GIS Applications for Solid Waste Operations

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Uses of GIS in Solid Waste Operations

- Optimizing Routes in Waste Collection
- Siting Landfills, Waste Processing Facilities, etc.
- Design Phase of Landfills
- Landfill Operations
- Tracking Hurricane Debris Cleanup
What is GIS (Geographic Information System)?

Geographic Information Systems (GIS) is a framework for gathering, managing and analyzing data.
Data can be visualized in endless ways.
Visual interpretation of complex data.
Surface Emissions Monitoring (SEM)
Handheld GPS/FID with Built-in GPS

- Requires downloading data.
- Data is not viewable in real-time.
- No smartphone/tablet interface.
- No storage of multiple fields of information for a given point.
- Does not associate photos with a point.
SEM Using GIS

Collector for ArcGIS

Follow Breadcrumb Trail

Enter Data

Point layer
Acquiring location...

DATE
Enter a date

HRS

FID PPM

COMMENTS

10 DAY FID PPM

DATE OF 10 DAY RETEST
Enter a date

30 DAY FID PPM

DATE OF 30 DAY RETEST
Enter a date

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Smartphone/Tablet (with Collector For ArcGIS App)
Correcting Emissions

Landfill Operations Field Tools Explorer For ArcGIS
Landfill Operations Field Tools

- Point layer
  - West Palm Beach, Florida

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attachment2.jpg
Jul 12, 2019 10:26 AM
Desktop Tools Operations Dashboard
Desktop Tools Operations Dashboard

Photo of affected area

FID HITS
6

Last update: a few seconds ago

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Benefits of Using GIS for SEM

- Easy to use with any smartphone or tablet.
- Real-time data to stakeholders.
- Customizable to store multiple information for a data point.
- Ability to capture pictures and associate with a data point.
- Data can be easily imported into AutoCAD.

Collector, Explorer & Operations Dashboard for ArcGIS
H₂S Heat Map for Odor Control

Sweep points are labeled with individual H₂S PPM values over 0.1. Contour map represents Kriging Analysis of the Class I 2015 4th Qrt Sweeps H₂S Hot Spot Analysis z-Score.

Note: Closed Cells 1-4 have been excluded from monthly sweeps, they will be swept annually.
Landfill Gas with GIS - SWAMPGAS
GIS for Location of Temporary Debris Management Sites (TDMS)
Tracking Hurricane Debris Using GIS
Tracking Hurricane Debris Using Collector

Filter

CONSTRUCTION
Debris Piles

MIXED
Debris Piles

STUMP
Debris Piles

WANGER
Debris Piles

LARGE YARD WASTE PILE – 2nd PASS
Debris Piles

REMOVED
Debris Piles
Tracking Hurricane Debris Using GIS
Summary - Use of GIS

- Surface Emissions Monitoring (SEM)
- H₂S Heat Maps for Odor Control
- Landfill Gas using SWAMPGAS
- Location of Temporary Debris Management Sites
- Debris Assessment
- Debris Collection Tracking

Where are we headed...

GIS Centric Asset and Work Order Management System
Questions?