2019 SOLID WASTE CONFERENCE

A DAY IN THE LIFE OF A LANDFILL OPERATIONS MANAGER

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Operations Management - West Michigan

THINK GREEN®

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OBJECTIVES

- Heavy Equipment Overview
- Waste Acceptance
- Stormwater Management
- Daily / Interim Cover
AUTUMN HILLS RDF

- 2,000 Tons / Day
- 4 Operators
- 1 Temp Laborer
- 2 Operations Specialist (Scalehouse Attendants)
- Type II landfill constructed in 1997
MORNING HUDDLE

5:30 AM

- SAFETY BRIEFING
- PRIOR DAY REVIEW
- DAILY PLAN
- UPDATE ON FUTURE ITEMS (EQUIPMENT MAINTENANCE, SPECIAL PROJECTS, WEATHER, ETC.)
- DAILY EQUIPMENT INSPECTIONS (DEI)
HEAVY EQUIPMENT OVERVIEW
<p>| 01 | APPROACH: Approach the equipment from where you mount to enter the cab. Look for signs of damage to the body, frame, engine enclosures, hydraulics, components |
| 02 | UNDERCARRIAGE/Wheels/tires/track: Check for leaks and/or damage in the following areas: Undercarriage, wheels, tires, rollers, idlers, sprockets, bushings, final drives, and planetary drives |
| 03 | LEFT SIDE OF MACHINE: Check for leaks and/or damage in the following areas: Cab, body, bowl, frame, engine enclosures, platforms, windows, mirrors, grab handles, and doors |
| 04 | REAR OF MACHINE: Check for leaks and/or damage in the following areas: Cab, body, bowl, frame, enclosures, platforms, windows, mirrors, and doors |</p>
<table>
<thead>
<tr>
<th>RIGHT SIDE OF MACHINE:</th>
<th>UNDERCARRIAGE/ WHEELS/TRACKS &amp; TIRES:</th>
<th>FRONT OF MACHINE:</th>
<th>CAB AND PLATFORMS:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Check for leaks and / or damage in the following areas: cab, body, bowl, frame, engine, enclosures, platforms, windows, mirrors, grab handles and doors</td>
<td>Check for leaks and / or damage in the following areas: undercarriage, wheels, tires, rollers, idlers, sprockets, bushings, final drives, and planetary drives</td>
<td>Cab, engine, body, radiator, grill, blade, bucket, push arms, linkage, and ground engaging tools</td>
<td>Fire extinguishers, fire suppression system, battery box</td>
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<tr>
<td>05</td>
<td>06</td>
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<td>08</td>
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HEAVY EQUIPMENT OVERVIEW

THE COST OF HEAVY EQUIPMENT MAINTENANCE

Good Maintenance is Expensive

Poor Maintenance is Very Expensive
HEAVY EQUIPMENT OVERVIEW

PROPERLY MAINTAINED AND OPERATED HEAVY EQUIPMENT

<table>
<thead>
<tr>
<th>Equipment Availability</th>
<th>Equipment Reliability</th>
<th>Increased AUF and site life</th>
<th>Favorable impression on third parties</th>
</tr>
</thead>
</table>
| Expense Control and Capital Spend Efficiency | A Safer Fleet | Favorable Operator Attitudes | Fleet Pride  
• Operations and Maintenance working together  
• Pride in the condition of the equipment |
ROLE OF THE SCALEHOUSE

- Initial point of sale for all public customers
- Check that all customer paperwork is in order and updated
- Weighing trucks in / out
- Controlling traffic ensuring waste types are directed to the proper location
- Verifying all special waste volumes for waste approval / acceptance via manifest paperwork
- A variety of other administrative tasks

SCALEHOUSE

7:30 AM
ACCEPTED WASTE STREAMS FOR TYPE II FACILITIES

- Household Wastes
- Commercial Wastes
- Constructions & Demolition Debris
- Special Wastes (requiring profile review / approval)
  - Foundry Sands
  - Contaminated Soils
  - Industrial Sludges
  - POTW Sludges
  - Friable and non-Friable Asbestos
  - And many others......
MATERIAL PROFILING

- Provides a basic snapshot of waste detailing analytical results, regulatory information, DOT shipping information, etc.

- Requires generator certification of accuracy and that the material does not contain regulated PCB’s, regulated hazardous waste or other regulated waste

- Profiling process and material acceptance criteria evolve over time as regulations change
WASTE ACCEPTANCE

GENERATOR KNOWLEDGE

- Process Description
- SDS (account for information limitations)
- Analytical Data: Wastes from similar process & same outputs
- Chemical makeup of inputs/outputs
- Literature Data: similar process & same outputs
While driving the perimeter of your site, you realize that it rained last night......

What do you check first??????
Landfills are essentially a decades-long construction project, with everything from grassed slopes to bare soil. We are never done managing storm water at these facilities, even in post-closure.

Active Area/Top Deck

- The top deck should always be graded to shed storm water run-off and directed to an appropriately sized down drain (HDPE pipe, V-ditch, or armored channel) to efficiently manage water and minimize erosion.
- No significant run-off should be allowed to flow from the top deck uncontrolled down any slope (intermediate internal slope or exterior slope).
STORMWATER CONTROL

TOP DECK DOWNDRAIN
STORMWATER CONTROL

TOP DECK INLET
STORMWATER CONTROL

SEDIMENT CONTROL METHODS

- Existing Vegetation
- Silt Fence
- Sediment Traps and Check Dams
- Fiber Rolls/Wattles
- Storm Water Berms
- Straw Bales
- Storm Water Down Drain with Inlet Protection
- De-silting Basins - Detention/Retention
- Street Sweeping or Truck Wash
STORMWATER CONTROL

SEDIMENT TRAPS
Sediment is the #1 non-point source pollutant
END-OF-DAY OPERATIONS REVIEW

3:30 PM

- Time to head up to the working face and check on the operators.....
- Review daily operations
- Daily cover plans
# Daily / Interim Cover

## Daily Cover

<table>
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<tr>
<th>Required to be applied daily at close</th>
<th>Some sites with 24-hour operations not required to completely cover each day, but maintain working face below permitted maximum size</th>
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<tbody>
<tr>
<td>- Typically a minimum 6-inches depth of earthen cover is required for daily cover</td>
<td></td>
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<tr>
<td>- Alternative (ADC) approved materials may be utilized</td>
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</table>

| The type of cover should be easily manageable and be fully functional under any climatic extreme for a specific location | Daily cover application/materials should NOT inhibit the future migration of gas or leachate through the landfill |
Interim Cover

- Typically required in areas that will not be active for a period of 90
- Typical minimum SOIL depth of 18 inches is required
- Site specific permits will vary

Interim Cover required for:

- Odor / emissions control
- Inhibit rainfall infiltration
- Top deck, interim deck, run-off control
- Traffic carrying capability
General Definition:

- Waste materials or synthetic compounds that are used to cover the waste on a daily basis and may stay in place for up to 90-180 days (unless otherwise dictated by permit - i.e., 30 days maximum in the Midwest)

- ADCs must meet requirements of State or local permitting agency for satisfying odor, litter, vector, rainfall infiltration, and fire control functions

- Soil is NOT technically an ADC (even if RGC)
4:30 PM

- Post Trip DEI’s on all equipment
- Check on Scalehouse for any unresolved issues
- Review / Develop future plans
OBJECTIVES REVIEW

- Heavy Equipment Overview
- Waste Acceptance
- Stormwater Management
- Daily / Interim Cover
A landfill is like managing an ongoing construction project that continues to evolve over time.

“Operations Manager” is an umbrella title for many other roles that you fill on a daily basis. For example:

- Construction Manager
- Compliance Manager
- Customer Service Manager
- Heavy Equipment Manager
- Safety Manager
- Etc....
Thank You!!

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