Appendix H

Air Technical Session Summary Report
Waste Management of Canada Corporation

Air Technical Session – Summary Report

Prepared by:
AECOM
302 - 1150 Morrison Drive 613 820 8282 tel
Ottawa, Ontario K2H 8S9 613 820 8338 fax
www.aecom.com

Project Number:
60116860

Date:
December, 2011
Statement of Qualifications and Limitations

The attached Report (the "Report") has been prepared by AECOM Canada Ltd. ("Consultant") for the benefit of the client ("Client") in accordance with the agreement between Consultant and Client, including the scope of work detailed therein (the "Agreement").

The information, data, recommendations and conclusions contained in the Report (collectively, the "Information"):

- is subject to the scope, schedule, and other constraints and limitations in the Agreement and the qualifications contained in the Report (the "Limitations")
- represents Consultant's professional judgement in light of the Limitations and industry standards for the preparation of similar reports
- may be based on information provided to Consultant which has not been independently verified
- has not been updated since the date of issuance of the Report and its accuracy is limited to the time period and circumstances in which it was collected, processed, made or issued
- must be read as a whole and sections thereof should not be read out of such context
- was prepared for the specific purposes described in the Report and the Agreement
- in the case of subsurface, environmental or geotechnical conditions, may be based on limited testing and on the assumption that such conditions are uniform and not variable either geographically or over time

Consultant shall be entitled to rely upon theaccuracy and completeness of information that was provided to it and has no obligation to update such information. Consultant accepts no responsibility for any events or circumstances that may have occurred since the date on which the Report was prepared and, in the case of subsurface, environmental or geotechnical conditions, is not responsible for any variability in such conditions, geographically or over time.

Consultant agrees that the Report represents its professional judgement as described above and that the Information has been prepared for the specific purpose and use described in the Report and the Agreement, but Consultant makes no other representations, or any guarantees or warranties whatsoever, whether express or implied, with respect to the Report, the Information or any part thereof.

The Report is to be treated as confidential and may not be used or relied upon by third parties, except:

- as agreed in writing by Consultant and Client
- as required by law
- for use by governmental reviewing agencies

Consultant accepts no responsibility, and denies any liability whatsoever, to parties other than Client who may obtain access to the Report or the Information for any injury, loss or damage suffered by such parties arising from their use of, reliance upon, or decisions or actions based on the Report or any of the Information ("improper use of the Report"), except to the extent those parties have obtained the prior written consent of Consultant to use and rely upon the Report and the Information. Any damages arising from improper use of the Report or parts thereof shall be borne by the party making such use.

This Statement of Qualifications and Limitations is attached to and forms part of the Report and any use of the Report is subject to the terms hereof.
# Table of Contents

Statement of Qualifications and Limitations

1. **Introduction** .................................................................................................................................. 1  
   1.1 Objective of the Technical Session ........................................................................................... 1  
   1.2 Date, Time and Location of the Air Technical Session .............................................................. 1  
2. **Notification of Air Technical Session** ......................................................................................... 2  
3. **Project Team Members in Attendance** ........................................................................................ 2  
4. **Information Presented** ................................................................................................................. 2  
5. **Session Attendance** ..................................................................................................................... 3  
6. **Questions and Answers** ............................................................................................................... 3

## Appendices

Appendix A. Notification of Air Technical Session  
Appendix B. Air Technical Session Presentation Slides  
Appendix C. Record of Questions and Answers from the Air Technical Session
1. Introduction

Waste Management of Canada Corporation (WM), owners and operators of the existing Ottawa Waste Management Facility (Ottawa WMF), have initiated an Environmental Assessment (EA) seeking approval for a new landfill footprint at the existing Ottawa WMF. The new landfill footprint will be one component of the proposed West Carleton Environmental Centre (WCEC). The proposed WCEC will be an integrated waste management facility that will include:

- Waste diversion and recycling operations;
- Composting operations;
- Renewable energy facilities;
- Recreational lands for community uses; and,
- A new landfill footprint for disposal of residual waste materials.

Public and external agency consultation is a key component of EA’s and as such, has been incorporated into this process. A Notice of Commencement for the EA of this project, inviting initial input, was issued on January 5, 2011. The first round of Public Open Houses for the EA was held in January 2011 and the first round of Workshops for the EA in February 2011. The second round of Public Open Houses ran from March 29-31 and April 7, 2011 and the second round of Workshops took place on April 28 and May 5, 2011. The third round of Open Houses sessions were held November 8-10, 2011.

A provision was made in the Terms of Reference (ToR) to hold “special Technical Sessions” on specific topics to provide more in-depth information on a particular topic, if required. At the request of the community, Technical Sessions on the topics of Air, Groundwater, and Property Value Protection have been arranged. This Report provides a summary of the Air Technical Session held on November 16, 2011.

1.1 Objective of the Technical Session

The main objective of the Air Technical Session was to provide interested stakeholders with the fundamentals of air quality in relation to landfills and to allow for a more fulsome understanding of EA materials from a technical perspective. The Air Technical Session also provided an outline of the process going forward and detailed how the components that make up the atmospheric environment will be addressed in the EA and managed at the WCEC.

1.2 Date, Time and Location of the Air Technical Session

The Air Technical Session was held at the WM Offices at 254 Westbrook Road, Ottawa on November 16, 2011, from 7 p.m. until 9:00 p.m.

The session followed a presentation and question and answer format, with the air consultant from RWDI Inc. beginning by outlining the atmospheric components of the landfill, the issues relating to these components, and the modelling and monitoring of them. This was followed by WM's atmospheric expert describing the gas management program at the Ottawa WMF and outlining the difference between the management of atmospheric components at the current and future WCEC landfill. Attendees asked a number of questions of both presenters as well as other WM staff on hand.
2. Notification of Air Technical Session

Notification of the Technical Sessions (without specified dates for these sessions) was included with the notification of Open House #3, asking that interested stakeholders contact a WM representative in order to be added to the project contact list to receive further information. This notice was published during the weeks of October 17th and October 24th in the Stittsville News, the West Carleton Weekender, the Kanata Kourier Standard, EMC Kanata, EMC Stittsville and EMC West Carleton. The notice was also provided to all interested persons who are on WM’s stakeholder distribution list through an E-blast, posting on the project website at http://wcec.wm.com, and direct mailing to all addresses within the K0A 1L0, K2S, and K2T postal codes on October 19, 2011.

The date and location for the Air Technical Session, as well as a sign-up sheet, were provided at Open House #3 sessions on November 8-10, 2011.

Notification material can be found in Appendix A.

3. Project Team Members in Attendance

The following project team members were in attendance at the Air Technical Session:

<table>
<thead>
<tr>
<th>NOVEMBER 16, 2011 – WM OFFICES, OTTAWA</th>
</tr>
</thead>
<tbody>
<tr>
<td>WM</td>
</tr>
<tr>
<td>• Tim Murphy</td>
</tr>
<tr>
<td>• Don Wright</td>
</tr>
<tr>
<td>• Cathy Smithe</td>
</tr>
<tr>
<td>• Ross Wallace</td>
</tr>
<tr>
<td>• Remi Godin</td>
</tr>
<tr>
<td>• Wayne French</td>
</tr>
<tr>
<td>Consulting Team</td>
</tr>
<tr>
<td>AECOM</td>
</tr>
<tr>
<td>• Larry Fedec</td>
</tr>
<tr>
<td>RWDI</td>
</tr>
<tr>
<td>• John DeYoe</td>
</tr>
</tbody>
</table>

4. Information Presented

Information presented at the Air Technical Session was in the form of a slide presentation, which included the following:

- Outline of atmospheric components;
- Description of landfill gas, its generation, makeup, potential impacts, and measuring and monitoring of any impacts;
- Description of odour, its sources, measurement units, guidelines, and measuring and monitoring of any impacts;
- Description of dust, its sources, emission rates, and measuring and monitoring of any impacts;
- Description of noise, its sources, measurement units, guidelines, and measuring and monitoring of any impacts;
- Outline of landfill gas collection and management at the current landfill and at the future WCEC; and
- Summary of Best Management Practices.

A copy of the presentation is included in Appendix B.
5. Session Attendance

There were a total of 23 attendees at the Air Technical Session.

Attendees were encouraged to provide written comments on the comment sheets provided.

With the exception of those that requested to be left off, all individuals and/or agency representatives who signed in with their contact information were added to the project-specific contact database. This database will be used during the remaining phases of the study to contact/inform interested public and key stakeholders of study issues and events.

6. Questions and Answers

The questions asked and answers provided at the Technical Session, as well as a comment sheet and a follow-up email and associated responses, are provided in Appendix C. Please note that questions and answers were recorded verbatim by a representative of the local Councillor and a representative of WM. Their notes, as recorded, have been combined to reflect the questions and responses shown in Appendix C.
APPENDIX A

NOTIFICATION OF AIR TECHNICAL SESSION
Waste Management of Canada Corporation
Environmental Assessment for a New Landfill Footprint
at the West Carleton Environmental Centre

OPEN HOUSE #3 and WORKSHOP #3

Waste Management of Canada Corporation (WM) is undertaking an Environmental Assessment (EA) seeking approval for a new landfill footprint at the existing Ottawa Waste Management Facility (Ottawa WMF). The new landfill footprint will be one component of the proposed West Carleton Environmental Centre (WCEC).

The proposed WCEC will be an integrated waste management facility that will include:
- A new landfill footprint;
- Waste diversion and recycling operations;
- Composting operations;
- Renewable energy facilities; and,
- Recreational lands for community uses.

The new landfill footprint is the only component of the WCEC that requires EA approval under the Environmental Assessment Act (EAA). The proposed location of the WCEC and the new landfill footprint component is within the City of Ottawa in the area shown on the map below. The purpose of the EA is to study the potential environmental effects (positive or negative) of the proposed new landfill footprint. Key components of an EA include consultation with government agencies and the public; consideration and evaluation of alternatives; and the management of potential environmental effects. Conducting an EA promotes good environmental planning before decisions are made about a proposal.

Earlier in 2011, WM held a series of Open Houses and Workshops with the public to review the preliminary Existing Conditions and Comparative Evaluation Methodology and Criteria that would be used to assess and compare the Alternative Landfill Footprints that are being considered as part of the EA.

Open House #3
The purpose of Open House #3 is to provide the public with an opportunity to review the final Existing Conditions, assessment and comparative evaluation of the Alternative Landfill Footprints, and identification of a Preferred Landfill Footprint. In addition, WM will provide information about the ongoing EA process and related consultation activities.

WM has scheduled Open House #3 events the week of November 8th–10th, 2011 for the following dates, times, and locations:

- **Tuesday November 8, 2011**
  4 p.m. to 8 p.m.
  Carp Agricultural Hall
  3790 Carp Road,
  Carp

- **Wednesday November 9, 2011**
  4 p.m. to 8 p.m.
  Kanata Recreation Complex
  100 Walter Baker Place,
  Kanata

- **Thursday November 10, 2011**
  4 p.m. to 8 p.m.
  Stittsville & District Community Centre
  10 Warner Colpitts Lane,
  Stittsville

Workshop #3
The purpose of Workshop #3 is to provide the public with an opportunity to give input on Comparative Evaluation of Alternative Landfill Footprints and the identification of a Preferred Landfill Footprint. WM has scheduled Workshop #3 on November 23rd, 2011 from 7 p.m. to 9 p.m. at the Carp Agricultural Hall (3790 Carp Road, Carp).

Technical Sessions
As requested by the community, WM also intends to hold a series of technical sessions. These sessions will be scheduled in the upcoming weeks and notification will be provided on the project website and via email to our project contact list. To be added to the project contact list, please contact Cathy Smithe at the email address/number below.

In addition to attending the public open houses, workshop, and technical sessions you are invited to submit your comments via the project website (http://wcec.wm.com), mail, email or fax to the addresses/numbers published below. We will also receive your comments on our project information line at (613) 836-8610.

Ross Wallace  
Site Manager  
Waste Management  
2301 Carp Road  
Carp, Ontario, K0A 1L0  
Fax: (613) 831-8928  
E-mail: rwallac3@wm.com

Cathy Smithe  
Community Relations Manager  
Waste Management  
254 Westbrook Road  
Carp, Ontario, K0A 1L0  
Fax: (613) 831-2849  
E-mail: csmithe@wm.com

Please note that information related to this Study will be collected in accordance with the Freedom of Information and Protection of Privacy Act. With the exception of personal information, all comments received will become part of the public record and may be included in Study documentation prepared for public review.

Get Involved….Have Your Say!
APPENDIX B

AIR TECHNICAL SESSION
PRESENTATION SLIDES
West Carleton Environmental Centre (WCEC)
New Landfill Environmental Assessment (EA)
Atmosphere - Technical Session
November 16, 2011
Agenda

• Atmosphere 101
  – Definitions of landfill gas, odour, dust and noise
  – Atmospheric issues, modeling and monitoring

• Managing a New Site
  – How atmosphere will be managed at new landfill
  – Difference between new landfill and current landfill

• Questions & Answers
Atmospheric Components

Landfill Gas
Odour
Dust
Noise
Combustion

How do you define atmosphere?
What Is Landfill Gas?

Gas produced from the breakdown of organic material, such as ...

- Food
- Wood
- Paper
How Is Gas Produced?

Landfill Gas Generation

Landfill Gas:
- CH₄ ~50% dry
- CO₂ ~40% dry
- N₂ ~9% dry
- O₂ ~1% dry
- H₂O ~to saturation
- Other Compounds ~trace

CxHyOz + H₂O → (Anaerobic)

Landfill
What Are Typical Concentrations?

Landfill gas at WCEC includes:

- Oxygen 0.7%
- Nitrogen 6%
- Methane 54%
- Carbon Dioxide 39%
- Other components < 1%
What Are Other Components?

<table>
<thead>
<tr>
<th>Compound</th>
<th>ppmv</th>
<th>Compound</th>
<th>ppmv</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methyl Mercaptan</td>
<td>ND</td>
<td>Trichloroethylene</td>
<td>0.5</td>
</tr>
<tr>
<td>Ethyl Mercaptan</td>
<td>ND</td>
<td>Bromodichloromethane</td>
<td>ND</td>
</tr>
<tr>
<td>Vinyl Chloride/Chloroethene</td>
<td>1.4</td>
<td>Octane</td>
<td>1.8</td>
</tr>
<tr>
<td>Chloroethane</td>
<td>0.5</td>
<td>1,1,2-Trichloroethane</td>
<td>ND</td>
</tr>
<tr>
<td>1,1-Dichloroethylene</td>
<td>0.0</td>
<td>Tetrachloroethylene</td>
<td>1.2</td>
</tr>
<tr>
<td>Dichloromethane</td>
<td>0.7</td>
<td>Ethylene Dibromide</td>
<td>ND</td>
</tr>
<tr>
<td>1,2-Dichloroethene (Trans)</td>
<td>0.1</td>
<td>1,1,2,2-Tetrachloroethane</td>
<td>ND</td>
</tr>
<tr>
<td>1,1-Dichloroethane</td>
<td>1.0</td>
<td>Hydrogen Sulfide</td>
<td>40.5</td>
</tr>
<tr>
<td>1,2-Dichloroethene (Cis)</td>
<td>1.9</td>
<td>Carbon Tetrachloride</td>
<td>ND</td>
</tr>
<tr>
<td>sec-Butyl Alcohol/2-Butanol</td>
<td>14.3</td>
<td>Benzene</td>
<td>1.1</td>
</tr>
<tr>
<td>1,2-Dichloroethane</td>
<td>ND</td>
<td>Chloroform/Trichloromethane</td>
<td>0.1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1,1,1-Trichloroethane</td>
<td>0.0</td>
</tr>
</tbody>
</table>

- Typical analytical results from raw landfill gas at WCEC existing landfill
- Vinyl Chloride (health) & Hydrogen Sulphide (odour) Most Important
How Do You Determine Gas Impacts?

- Ambient Monitoring Station
- Numerical Computer Modelling
- Physical Wind Tunnel Modelling
Models Versus Measurement

- Models are meant to predict potential impacts, but they are not actual measurements.
- Measurements cannot account for facilities not yet built or all meteorological conditions.
- Therefore, the modeling procedure prescribed by the Ministry of the Environment (MOE) is followed to predict potential landfill gas impacts.
Gas Monitoring At Existing Site

5 Sets of samples taken every Summer using adsorbent tubes.
How Much Gas Is Produced?

Gas Generation Rates That Are Predicted By USEPA LANDGEM Model Based Upon Tonnages
What is Numerical Modeling?

1. Landfill Gas Emission
2. USEPA AERMOD MODEL
3. 5 Years Met Data

Predicted H2S Concentrations Below Guideline
Potential Odour Sources

1. Landfill gas coming through cracks and fissures in landfill surface
2. “Working face” where waste has been tipped
3. Areas where cover material has been scrapped down
4. Leachate collection system (sealed at WCEC)
5. Public drop-off area
How Is Odour Quantified?

- One odour unit (OU) is concentration at which 50% of a population, with normal sense of smell, will detect an odour
- 1 OU = Detection
Guidelines for Odours

- No published guidelines for odours in Ontario
- > 3 OU = Level of annoyance for landfill odours
- 5 OU = Level of annoyance for compost odours
- The working guideline for odour is that predicted impacts must be below 1 OU at critical receptors at least 99.5% of the time
How Are Emissions Determined?

- All odour emissions are based on measurements or previous published measurements
- Odour samples collected in sample bags and submitted to an odour panel
- Odour samples are collected from surfaces using a flux chamber

MOE prescribes an odour value for landfill gas of 10,000 Odour Units per cubic metre
Flux Chamber Sampling
Dynamic Olfactometer
Dynamic Olfactometer

Panelist Inhaling from Sniff Tubes During Binary Non-Forced Choice Test
Odour Panel Results

Panel Response (%) vs. Dilution

Detection
What Is Numerical Modeling?

1. Landfill Gas Emission
2. USEPA AERMOD Model
3. 5 Years Met Data
4. Predicted Odour Concentrations Below Guideline
Potential Dust Sources

1. Roadway emissions
2. Material handling
3. Wind erosion from barren areas and material stockpiles
Particulate Monitoring at Existing Site

Particulate Monitoring at Three (3) Locations Using High Volume Air Samplers
Particulate Monitoring at Existing Site

- Monitoring has been completed since 2006
- Monitoring data shows very little particulate matter impact from existing landfill site
- Particulate impacts in the area have been mostly related surrounding activities
Dust Emission Rates

- Published emission rate factors are prescribed method for calculating dust emissions.
- Emission rates are published for nearly every dust source and are dependent on wind speeds.
What Is Numerical Modeling?

- USEPA AERMOD MODEL
- 5 Years Met Data
- AP-24 Dust Emission Factors
- 5 Years Met Data

Predicted Particulate Concentrations Below Guideline
Potential Noise Sources

1. Heavy equipment
2. Ancillary facilities (flares)
3. On-site haul routes
4. Pest control (bangers)
5. Construction activity
Noise Definitions

- **Noise is measured in decibels (dB), which is a logarithmic scale**
  - So 3dB more is twice as much noise.

- **Continuous Noise**
  - Includes equipment, road traffic and machinery.

- **Impulsive Noise**
  - Includes tailgate slams and pest control devices.
Human Perception of Sound

- The human perception of noise impact is an important consideration in qualifying the change in noise effects:

<table>
<thead>
<tr>
<th>Increase in Noise Level</th>
<th>Perception</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 to 3 dBA</td>
<td>Insignificant due to imperceptibility</td>
</tr>
<tr>
<td>4 to 5 dBA</td>
<td>Just-noticeable difference</td>
</tr>
<tr>
<td>6 to 9 dBA</td>
<td>Marginally significant (noticeable)</td>
</tr>
<tr>
<td>10 or more dBA</td>
<td>Significant, perceived as a doubling of sound exposure</td>
</tr>
</tbody>
</table>
# Noise Guideline Limits

<table>
<thead>
<tr>
<th>Time &amp; Event</th>
<th>Guideline Limit ([L_{eq} (1 \text{ hr})])</th>
</tr>
</thead>
<tbody>
<tr>
<td>Daytime (0700-1900h)</td>
<td>Higher of 55 dBA or existing background, without landfill in place</td>
</tr>
<tr>
<td>Night-time (1900-0700h)</td>
<td>Higher of 45 dBA or existing background, without landfill in place</td>
</tr>
<tr>
<td>Impulsive Noises</td>
<td>70 dBAI</td>
</tr>
</tbody>
</table>
Typical dB Levels of Various Sources

- Thunder (near) = 115 dB
- Large Aircraft piston engine at 15 ft. = 110 dB
- Passing Tractor Trailer at 20 ft. = 78 dB
- Busy Street = 69 dB
- Ordinary Conversation at 3 ft. = 59 dB
- Vacuum Cleaner at 3 ft. = 50 dB
- Average Office = 38 dB
- Whisper at 5 ft. = 12 dB
How Is Noise Measured?

Noise measurements are taken from all sources or noise levels are based on manufacturer data or published information.
Noise Receptors
How Are Noise Sources Modeled?
Model Calculates Results

Model examines the noise source characteristics, barriers, ground reflections, etc.
Gas Management at WCEC

**Landfill Gas Collection System (LGCS) Pre-2006**

- Enclosed flare processing 1,200 scfm
- 52 vertical wells and on western section of the landfill (see drawing)
- Proposed design of 95 vertical wells for the entire landfill (about 1 well/acre)
Current Optimized LGCS

- Total of 194 vertical wells with pumps (2 wells/acre) and 1,600 m of horizontal collector, 3 flares for backup destruction and 6.4 MW of electricity
- 178 vertical wells in landfill cell
- 16 vertical wells at the toe of the landfill footprint
- 1,600 m of horizontal collector on North, South and West bottom of slope
- Complete LGCS extraction header loop and increased header size
- Over 80 LFG well dewatering pumps and discharge system to liner
- Improved clay cap
- 1,200 scfm enclosed flare installed in 2001
- 2,200 scfm enclosed flare installed in 2006
- 2,300 scfm candlestick flare installed in 2008
- 6.4 MW Landfill Gas to Energy facility operating since April 2010
Surface Scanning for Landfill Gas Emissions Through Cap
Flame Ionization Detector With GPS
How Will Impacts Be Measured?

• A series of monitoring plans will be implemented as part of the potential approval of a new landfill footprint

• The monitoring will examine landfill atmospheric impacts annually and performance limits will be set within the potential approval of a new landfill footprint
Monitoring Plans For ...

- Odour
- Noise
- Landfill Gas
- Dust
Best Management Practices (BMPs)

- Best Management Practices Plans (BMPs) will be required for:
  - Odour
  - Landfill Gas
  - Dust
  - Noise

- These BMPs will be in written conditions if a new landfill is approved
What Do BMP’s Include?

• The BMPs will detail practices, such as:
  “The site supervisor will apply water when plumes of dust are visible from passing vehicles. All watering activity will be documented in site log.”

• Note:
  – A trigger level is defined
  – An action is defined
  – An individual is responsible for implementing
  – The action is documented
What Do BMP’s Include?

- Detailed log of community complaints and comments
- Ongoing scrutiny of logs by MOE and review of suitable actions
- Written list of required actions by specified individuals
- MOE review of monitoring results and review of suitable actions

BMP Constant Input and Evaluation

Think Green
What Does This Process Achieve?

If monitoring results or feedback detailed in BMP reveal an issue, changes can be made, including:

- Revised operating practices detailed in an updated BMP
- Increased engineering controls
- Altered operations
Questions & Answers
APPENDIX C

RECORD OF QUESTIONS & ANSWERS FROM THE AIR TECHNICAL SESSION
<table>
<thead>
<tr>
<th>Forum Where Issue was Raised</th>
<th>Public Issue Raised</th>
<th>Response Provided</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Air Technical Session</td>
<td>Closed well on the landfill – 4 or 5 feet of material sitting on top of the landfill at this time. Wells go down about 70 feet – how far is bentonite cap down the well?</td>
<td>Guideline is to go 2/3 of the way down the landfill to get the landfill gas. Gas and leachate go to the well. That is why we have a pump on the well for the leachate. The wells are maintained and kept active.</td>
</tr>
<tr>
<td>2 Air Technical Session</td>
<td>The waste mass below the beanie cap is producing landfill gas. How is that gas being captured?</td>
<td>The horizontal collectors on the top of the landfill collect the gas.</td>
</tr>
<tr>
<td>3 Air Technical Session</td>
<td>Would like to see the five potential sources of odour slide and would like them to be ranked</td>
<td>Choices are:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1. Cracks and fissures in the landfill surface</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. “Working face” where waste has been tipped</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. Areas where cover material has been removed</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4. Leachate gas collection system (sealed at WCEC)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5. Leachate pumping area</td>
</tr>
<tr>
<td></td>
<td></td>
<td>6. Public drop-off area</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Choice 1, then 2, which is a garbage smell, 3 with perhaps a high of 10%, Choice 4 could be the number one problem on landfills.</td>
</tr>
<tr>
<td>4 Air Technical Session</td>
<td>A leachate break out is not on your list and hydro-carbonated soil can be an issue.</td>
<td>That has been monitored.</td>
</tr>
<tr>
<td></td>
<td>You did not mention upset conditions. How often might they occur?</td>
<td>The process looks at normal operations – upset conditions are hard to model because you do not know how or when they will occur – it is almost impossible to model.</td>
</tr>
<tr>
<td></td>
<td>The modelling does not necessarily predict the upset conditions.</td>
<td>They cannot predict the operation.</td>
</tr>
<tr>
<td></td>
<td>Modeling does not predict upset conditions, and in 2006 there were large odour impacts.</td>
<td>There was a defect in 2006 and the company made serious errors.</td>
</tr>
<tr>
<td>Forum Where Issue was Raised</td>
<td>Public Issue Raised</td>
<td>Response Provided</td>
</tr>
<tr>
<td>------------------------------</td>
<td>------------------------------------------------------------------------------------</td>
<td>------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>5 Air Technical Session</td>
<td>20% of the odour comes from the working face.</td>
<td>That is why early collection of gas is critical.</td>
</tr>
<tr>
<td></td>
<td>We need clarification.</td>
<td>The clay cover is put on as the contours are met. Early collection of landfill gas will help the issue.</td>
</tr>
<tr>
<td></td>
<td>The clay cap and beanie cap are not necessarily part of an active landfill.</td>
<td>The numerical model is the same and the parameters put in the model can be the problem.</td>
</tr>
<tr>
<td></td>
<td>Daily cover does not offer the same protection.</td>
<td>The real problem was that landfill gas was escaping in 2006. There will be a Best Management Practice Plan and that will have to be maintained. The gas survey will monitor that and ensure that it is done in a timely manner. It will be completed three times a year and the problems will not be able to have the same issues.</td>
</tr>
<tr>
<td></td>
<td>The 2007 model was appealed and found to be incorrect.</td>
<td></td>
</tr>
<tr>
<td>6 Air Technical Session</td>
<td>Is there an assessment of how far the odours will go from the site?</td>
<td>The numerical components would be 500 meters to 1 kilometre.</td>
</tr>
<tr>
<td></td>
<td>It has gone significantly further.</td>
<td>It completely depends on how the landfill is operated.</td>
</tr>
<tr>
<td>7 Air Technical Session</td>
<td>Do we have a track record of how often these upset conditions happen? We should have this in the model. Then we could expect so many times a year that we would have the problems. How often is once in a while? Root cause analysis should be undertaken when it does happen. The closest thing to incompetency we have is WM telling us it is perfect. Should be told an upset condition will happen every so often.</td>
<td>It is not a simple matter. I don't know – statistical probability should exist within the model – lack of it in the mathematics is a problem.</td>
</tr>
<tr>
<td>8 Air Technical Session</td>
<td>With the horizontal pipes, will we smell odour every time a well is drilled?</td>
<td>Drilling a well takes about 6 hours and we work to remediate the problems as soon as we can.</td>
</tr>
<tr>
<td></td>
<td>You must have the data.</td>
<td>We will find out if we do.</td>
</tr>
<tr>
<td>Forum Where Issue was Raised</td>
<td>Public Issue Raised</td>
<td>Response Provided</td>
</tr>
<tr>
<td>-----------------------------</td>
<td>-------------------------------------------------------------------------------------</td>
<td>-----------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>9 Air Technical Session</td>
<td>Over the last five years, the industry has changed. Composting is in place and the landfill does not take bio-solids anymore. Because the industry has changed, the landfill should be easier. Will the transfer station help with composting efforts?</td>
<td>The MOE is starting to get after companies about what they put in the bins. We are assuming it will.</td>
</tr>
<tr>
<td>10 Air Technical Session</td>
<td>The source of landfill gas is organics.</td>
<td>The breakdown of VOC's is generating the landfill gas.</td>
</tr>
<tr>
<td>11 Air Technical Session</td>
<td>If all of the organics were removed from the waste, there will be no gas.</td>
<td>Is the organic waste wood or paper?</td>
</tr>
<tr>
<td></td>
<td>There is no other process that produces gas. Do plastics produce gas?</td>
<td>Plastics will break down over hundreds of years and will produce a small amount of gas.</td>
</tr>
<tr>
<td></td>
<td>PVC can produce gas.</td>
<td>PVC gas will decay in the process because there is less than 5% of the original oxygen in the landfill.</td>
</tr>
<tr>
<td>12 Air Technical Session</td>
<td>Cover in contour sides. We must build into our proposal that WM manages the site, not the MOE. If the community has a problem, there is a time period for WM and MOE reaction. The community may not get any results because of that. WM must jump on the complaint up front and now.</td>
<td>Whether it is in the model or not, Ross will jump on the problem. The onus is on WM to maintain the site. WM is installing a corporate complaint site. Corporate office is handing down a timeline to address the issue.</td>
</tr>
<tr>
<td>13 Air Technical Session</td>
<td>What seems to be lacking here is the operation of the landfill and operational issues. Operational issues are not defined anywhere.</td>
<td>If I understand your comment, we will look at this as part of the landfill assessment and in the modeling predicted results.</td>
</tr>
<tr>
<td>Forum Where Issue was Raised</td>
<td>Public Issue Raised</td>
<td>Response Provided</td>
</tr>
<tr>
<td>------------------------------</td>
<td>---------------------</td>
<td>-------------------</td>
</tr>
<tr>
<td><strong>14</strong> Air Technical Session</td>
<td>I would like the map of the critical receptors within a three to five kilometre area around the site. There should be some discussion about them. They are critical to the report. There is no detail about critical receptors. I am talking about all critical receptors. Upset conditions can happen at any time. What is the impact zone of upset conditions? I would like a large number of critical receptors mentioned. Upset conditions are unpredictable. I want a discussion in the paper – what they are and how they happen. What is the impact zone?</td>
<td>The model does not show upset conditions. They are mentioned in the report. We have looked at it and there are a lot of critical receptors. We will talk amongst ourselves about upset conditions.</td>
</tr>
<tr>
<td><strong>15</strong> Air Technical Session</td>
<td>I am interested in the meteorology data. How long has it been monitored? What is the time frame?</td>
<td>The data is from 2000 to 2005. Every condition conceivable has been looked at.</td>
</tr>
<tr>
<td><strong>16</strong> Air Technical Session</td>
<td>Will the slides be on the website tomorrow?</td>
<td>Yes.</td>
</tr>
<tr>
<td><strong>17</strong> Air Technical Session</td>
<td>I thought we had asked about getting material ahead of time. I would have appreciated getting the slides a few days ago. In my job, we start by giving everyone an idea about where we are going. I would like to review and decide what questions I might have.</td>
<td>You have to understand with a presentation like this, the process is a work in progress. Your comment is justified. I suggest you put this on your comment sheet. If you have questions, put them there and I will respond to them.</td>
</tr>
<tr>
<td><strong>18</strong> Air Technical Session</td>
<td>Just a quick question about noise. The bird bangers are the ones that bother me most. Some kind of differential between a once in a while loud noise and the continual bird banger noise should be made.</td>
<td>When the analysis is done, they will be modeled in. They are included in the hour calculations. Also in the impulse criteria.</td>
</tr>
<tr>
<td><strong>19</strong> Email Received Post-Session</td>
<td>I was a newbee at the WCEC air quality meeting and there was a lot of information provided on new technologies and what was done to address issues from the past.</td>
<td>Thank you for your email. I am glad you were able to join us for our air technical session last week. I know there was a lot of information to digest, but I hope that it answered some of your questions. We will be including a glossary of terms in our</td>
</tr>
<tr>
<td>Forum Where Issue was Raised</td>
<td>Public Issue Raised</td>
<td>Response Provided</td>
</tr>
<tr>
<td>-----------------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td></td>
<td>I noticed a few conversations that led me to believe that a list of terms needs to be identified. Terms like critical receptors this term for WM is identified as 24 key locations that are key human activity places but when the discussion of it came from the attendees, they were looking for finite numbers... what the public wants is real numbers, not discreet locations for activities. When the discussion took place on a &quot;probable worst case scenario&quot; the attendees wanted to know how many actual real people would be affected in radial zones (probably in 1KM increments) and this is never talked about - it should be for your studies to have any credibility they do have to take into consideration worst case possibilities no matter how remote for the general public to have any faith in the transparency of the information provided. With the city rapidly encroaching the urban boundary on this area (ie the new Minto area by SBP, the new jackson trails) both of which are downwind, and very close to the existing fill, city residents want real head counts and predicted head counts used rather than a meter sensor location count. I'll send in my comments on the word file after I can convert it back to just a dot doc format, but i have one last question that needs to be answered somehow, as I couldn't find it anywhere on the site. With all of the other much larger areas of land in much more rural or uninhabited areas even within RMOC, why expand here in a literal powder keg of a location that is so close to so many people? The past is the past in where the site was (long before Katana and Stittsville exploded) as I know. I've lived here since 1971; but seeing how there is such a great deal of urban activity places in the city...</td>
<td>Environmental Assessment to ensure anyone reviewing the document can understand the technical terms used and how we applied these terms in our process. Regarding critical receptors, our air experts use areas human activity instead of specific numbers in recognition of the fact that even minor variations in limits of potential impact can change the specific number of people affected by a potential air impacts. By using critical receptor locations, they focus on avoidance and/or mitigation of potential air impacts upon broad activity areas, not just individual people. With respect to probable worst-case scenarios, we are required to design, develop and manage our site in a manner that will not create impacts on the surrounding communities. We will also be required to develop contingency measures that identify how we will respond to emergency conditions at our facility. We will consider our experiences at other facilities in developing any best management practices. Regarding why not develop a new landfill at another site, we examined this issue in our Terms of Reference. Given the important role of the existing facility to our business and to waste generators within the City of Ottawa and surrounding area developing the new landfill at our existing site would allow us to continue to provide cost-effective disposal and diversion services. Further, we do not own, nor are we aware of, other lands within the City of Ottawa that have been identified as suitable for a new landfill and, as a private corporation, we do not have the powers of expropriation, if such a location existed. The risks associated with obtaining an appropriate site and the necessary approvals are difficult, costly and time-consuming, which poses significant risks to the commercial viability of our business.</td>
</tr>
<tr>
<td>Forum Where Issue was Raised</td>
<td>Public Issue Raised</td>
<td>Response Provided</td>
</tr>
<tr>
<td>------------------------------</td>
<td>---------------------</td>
<td>-------------------</td>
</tr>
<tr>
<td></td>
<td>encroachment, why there? maybe Jim Watson and Eli El-Chantiry at the city who I have cc'd can provide some insight on that too. For the the common citizen, it just doesn't seem to make common sense.</td>
<td>I trust this email provides a little more clarity on these issues. Please do not hesitate to contact me with any additional questions. I would be pleased to take you on a tour of the facility anytime, just let me know when.</td>
</tr>
</tbody>
</table>