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Management

# Where can I find the statutes, rules, and guidance?

- **Statutes** (Indiana Code) are found at:  
<http://www.IN.gov/legislative/ic/code>
- **Rules** (Administrative Code) are found at:  
<http://www.IN.gov/legislative/iac>
- **IDEM guidance** is found at:  
<http://www.IN.gov/idem/land/pubsforms/guidance.html>

# How does the program work?

- Can be described as a patchwork.
- Statute covers coal ash, foundry sand, and steel mill slag.
- Indiana Solid Waste Rules cover other uses and case-by-case approval.
- Land application (agriculture and potting soil) is covered under water regulations.

# Coal Ash

- Indiana Law prohibits regulation certain uses by the Solid Waste Management Board.
- Applies to fly ash, bottom ash, slag, and flue gas desulfurization sludge (FGD).
- Uses include: mine subsidence, roadbase, structural fill, bottom ash as antiskid material. (See IC 13-19-3-3 for complete list.)

# Coal Ash

- Does not prohibit regulation by other statutes or air or water programs.
- May present fugitive dust, surface water, or ground water problems. All may be avoided by evaluation of the site and implementing engineering and construction standards.

# Coal Ash Project Mooreville, Indiana

- Used as structural fill at private project
- 400,000 cubic yards of ponded ash.





# Foundry Sand

- Indiana Law allows use of foundry sand in several applications. (see **IC 13-19-3-7** for the complete list.)
- IDEM approval is not required for the use but the foundry does need to obtain a waste classification of Type III or Type IV as found in **329 IAC 10-9-4**.
- Guidance is available for use, storage, and waste classification.

# Foundry Sand

- Indiana law covers land application of foundry sand in a separate guidance.
- May present fugitive dust, surface water, or ground water problems. All may be avoided by evaluation of the site and implementing engineering and construction standards.

# INDOT “206” Project

- Result of a joint project involving INDOT, INCMA, IDEM, and Purdue University.
- Used approximately 50,000 cubic yards of foundry sand in construction of an embankment.





# Foundry Sand and Coal Ash

- Have participated with INDOT and IDEM in demonstration projects.
- Have special provisions with INDOT.
- Have been included in Indiana's EnPPA (October 1996-September 1997 and October 1997-June 1999).
- IDEM is participating in current Metal Casting Stewardship program.

# Slag

- Indiana law prohibits regulation of production, storage, processing, legitimate use, and transportation of slag by the Solid Waste Management Board.
- Slag has been used historically for many uses including: structural fill, concrete and asphalt production, mineral wool manufacture.
- Does not prohibit regulation by other statutes or air or water regulations.



# Slag

- INDOT specs have allowed use. Slag has been used in many INDOT projects.
- Recent problems with leachate at INDOT sites have caused INDOT to require testing prior to use.
- IDEM has also responded to complaints at private properties.
- Slag processor is investigating problem and searching for solution.





# Case-by-case Approvals

- Covered under Indiana Solid Waste Rules **329 IAC 10-3-1 (13)**
- “[O]ther uses of solid waste may be approved by the commissioner if the commissioner determines them to be legitimate uses that do not pose a threat to public health and environment.”

# What types of waste?

- Particle board sawdust as animal bedding
- Municipal WWTP sludge incinerator ash as structural fill
- Blasting grit (used on structural steel) as substitute aggregate in asphalt production
- Tires (altered)
- Foundry slag
- Refractory

# Legitimate Use

- No regulatory definition
- IDEM looks at the merits of use:

Does it perform as a effective substitute?

Product/material specifications

Valid research to support

Engineering/project plans

Physical testing

# Pose a threat to public health or environment

- Use waste classification testing (if no organic decomposition expected). See **329 IAC 10-9-4** for constituents.

## Type III or Type IV

- May use alternative testing such as total metals, organics.
- Results may be compared to RISC or other appropriate reference materials.

## 329 IAC 10-9-4

TABLE 1

Constituents Using the Toxicity Characteristic Leaching Procedure Test  
Constituent Concentration (milligrams per liter)

	Type IV	Type III	Type II	Type I
Arsenic	# .05	# .50	# 1.3	<5.0
Barium	# 1.0	# 10.	# 25.	<100.
Cadmium	# .01	# .10	# .25	<1.0
Chromium	# .05	# .50	# 1.3	<5.0
Lead	# .05	# .50	# 1.3	<5.0
Mercury	# .002	# .02	# .05	<.20
Selenium	# .01	# .10	# .25	<1.0
Silver	# .05	# .50	# 1.3	<5.0

TABLE 2

Constituents Using the Leaching Method Test  
 Constituent Concentration (milligrams per liter)

	Type IV	Type III	Type II	Type I
Barium	# 1.0	# 10.0	# 25.	***
Chlorides	# 250.	# 2,500.	# 6,300.	***
Copper	# .25	# 2.5	# 6.3	***
Cyanide, total	# .20	# 2.0	# 5.0	***
Fluoride	# 1.4	# 14.0	# 35.	***
Iron	# 1.5	# 15.0	***	***
Manganese	# .05	# .50	***	***
Nickel	# .20	# 2.0	# 5.0	***
Phenols	# .30	# 3.0	# 7.5	***
Sodium	# 250.	# 2,500.	# 6,300.	***
Sulfate	# 250.	# 2,500.	# 6,300.	***
Sulfide, total	# 1.0	# 5.0	# 13.	***
TDS	# 500.	# 5,000.	# 12,500.	***
Zinc	# 2.5	# 25.	# 63.	***

## TABLE 3

pH (using the Leaching Method Test)

Constituent Acceptable Range (Standard Units)

	Type IV	Type III	Type II	Type I
pH	6.0-9.0	5.0-10.0	4.0-11.0	***

\*\*\* Testing is not required.

## Other considerations:

- Air or water impacts (usually found with processing and storage).
- Other state agency or local regulations may apply (floodway construction, local zoning).
- Referral to other IDEM programs has been limited.

# Guidance Available Online

- Storage of Type III Foundry Sand Prior to Legitimate Use
- Foundry Sand Use in Land Application and as a Soil Amendment
- Use of Foundry Sands in Accordance with House Enrolled Act 1541

# Guidance Available Online

- Solid Waste Program Analytical Data Deliverable Requirements
- Risk Integrated System of Closure Technical Guide & User's Guide