Missouri Waste Control Coalition Conference (2019)

Successfully Permitting a NEW Municipal Solid Waste Landfill!

Presented by:

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Decline in # of MSW LFs

- **1980 – 140 to 150+ Permitted MSW LFs**
  - At least 1 in every MO County (except 2)

- **1987-88 – NEW Closure/Post Closure**
  - Active MSW LFs reduce to 75 or 80

- **1994-95 – Federal Sub D implemented**
  - Active MSW LFs reduce to 40 to 50
Decline in # of MSW LFs

- Late ‘90s to Early 2000’s – Further Attrition
  - Various Reasons.
  - Mainly Privately-Owned Locals (Ma & Pa)

- Since Subtitle D Implementation
  - Only 2 GREEN FIELD MSW LFs Approved

- Very Long Permit Process! Plus Planning!
  - 6 to 8 yrs (est) from Conception to Ops!
Missouri Landfill Permit Process

Typical MDNR Permitting Timeline
Are There Enough MSW LFs?

Distribution of MSW Landfills

- 4 in Kansas City Area
- 4 in St. Louis Area
- 3 in Southwest MO
- 3 in Central MO
- 1 in Northeast MO
- 1 in Bootheel (Southeast MO?)
- None in Extreme North MO & Southeast MO
Is There A Problem?

- Distribution of Ownership
  - 3 to 5 City Owned MSW Landfills
  - 1 Local, Privately Held MSW Landfill
  - 12 International, National or Regional MSW Landfills

- Total, Permitted Landfill Capacity in MO.
  - Is it OK?
  - Is it Well Distributed?

- ~ 60 Permitted Transfer Stations
Why Consider a New Site?

- Proximity of MSW LFs to Waste
- Economic Tolerance of Customers
- Open Economic Competition in Waste Business
- Control of Your Destiny! (Cities?)
Look Back at History!

- Sites that DID NOT Get Permitted (or Closed Prematurely)
  - New Halls Ferry – N St. Louis Co (1980’s)
  - Recondite – Jasper Co (1980’s)
  - Shoal Creek – Clay Co (1980’s to 1990’s)
  - Fire Clay Site – Gasconade Co (1980’s to 1990’s)
  - Limestone Quarry Site – Sedalia (1990’s?)
  - Camden Co Site – Camden Co (2000’s)
WHY DIDN’T THEY MAKE IT?

Probably a Variety of Reasons, including:

- Public Opposition
- Negative Political Climate
- Too Small of Site
- Too Small of a Buffer Zone Around Site
- Developer Not Committed (Political Will!)
- Developer Ran Out of Money?
- Less Than Stellar Geologic Setting
- Changing Siting and Technical Requirements
WHERE TO START?

- Expect the Unexpected!
  - Look for Skeleton’s in Your Closet!
  - Anticipate Twists & Turns
  - Never Be Surprised (Just Disappointed)

- Identify Need or Opportunity

- Identify Potential Sites
What To Look For In A Site

- Sites Within 100 miles of Metro Areas?
- Good Transportation (Railroads?)
- City or Country? Population?
  - Zoning or No Zoning?
  - Consider Environmental Justice Impacts
- Large Parcel(s) of Property Available
- Can you obtain FEE SIMPLE TITLE?
- Geologic/Topographic Suitability

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How Much Capacity to Target?

- Suggest 10 +/- Million Cu. Yards Airspace

Why?

- Current Landfills Operate at 500 CY/day OR MORE
- Assume 1000 CY per day, 5 days a week.
- 10,000 days / 260 days per year ~ 38.5 years.

- Personal Rule of Thumb –
  - Design Capacity divided by 2.
How Many Acres Needed?

- Assume an average of 100 feet of fill can be designed
- $10,000,000 \text{ CY} = 270,000,000 \text{ Cu. Ft.}$
- At 100 ft tall (avg), you need ~ 62 acres.
- Use 100 Acres
  - More is better!
  - May not get an average of 100 feet.
  - I Like Round Numbers!
Acreage Needed for 100-acre Landfill

\[
\begin{align*}
2100' \times 2100' &= 101 \pm \text{ACRES} \\
2100' \times 2100' &= 221 \pm \text{ACRES} \\
4100' \times 4100' &= 386 \pm \text{ACRES} \\
4740' \times 4740' &= 516 \pm \text{ACRES}
\end{align*}
\]
How Many Acres Needed?

- THINK BIG! Assume you need 250 to 500 contiguous acres
- Large Tracts of Land Typically Sell by Fractions of Sections
  - 1 Section = 1 Mile Square = 640 acres +/-
- Is ½ Section (320 acres) enough?
  - Yields 161 acres for Disposal (w/500 ft buffer)
- Square Is Most Efficient Shape!
Disposal Area Available in ½ Section

1/2 SECTION = 320 ACRES
Geologic Suitability is KEY!

- Must Meet Current Siting Criteria
- Must Identify the Uppermost Aquifer
- Must Be Able to Identify Geologic Barrier
- Must Be Able to Effectively Monitor GW
Missouri’s Varied Geology!
Topographic Suitability - Helpful!

- Avoid Creeks, Streams & Rivers
  - May Not Be Possible
  - Control Head of Drainageways!

- Too Flat or Too Steep = Difficult Design

- Rolling Topography Is Generally Good

- Surplus Quantity of Soil is a PLUS!

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Engineering Approach!

- Dot Your ‘I’s and Cross Your ‘T’s

- Don’t Push the Envelope!

- Unless You Have to!
  - Then Do Your Homework!
  - This is the Show Me State!
Public Relations Approach!

➢ DON’T:
  ● Try To Be The Smartest Person In The Room!
  ● Use Smoke Screens or Big Productions!
  ● Underestimate the Public!

➢ DO:
  ● Get Politicians On Board (or Neutral)
  ● Expect to be Insulted!
  ● Expect the Unexpected!
Success Story Examples!

- **1980s; Pre-Sub D:**
  - City of Columbia Landfill (City)
  - Jefferson City Landfills (ESM)

- **1980s-1990s; Pre-Sub D:**
  - Courtney Ridge Landfill (Private Developer?)

- **1990s; Post-Sub D:**
  - Prairie Valley Landfill (Private, Local Hauler)
  - Timber Ridge Landfill (Private Developer)

- **Metro Fill Demolition Landfill (mid-2000s)**
‘Ma & Pa’ to Regional Landfills!

- Sutton & Sons Landfill (Now Eagle Ridge)
- Teter Landfill (Now Maple Hills)
- Prairie Valley Landfill (Same Name)
- Hartville Landfill (Now Black Oak)
- Lemons Landfill (Same Name)
Take Aways/Summary

- Extensive Upfront Planning Mandatory!
- Look for Skeletons in Your Closet!
- Think BIG! Cut back later!
- Don’t Underestimate Politics or the Public
- EXPECT THE UNEXPECTED!

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CLOSING THOUGHTS!

- SUCCESS IS 50% SKILL AND 50% MENTAL!

- PERMITTING A SANITARY LANDFILL TAKES INTESTINAL FORTITUDE!

- HIRE EXPERIENCED CONSULTANT(S)!
  - Teaming Works!
  - Dedicated Project Manager is CRITICAL!
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ENIRONMENTAL ENGINEERING  LAND - AIR - WATER
Offices in Jefferson City, Kansas City Metro and Springfield, Missouri

*When experience counts, count on us!*

**IF A NEW MSW LF MIGHT BE NEEDED BY 2030,**

**THE TIME TO START IS UPON US!**

**QUESTIONS?**

**COMMENTS?**

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