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# Common Sense Regulation: Restructuring Waste Disposal Requirements



# What led to this initiative?

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- Concerns raised by businesses regarding disposal requirements for industrial waste.
- Legitimate concern about over-regulating certain waste streams.
  - Fired brick waste
  - Vitrified china waste
  - Gypsum waste
- Around 2004, began broader internal discussions over inconsistencies in our programs.

# What led to this initiative?

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- Current regulatory scheme developed over many years:
  - Developed piece-meal
  - Limited understanding of threats at the start
  
- Agency never took a holistic approach.
  
- Agency needed to compare our standards to our better scientific understanding of threats posed by waste.

# Why include Construction and Demolition Debris (C&DD)?

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- ❑ In 2004, Ohio EPA began this initiative.
- ❑ Wanted a uniform approach, which included C&DD.
- ❑ H.B. 397, legislative development occurred while Ohio EPA in the middle of this comprehensive review.
- ❑ Had no idea how it would turn out. Even, whether we would be successful.

# Common Sense Waste Disposal Requirements

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## Measuring Success

Establish three overarching goals:

1. Science based.
2. Address equivalent threats in an equivalent manner (without regard to legal classification).
3. Do not over regulate

**How does current program measure up?**

# Types of Waste

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## Construction & Demolition Debris



**Municipal  
Solid Waste**



**Industrial  
Solid Waste**



## Existing Program

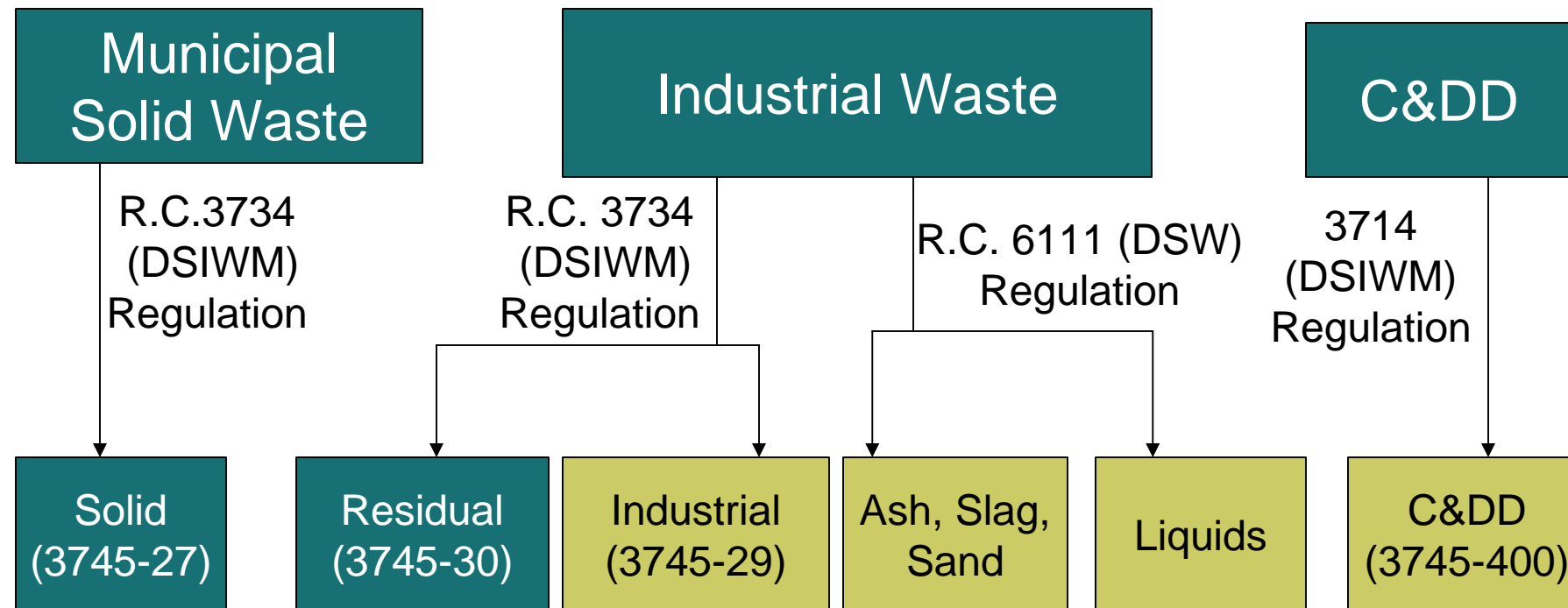
### Not Based on Current Science

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- Some previous standards or requirements did not have a strong scientific basis.
  - Example: 30x Maximum Contaminant Level threshold to determine if certain wastes should be considered “non-toxic”.
  - Developed in 1982 as part of the Division of Surface Water policy.
  - Was not based on any data regarding environmental or public health impacts.
  - Ohio EPA had failed to re-evaluate using current

# Existing Program

## Equivalent Threats Not Treated Equally



## Existing Program

### Equivalent Threats Not Treated Equally

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- Comparable contaminated waste not treated equally:
  - Certain lagoons are unlined and have no ground water monitoring.
  - Industrial solid waste landfills must all have a composite liner and ground water monitoring.
  - Construction and demolition debris landfills have little or no liner and, only rudimentary ground water monitoring if any.

## Existing Program

### Equivalent Threats Not Treated Equally

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No liner required for construction and demolition debris facilities. Even though...

Contaminant levels for certain parameters in construction and demolition debris leachate can exceed those in municipal solid waste.

A few examples include:

- Arsenic
- Cadmium
- Lead

# Existing Program

## Over Regulates in Some Cases

- Industrial waste can vary in contamination levels from less than 1x the health based standards to more than 30x the health based standards.
  
- Regardless of variation only one way to build an industrial waste landfill:
  - 15' of isolation distance from uppermost aquifer system
  - 5' recompacted soil layer
  - 60 mil High Density Polyethylene (HDPE) liner



# Common Sense Disposal Requirements

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Ohio EPA launched a two-year process to realign regulations with overarching goals.

# Intensive Study of Current Scientific Data

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- Studied real data from Ohio facilities
  - 1,000s of ground water sampling data points from 283 facilities.
  - Waste characterization, ground water, and leachate data from 19 industrial solid waste and residual solid waste facilities that have partial or no liner.
  - 1,000s of public water system sampling data points. Understand pathways that could threaten public health.

# Intensive Study Using Latest Technology from U.S. EPA

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- Industrial Waste Evaluation Computer Model (IWEM)
  - Result of a seven-year U.S. EPA effort involving participants from several states and industries.
  - Intended as a tool to help determine design requirements for disposal facilities.

## Intensive Study – Real World vs. Computer Modeling

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- Ohio EPA used IWEM to evaluate four different geological settings specific to Ohio and used hundreds of IWEM runs for each constituent evaluated.
  - Modeling results appeared to be overly conservative.
  - Our approach relies on what is going on in the real world.

# Conclusions from our Comprehensive Scientific Review

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- **Isolation Distance** – The smaller the distance between the ground water and the bottom of the waste, the greater the threat of contamination.
- **Contaminant Levels** - The higher the concentration of contaminants in the waste stream, the greater the threat of ground water contamination.
  - 10 x health-based standards for inorganics
  - 2 x health-based standards for organics

# Proposed Industrial Waste Disposal Requirements

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## Isolation of Waste from Uppermost Aquifer System

Isolation Distance	Threat of Contaminating Ground Water
0 – 5 Feet	Very High
5 – 15 Feet	High
15 - 25 Feet	Some Reduction
25 – 150 Feet	Significant Reduction
Greater than 150 Feet	Much Lower

# Proposed Industrial Waste Disposal Requirements

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## Waste Characterization and Measuring the Threat

Relative Contamination	Maximum Waste Concentration
High	<ul style="list-style-type: none"><li>- Inorganics &gt; 10x health-based standards</li><li>- Organics &gt; 2x health-based standards</li><li>- Total Dissolved Solids &gt; 10,000 mg/L</li></ul>
Medium	<ul style="list-style-type: none"><li>- Inorganics <math>\leq</math> 10x health-based standards</li><li>- Organics <math>\leq</math> 2x health-based standards</li><li>- Total Dissolved Solids <math>\leq</math> 10,000 mg/L</li></ul>
Low	<ul style="list-style-type: none"><li>- All constituents = health-based standards</li><li>- Total Dissolved Solids = 3,000 mg/L</li></ul>

# Proposed Disposal Requirements – Many Design Options

		Contamination Level		
		High	Medium	Low
Isolation Distance	5 - 15 Feet	<b>Stringency of requirements decreases as contamination levels decrease and isolation distance increases</b>		
	15 - 25 Feet			
	25 - 150 Feet			
	>150 Feet			

# Compare New Proposal to Overarching Goals

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Does the new proposal meet our goals?

- 1) Is it science based?
- 2) Does it treat equivalent threats equally?
- 3) Does it over-regulate?

# Draft Concept Science Based

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- New approach is science based
- Requirements are based upon real data from real Ohio facilities
  - Thousands of ground water samples
  - Extensive leachate data
  - Comparing lined vs. unlined facilities
- Represents our latest scientific understanding



## Draft Concept

# Equivalent Threats Treated Equally

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- ❑ Addresses equivalent threats in the same manner regardless of legal classification.
- ❑ Doesn't change legal classifications.
- ❑ Adjusts requirements based on levels of contamination and local geology.

# Draft Concept

## Doesn't Over Regulate

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- Increased flexibility: by allowing variation among industries and site-specific information

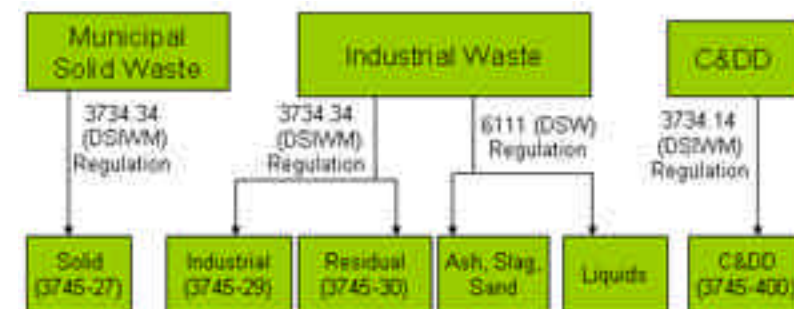
Old Industrial Waste Rules - 1 design option

New Rules - 12 potential design options

Option for very low contaminated waste: No liner, no leachate collection and no ground water monitoring.

# A Common Sense Approach

- Strong basis in the latest science
- Allows adjustment based on threat
  - less contamination = fewer requirements
  - allows for site variation based on geology
- Because standards adjust = doesn't over-regulate



## What's Next?

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- ❑ Interested party comment period August 1 through September 1, 2006.
- ❑ Willing to meet with anyone to discuss the details associated with the proposal and receive input.
- ❑ Updates will be sent out via Ohio EPA's ListServ service (Subscribe at: [www.epa.state.oh.us](http://www.epa.state.oh.us))
- ❑ Paper mailings can be requested from Amanda Graham at (614) 728-5372.

## What's Next?

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Review the draft rules and send your comments

<http://www.epa.state.oh.us/dsiwm/>



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Questions?