the Environment

Position: Manager
Trace Organics Section
Laboratory Services & Applied Research Branch
1983 - Present

Job Function:

- Managerial responsibility for 20 professional and technical staff.
- Responsible for all regular environmental monitoring programs for trace organics in wastes, soils and biota, as well as specialized development for landfill and hazardous waste investigations and airborne emissions analysis.
- Development of complex analytical techniques for detecting and quantitating organic pollutants.
- Chairman of Ministry committees in analytical research grants, new directions and requirements in organics analysis, new air monitoring methods for organics, specialized data interpretation and validation.
- Member of the Ministry's Site Support Team.

2. Ministry of the Environment

Position: Manager
Pesticides Section
Laboratory Services & Applied Research Branch
1976 - 1983

Job Function:

- Manage and provide scientific expertise for the operation of the section.

3. Ministry of the Environment

Position: Supervisor
Pesticides Unit
Organic Trace Contaminants Section
1973 - 1976

Job Function:

- Supervise and provide method development for Pesticide Unit.

4. O.W.R.C./ M.O.E.

Position: Scientist-in-charge
Chromatography Laboratory

Job Function:

- Develop methods for and analyze environmental samples for pesticides and PCB residues.

5. Ontario Water Resources Commission

Position: Scientist
1966 - 1970

Job Function:

- Analysis of pesticides and other organic pollutants.

6. British Petroleum Co.

Position: Analytical Chemist

Job Function:

- Analytical in-lab research
- Supervision of refining plant operations
- Monitoring and Supervision of pollution control systems

WITNESS STATEMENT

RE: Application for Continued Use
Burlington Landfill Site

NAME: Gerald A.V. Rees
Ministry of the Environment
Laboratory Services & Applied Research Branch

LIST OF DOCUMENTS REVIEWED

1. Application for Continued Use Section Q

EVIDENCE

1. Comments on Section Q

The available data on trace organics is limited. Several different analytical methodologies were used to obtain the data. Samples analysed were also taken on different dates, when variations in flow rates may have accounted for considerable variations in the range of compounds detected, as well as the concentrations which were present.

It would be difficult to draw sound conclusions on the average and "worst case" situations based on this limited and incompatible data. I would suggest that an ongoing, non-GC/MS organics monitoring program be drawn up after a more comprehensive characterization, (using GC/MS), of the range of compounds of concern which are present. Target compounds for the monitoring program would be identified by this characterization program.

2. Analysis of Four Surface Water Samples

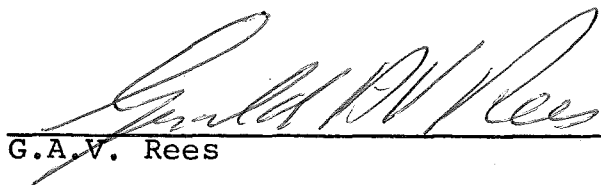
- a) Four samples were received at the Ministry Lab and analyzed for trace metals and by GC/MS for volatiles and extractibles (base/neutrals, acidics).
- b) Levels of trace metals were generally lower than those reported for leachate and comparable, or lower than levels found in the boreholes.
- c) GC/MS volatiles analysis showed virtually no volatiles in the chemical classes reported for boreholes and manholes in Table 1 of Section Q. Trace levels of chloroform, aromatic solvents and chlorinated benzenes in the 1 to 2 ppb range were the only comparable results. A range of volatile oxygenated compounds, (mostly in the 1 to 5 ppb range), were detected in all samples. These compounds are typical of leachate components from a landfill receiving municipal garbage, with some components used in varnishes, plastics or household solvents. These compounds are easily

biodegradable, and not considered a significant problem in leachate, especially at these low levels.

- d) Household and municipal garbage appears to be the main potential source for the extractible organics. No persistent or toxic chlorinated species were present. Hydrocarbons, alcohols, aldehydes, ketones, acids, terpenes and esters are all commonly derived from household refuse, either directly, or due to biological breakdown. Further biodegradation of these compounds can be expected. Levels are typical of those from municipal landfills.
- e) The identity and concentrations of these classes of compounds compare with those listed in the consultants report as detected by Wellington E.C. (Q58 onwards) for manhole samples. In contract to the Wellington manhole data, these 4 surface samples showed no evidence of polynuclear aromatic hydrocarbons (PAH's) or phenolic compounds (except for STA 503 - cresol at 4 ppb). It should be noted that MOE GC/MS of previous samples from the manhole, also did not detect PAH's.
- f) In general, contaminant levels in these samples as determined by the requested analysis would appear to be lower than previous leachate and manhole samples, and equivalent or lower than that from boreholes, where comparable data is available.

3. I will attend before the Environmental Assessment Board and be subject to examination and cross-examination on this Witness Statement.

DATED this 23rd day of May, 1984.


G.A.V. Rees