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Offices in Jefferson City, Springfield and Kansas City Metro
2023 Missouri Waste Control Coalition

**A LOOK AT 50 YEARS OF WASTE
MANAGEMENT
A PANEL DISCUSSION**

July 10, 2023

**1505 E. HIGH STREET
JEFFERSON CITY, MO
573-659-9078
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SESSION PRESENTORS

- **ALL PRESENTORS:**
 - **ARE PAST MWCC PRESIDENTS!**
 - **HAVE LIVED AND BREATHED WASTE MANAGEMENT FOR 40+ YEARS!**

- **RICKIE ROBERTS, P.E. –**

- **MIKE DUVALL, CHMM, ESQ. –**

- **TOM GREDELL, P.E. –**

- **OTHER ANCIENT WASTE MANAGEMENT PROFESSIONALS PRESENT?**



WHY LOOK BACK AT 50 YEARS OF WASTE MANAGEMENT?

- **Winston Churchill said**
 - ***“Those that fail to learn from history are doomed to repeat it.”***
- **The Panel will review & discuss:**
 - The history of waste management
 - The transition of waste management to MDNR (in 1974)
 - The passage and implementation of Missouri’s Solid Waste Law
 - The passage and implementation of Missouri’s Hazardous Waste Law
 - The Activity that lead to the formation of the MWCC!
- **OPEN FORUM! THE MORE QUESTIONS THE BETTER!**

PRE-HISTORIC WASTE MANAGEMENT! (1950 & EARLIER)

➤ **Wikipedia**

- Credits Britain for some of the first waste management systems in the 1850s!
- Industrialization and Urbanization brought the need for better waste management
- ‘Yard dust’ (i.e., coal ash) was collected for use in making bricks!
- First incinerator built in Nottingham in 1874
- First enclosed collection ‘vehicle’ – Britain in 1920s
- New York City – First US Waste Collection System (1895)
- Manure and Dead animals in US Streets required collection to prevent disease!
- Garwood load packer – the first hydraulic packer in 1938


PRE-HISTORIC WASTE MANAGEMENT WAS DIFFERENT!

- **Waste was burned to prevent disease, leaving mostly non-combustible materials:**
 - Glass
 - Metals
 - Bricks, Rocks, Concrete, etc.
- **Google Search – Cities built on LANDFILLS**
 - New York – Numerous different areas
 - Chicago Shoreline – Half Mile further east than Settlers found.
 - San Francisco
 - Boston’s “South End”
 - Love Canal
 - The State of New Jersey! 😊

HISTORY OF SOLID WASTE MANAGEMENT IN MISSOURI

- 1960's – Open dumps rule! EPA Demonstration Sanitary Landfill project in KC, Ks. Clean Water Act birthed!
- 1970's – Missouri Solid Waste Law passed! MDNR born! First Solid Waste Landfill permits issued in late 70s!
- Early 1980's – MDNR negotiates the closure of the last official City Dump! RCRA is borne! Liners and leachate collection systems required! GW Monitoring began!
- Late 1980's – MDNR requires Closure & Post Closure Care Plans (20 yrs) and Financial Assurance (1987 – 1988).
- 1990's – Subtitle D! Post Closure increased to 30 yrs! Many landfills close. By late 1990's, most wish they did!
- 2000's – Less than 20 sanitary landfills in operation!

PROGRESSION OF LANDFILL CONCERNS

- 1960's – Rats, mosquitoes, flies and smoke!
- 1970's – Rats, mosquitoes and flies. Leachate?
- 1980's – Definitely leachate. Final cover. Buffer zones. Borrow areas. Gas starting to get attention.
- 1990's – Subtitle D! Composite liners, blanket drains & caps. GW monitoring (1 up, 3 down). Closure, post closure & FAI's. Landfill gas!
- 2000's – Minutiae! Refine ALL of the systems.
- 2010's – Landfill gas takes the forefront!
- 2020's – WH.  THE OLD LANDFILLS!

PRE-SUBTITLE D LANDFILL FACTS

- Owned by: Cities, Counties, State, Corporations, LLCs, Partnerships and Individuals.
- Estimated Number: Less than 50 with an FAI.
- Estimated size: 20 to 50 acres.
- Estimated in-place volume: 500,000 Cu. Yds. to 4,000,000 Cu. Yds.
- The majority are not owned by an entity that is currently in the solid waste business.

WHERE ARE WE AT NOW?

- Landfills with 20-year Post-Closure Care requirements probably closed in the early 1990's.
 - Post-Closure care should be complete NOW!
- Landfills with 30-year Post-Closure Care requirements probably closed in the mid to late 1990's.
 - Post-Closure care should be complete by 2020+/-

HISTORY OF HAZARDOUS WASTE MANAGEMENT IN MISSOURI

- **1960's – Businesses, Industries, Manufacturers and Chemical Producers and Formulators were unregulated. Wastes - by products were disposed of onsite or traded on the open market to secondary users.**
- **1970's – MDNR SWMP launched an inventory of industrial waste generation and management this culminated in the passage of the first Missouri Hazardous Waste Management Law (HB 318 - 1977)**
- **Early 1980's – Hazardous Waste Regulations patterned after the USEPA HW regulations for “Cradle to Grave” control and management of HW.**

HISTORY OF HAZARDOUS WASTE MANAGEMENT IN MISSOURI

- Late 1980's – MDNR registers all HW generators, licenses HW Transporters and issues permits to HW –TSDs for treatment and disposal of HW
- 1990s -2000's – RCRA Subtitle C HW TSD Facilities operate under Part A & update to Part B Permits to continue operations. HW incinerators with energy recovery (Cement Kilns and solvent distillation and recovery facilities provide HW treatment and reuse of organic industrial waste and residues).
- 2000's to Date – Tracking HW Cradle to Grave to minimize exposure of the public and to protect public health and the environment.

CASE STUDIES!

- Love Canal
- Times Beach
- Weldon Springs Rad Waste
- Bridgeton
- ADD TEXT

Is PFAS/PFOS the Worst Ever?

- Chloridane
- PCBs
- Dioxin
- Furans
- And more!?

Were Past Waste Management Professionals Crooks?

- East Coast Carters
- Large Chemical Companies
- Ocean Dumpers
- Missouri Legends!
- And more!?

Mega Landfills of the Future - NOW

- Regional/Inter state Waste flow - Cooperation
- Transfer Station/Long haul - LF Tippers
- SPW-Special nonhaz industrial waste factor
- Maximize Permitted Airspace
- ADC - Alternate Daily Cover
- LFGTE Systems - Compliance and Revenue Generator - Utilities/Power Grid
- Bioreactor LFs

Recycling/Composting

- 40% waste to LF Reduction Goal State-wide
- Landfill waste bans including - major appliances - Whole Tires - Pb acid batteries - yard waste
- E-scrap (computers & TV) / HHW exempted
- SW Regions / Districts Established
- Residential curbside-Single Stream Programs Stimulated with beginning 3 sort collection
- Market development / Transfer Stations / MRFs / Compost Operations Proliferate

Waste Legislation/Major Regulatory Milestones

- RCRA 1976 Enacted/Implemented next decade
- Subtitle D-MSW/LFs-state lead
- Sub C-Haz Waste regulation-EPA lead
- Sub I-UST Regulation
- Sub H-Medical Waste
- CERCLA/Superfund/SARA EPCRA series
- MO HW enabling Legislation - Gov signing ceremonies 1980
- MDNR Regulations/industry inspections enforcement 1984 commence

STL Regional Aspects

- STL City - Operates complete residential collection/recycling programs
- STL County regulates hauling/Recycling Industry with Municipalities using public-private mix plus Waste Franchise - Districts formed Unincorporated Areas Density
- St Chas Co - Enacted Comprehensive Waste Code 2001-Regulates Hauling/Transfer Stations along with Municipalities with Independent Programs
- Region L SWMD includes above plus Jefferson Co.

UNFORESEEN PROBLEMS?

- What is needed to ‘protect the public health and the environment’?
 - Regulatory standards for ‘protecting the public health and environment’ have changed dramatically in the past 40 years.
 - How could the landfill owners & operators of the 1980s and 1990s have better prepared for that?
 - Should the owners & operators stay ‘on the hook’?
 - Who wants to throw the first stone?



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COMMENTS?**

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