Deck Watering as Means of
Adding Moisture.

Trenching for a Retrofit

Monitoring Philosophy & Key Parameters

- *Reference USEPA/WM QAPP*
  - *Leachate*
  - *Settlement & Mass*
  - *Gas Production*
  - *Air Emissions*

WASTE MANAGEMENT

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What is the Minimum, for Leachate at New Research Sites

- *Chemical oxygen demand*
- *Biochemical oxygen demand*
- *Temperature*
- *pH (field)*
- *Volatile organic acids*

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What is the Minimum, for the Waste Mass at New Research Sites

- *Waste temperature*
- *Waste settlement (GPS)*
- *Organic solids**
- *Moisture content (calculated)**
- *pH**
- *Biochemical methane potential (BMP)**

**low frequency, based on mass collection during placement and drilling.*

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What is the Minimum, for Gas at New Research Sites

- *Methane, field, lab (Summa)*
- *Carbon dioxide, field, lab (Summa)*
- *Oxygen, field, lab (Summa)*
- *Gas volume*
- *Perhaps, more frequent Surface emission monitoring*

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Frequency of Sampling

- *Leachate: monthly – quarterly**
- *Mass (GPS):quarterly –24 months*
- *Gas: monthly*
- *Surface Emissions – quarterly*

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Operational Expertise

- *Review Bibliography for Industry.*
- *Review recent Conference Literature.*
- *Visit Web Sites.*
- *Call Operating Facilities and ask for Tour of the Facility.*

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Publications

- *SWANA*
- *NSWMA*
- *LMOP*
- *Sardinia Proceedings*
- *USEPA/WM Interim CRADA Document*

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Web Sites

- http://www.bioreactor.org/
- http://www.epa.gov/projectxl/yolo/index
- http://www.epa.gov/epaoswer/non-hw/muncpl/landfill/bioreactors.htm
- http://www.wm.com/bio.asp

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Areas of Permit Applicant & Permitting Focus:

- *Collection of an Operating Record that helps the industry.*
- *Set up Key Areas of Concerns for Interaction, surface application of liquids, outside liquids, leachate breakout-repair,odors,alternate covers.*

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