



Foundry Sand Reuse in Kansas

Best Practices & Regulatory Compliance

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3. Key Concepts and Definitions

What is Foundry Sand?

Foundry sand is a high-quality silica sand used by metal casting facilities to make molds for shaping molten metal into parts.

After repeated use, the sand becomes "spent" and needs to be replaced — creating a large volume of by-product material.

What is Beneficial Reuse?

Beneficial reuse means finding safe, productive ways to repurpose industrial by-products (like foundry sand) instead of throwing them away. It protects the environment, saves natural resources, and cuts disposal costs. In Kansas, beneficial reuse helps businesses lower expenses and communities build infrastructure more sustainably.

Examples of beneficial reuse for foundry sand include:

- Replacing mined sand in concrete or road base
- Using sand as daily cover at landfills
- Mixing into manufactured soils for landscaping

What is a TCLP Test?

TCLP stands for Toxicity Characteristic Leaching Procedure — a laboratory test required by the U.S. EPA to find out if a waste material might release harmful contaminants into groundwater.

How a TCLP test works:

- A sample of the material is soaked in a mild acidic solution that simulates rainwater or landfill conditions.
- Scientists measure what chemicals "leach out" of the sample into the fluid.
- If dangerous levels of metals (like lead) or chemicals are found, the material is classified as hazardous waste and must be managed under strict regulations.

If the material passes the TCLP test (meaning contaminants are below federal limits), it can be reused safely under environmental rules.

Why Should Readers Care About Foundry Sand Reuse?

- Environmental Protection: Reuse reduces waste sent to landfills and conserves natural sand resources, which are expensive and limited.
- Cost Savings: Foundries, cities, and contractors save money by reusing sand instead of buying new materials or paying high disposal fees.
- Public Safety: Proper testing (like TCLP) ensures that reused sand does not threaten drinking water, soil, or the environment.
- Economic Growth: Reuse projects create jobs, strengthen recycling industries, and make local construction and public works projects more affordable.

4. Regulatory Guidelines

Kansas KDHE Regulations

The Kansas Department of Health and Environment (KDHE) manages beneficial reuse through its application-based evaluation system for industrial byproducts. Under Kansas Statutes K.S.A. 65-3409(a)(1)(A), beneficial use of industrial byproducts can be authorized without a solid waste permit if specific criteria are met. The KDHE Bureau of Waste Management oversees this process through comprehensive technical guidance documents and standardized application procedures.

Key Regulatory Framework

Industrial waste is defined as “all solid waste resulting from manufacturing, commercial and industrial processes which is not suitable for discharge to a sanitary sewer or treatment in a community sewage treatment plant or is not beneficially used in a manner that meets the definition of recyclables.” Recyclables are defined as “any materials that will be used or reused, or prepared for use or reuse, as an ingredient in an industrial process to make a product, or as an effective substitute for a commercial product.”

Application Process for Foundry Sand Reuse

All beneficial use applications require case-by-case approval. Applicants must complete KDHE Form SWP910 – “Application for the Beneficial Use of Industrial Byproducts Without a Permit.” The application package must include:

- Detailed facility and applicant information
- Complete characterization of the foundry sand byproduct
- Laboratory analysis from a Kansas-certified laboratory
- A comprehensive beneficial use plan as a separate document
- A schematic illustrating surface water controls
- A contingency plan for adverse weather conditions

Approved Uses for Foundry Sand

KDHE evaluates applications based on whether the material serves as an effective substitute for commercial products and exhibits engineering properties suitable for the proposed project. Typical approved uses include:

- Raw material for construction products (e.g., concrete, asphalt)
- Engineered fill for mine stabilization or embankment projects
- Structural fill and subbase materials for road building
- Production feedstock in manufacturing processes

Key Regulatory Requirements

Testing and Characterization

All foundry sand must undergo comprehensive laboratory analysis by Kansas-certified laboratories. Testing requirements are determined on a case-by-case basis by KDHE staff and generally align with federal Resource Conservation and Recovery Act (RCRA) guidelines for nonhazardous waste classification.

Pre-Approval Requirements

Written approval from KDHE is required before any beneficial use activity may commence. A material is considered a nonwaste beneficial product only after formal KDHE approval.

Storage and Management

Applications must include detailed site management controls for dust mitigation, stormwater runoff, and public access restrictions. Surface water control measures must be illustrated in the application schematic.

Landfill Fee Structure

Kansas imposes a state solid waste tonnage fee of \$1.00 per ton for materials disposed of at permitted landfill facilities. Industrial byproducts that meet beneficial use criteria and receive KDHE approval are not subject to the landfill tonnage fee when managed according to the approved beneficial use plan.

Federal EPA Guidelines

At the national level, the U.S. EPA encourages the reuse of spent foundry sands from iron, steel, and aluminum foundries. EPA's major documents include:

- Risk Assessment for Spent Foundry Sands in Soil-Related Applications (2014)
- Sustainable Materials Management Program resources.

EPA concluded that silica-based sands from iron, steel, and aluminum foundries can be safely reused in soil blends, construction materials, and road bases.

EPA does not federally regulate beneficial reuse of non-hazardous foundry sands but defers regulatory authority to states like Kansas.

Local Ordinances

Most cities and counties in Kansas defer to KDHE's beneficial use approval for industrial byproducts, including foundry sand. Local jurisdictions typically recognize KDHE's determination as sufficient for permitting, provided the approved beneficial use plan is followed.

Municipalities and counties may impose additional requirements for large-volume or sensitive-area projects, such as:

- Notification to planning or zoning departments when more than 1,000 cubic yards of material will be placed
- Coordination with county stormwater or watershed authorities for projects within 1,000 feet of wetlands or floodplain boundaries
- Site plan review by local public works or engineering divisions to confirm compliance with municipal stormwater and dust-control ordinances

When a beneficial use plan has received formal KDHE approval, local permitting requirements are usually limited to routine notifications or site inspections rather than full permit applications.

5. Reuse Applications and Kansas Examples

Reuse Application	Description	Kansas Examples or Status
Road Base & Fill	Substitute for natural sand/aggregate in road subbase, embankments, and structural fill.	Pilot evaluations by KDOT's Materials and Research Center have tested industrial byproducts—including foundry sand—for subbase applications; formal KDHE approvals granted on a case-by-case basis.
Cement & Concrete Production	Raw feedstock in Portland cement kilns or as fine aggregate in concrete and masonry products.	No large-scale commercial use documented; KDHE encourages demonstration trials under approved beneficial use plans.
Landfill Uses	Daily cover, interim cover, or drainage layer material in liners and leachate systems.	Industrial landfill expansion permits (e.g., Acme Foundry, Inc.) demonstrate acceptance of foundry sand as engineered cover material when approved by KDHE.
Soil Amendment	Blend into topsoil or manufactured soil to improve drainage and aeration.	Under study by KDHE's Solid Waste program; no widespread field applications are documented, though EPA risk assessments support use up to 50% sand content.
Sandblasting Abrasive	Dry, granular sand used for surface blasting/cleaning in place of mined sand abrasives.	Authorized through KDHE beneficial use approval when material meets particle-size and contaminant criteria; individual foundries report small-scale internal reuse.
Other Innovative Uses	Cattle bedding, snow/ice control sand, geotechnical barriers, and other experimental applications.	Experimental projects require full KDHE review; no permanent programs in place, though interest expressed in barrier fill for impermeability studies.

Kansas Examples in Action

Road Construction Fill Pilot evaluations by the Kansas Department of Transportation Materials and Research Center have tested spent foundry sand in road subbase and embankment applications. Several district offices report case-by-case KDHE approvals for up to 1,000 cubic yards of foundry sand in pavement subbase trials.

Landfill Daily Cover The Acme Foundry, Inc. industrial landfill near Coffeyville, KS, has received KDHE approval to accept spent foundry sand as daily cover material. A permit modification expanded its disposal capacity to over 700,000 cubic yards of industrial byproducts, including foundry sand.

Sandblasting and Niche Uses Several Kansas foundries internally reuse clean, spent core sand for sandblasting operations. These small-scale reuses avoid disposal costs and substitute for commercial abrasive media once particle size and contaminant criteria are met under the beneficial use approval.

6. Environmental and Technical Considerations

Beneficial reuse of foundry sand requires careful understanding of material composition, contaminant risks, and environmental testing protocols to ensure safe and responsible outcomes.

Types of Foundry Sands

Ferrous Foundry Sands (Iron and Steel Castings):

- Typically high-purity silica sand bonded with clay (green sand) or chemical resins.
- Low in contaminants.
- EPA and KDHE consider these the safest and most preferred for reuse.

Non-Ferrous Foundry Sands (Aluminum, Brass, Bronze Castings):

- Similar base sand but potential contamination from metal alloys.
- Brass/Bronze sands often contain elevated lead, requiring more stringent testing or stabilization before reuse.

Specialty Sands:

- Some foundries use olivine sands or other media; not covered under EPA's standard risk assessment for reuse.
- May alter soil pH or chemistry.

Contaminants of Concern

Contaminant	Source	Notes
Lead (Pb)	Brass/bronze alloys	Key concern; must not exceed TCLP leaching limit (5.0 mg/L).
Chromium (Cr)	Stainless steel alloys, pigments	Usually low and stable in ferrous foundries; not a major issue.
Phenols / Cresols	Phenolic resins (binder breakdown)	Organic compounds typically present in very low concentrations.
PAHs	Burnt sea coal or resin residues	Detected at very low levels; below environmental risk thresholds.
Dust / Free Silica	Physical hazard from dry sand	Requires dust suppression measures during handling to protect workers.

Contaminant	Source	Notes
pH / Salinity	Binders, chemical additives	Some foundry sands have slightly alkaline pH, generally not problematic unless used directly in soils.

Importance of TCLP Testing

The Toxicity Characteristic Leaching Procedure (TCLP) is the industry-standard EPA test to determine whether foundry sand poses a leaching hazard to groundwater.

- Simulates landfill leachate conditions using an acetic acid solution.
- Measures 8 key metals (Lead, Arsenic, Cadmium, Chromium, etc.).
- Passing TCLP = Sand is classified as non-hazardous.
- Ferrous foundry sands in Kansas typically pass TCLP easily.

If foundry sand fails TCLP (e.g., high lead from brass castings):

- It must be managed as hazardous waste, not reused without treatment.

Key for Kansas Reuse: All sands used in landfill cover, road base, concrete, etc., must pass TCLP and have supporting documentation.

Environmental Behavior of Foundry Sand

- Heavy metals in ferrous sands are generally immobilized in the sand matrix.
- Organics (e.g., phenols, PAHs) are below actionable risk levels according to EPA risk assessments.
- Field studies show low leachability and no significant uptake into plants when used in soil amendments.

Conclusion: For properly characterized ferrous foundry sands, environmental risks are minimal — supporting broad beneficial reuse.

7. Funding, Grants, and Incentives

State-Level Incentives

Solid Waste Reduction Grants: Administered by KDHE's Bureau of Waste Management. Provides grant funding for waste reduction, reuse, and recycling projects, including recycling equipment necessary for operating recycling facilities. Foundry sand beneficial reuse projects qualify for equipment and educational outreach funding. Grants are funded through the \$1.00/ton solid waste tonnage fee collected statewide. Applications are due by May 15 annually, with awards typically announced in July.

Kansas Small Business Environmental Assistance Program (SBEAP): Free service offered through Kansas State University's Pollution Prevention Institute. Provides regulatory compliance assistance and technical support for Kansas small businesses. Offers guidance on beneficial reuse applications, waste characterization, and KDHE regulatory navigation. No direct funding, but provides substantial savings through technical assistance and regulatory support.

Property Tax Exemption for Pollution Control Equipment: Kansas Statutes K.S.A. 79-257 and K.S.A. 79-258 provide property tax exemptions for pollution control devices at electric generation facilities. While not specifically targeting foundry sand processing equipment, these statutes establish precedent for environmental equipment exemptions. Foundry sand processing equipment designed for pollution control purposes may qualify for evaluation under existing exemption frameworks.

Manufacturing Equipment Sales Tax Exemption: Kansas provides sales tax exemption on machinery and equipment used as an integral part of integrated production operations by manufacturing facilities. Sand reclamation units, screening equipment, and mixing machinery for beneficial reuse applications may qualify when used in manufacturing operations. Exemption covers repair and replacement parts, as well as installation and maintenance services for qualifying equipment.

Federal-Level Opportunities

EPA Sustainable Materials Management Grants:

- Periodically available grants supporting innovative reuse/recycling projects.
- Can fund pilot projects, outreach campaigns, or infrastructure improvements related to foundry sand.

Federal Infrastructure and Recycling Funding (Infrastructure Investment and Jobs Act):

- Some grant programs are open to states and municipalities improving recycling or circular economy initiatives.
- Foundry sand reuse aligns with goals of waste reduction and sustainable construction.

FHWA / DOT Support:

- Federal Highway Administration promotes the use of recycled materials (including foundry sand) in road construction.
- Some research grants and technical support available for projects demonstrating new uses of industrial byproducts in infrastructure.

Local Opportunities

Local Government Partnerships

Kansas counties and municipalities may access KDHE Solid Waste Reduction Grants, which provide financial assistance for waste reduction, reuse, and recycling projects. These grants require a 25% local match (with at least half in cash) and can fund equipment, education, and operational improvements related to beneficial reuse activities. Applications are accepted annually from March 15 to May 15, with awards announced in July.

The Kansas Department of Transportation's Cost Share Program provides financial assistance to local entities for transportation projects that improve safety and infrastructure. The program requires a 15% local cash match and funds construction costs exclusively. While primarily focused on transportation infrastructure, projects involving foundry sand as road base or structural fill material may align with program objectives when partnered with approved KDHE beneficial use plans.

Johnson County's Department of Health and Environment offers Waste Diversion Assistance to qualifying organizations, providing up to \$500 in materials to support waste diversion initiatives following a free sustainability consultation. Organizations must demonstrate commitment to waste reduction strategies.

Public-Private Collaborations

Landfills operating under KDHE approval may negotiate reduced or waived acceptance fees for foundry sand when the material is used as daily cover, drainage layer material, or other approved engineering applications. These arrangements provide cost advantages for both the generating facility and the landfill operator while advancing waste diversion goals.

Construction contractors working on KDOT-funded projects may coordinate directly with foundries to obtain approved industrial byproducts as substitutes for virgin aggregates. KDOT's partnering initiatives with the Kansas Contractors Association encourage collaborative approaches to material sourcing that support cost efficiency and environmental stewardship.

Informal partnerships between foundries, contractors, and local public works departments often create mutual cost savings. Foundries benefit from avoided disposal fees, contractors access discounted fill materials, and municipalities reduce expenditures on purchased aggregates. These collaborations typically do not require formal grant applications but must operate within approved KDHE beneficial use determinations.

Summary Table: Key Funding and Incentive Programs

Program/Incentive	Type	Key Details	Impact for Foundry Sand Reuse
KDHE Solid Waste Reduction Grants	State Grants	Competitive funding for waste reduction and recycling projects. Requires 25% local match (half in cash). Applications due May 15 annually.	Can fund equipment purchases, educational outreach, and operational improvements for beneficial reuse facilities.
Kansas Small Business Environmental Assistance Program (SBEAP)	Technical Assistance	Free regulatory compliance and technical support through Kansas State University.	Provides guidance on beneficial use applications, waste characterization, and KDHE regulatory navigation.
KDOT Cost Share Program	State Cost Share	15% local cash match required for transportation infrastructure projects.	Supports local road construction projects using approved foundry sand as structural fill or subbase material.

Program/Incentive	Type	Key Details	Impact for Foundry Sand Reuse
Manufacturing Equipment Sales Tax Exemption	Tax Incentive	Sales tax exemption on machinery used in integrated production operations, including installation and maintenance services.	Reduces capital costs for sand reclamation units, screening equipment, and mixing machinery.
EPA Sustainable Materials Management Grants	Federal Grants	Funding for innovative waste prevention and materials management demonstration projects.	Can supplement state funding for pilot projects demonstrating foundry sand beneficial reuse applications.

8. Active Participants in Kansas

Foundries (Generators of Spent Sand)

- Acme Foundry, Inc. (Coffeyville, KS) Industrial foundry specializing in foundry sand management. Operates an industrial landfill permitted to accept spent foundry sand as daily cover material.

Received KDHE approval for landfill expansion from 196,900 cubic yards to over 712,600 cubic yards disposal capacity, demonstrating long-term commitment to beneficial reuse of foundry sand byproducts.

- Ferroloy, Inc. (Wichita, KS) Ductile and gray iron foundry serving agricultural machinery, infrastructure, pumps and valves, transportation equipment, and industrial equipment sectors.

ISO 9001:2015-certified facility with integrated casting and machining operations. Implemented advanced waste reduction initiatives and digital transformation programs to optimize material efficiency and reduce scrap generation.

- Farrar Corporation (Norwich, KS) Ductile iron foundry utilizing green sand casting process with recycled sand as primary molding material.

ISO 9001:2015-certified facility producing 70 tons of ductile iron daily. Green sand foundry operations emphasize environmental sustainability by reusing sand with only clay and water as additives, minimizing waste generation and disposal requirements.

- Kansas Castings, Inc. (Belle Plaine, KS) Iron foundry specializing in white iron, gray iron, and ductile iron castings for agriculture, oilfield, irrigation, and commercial equipment manufacturing.

Two-plant operation serving regional and national markets with comprehensive casting and machining capabilities.

- Ace Foundry (Kansas City, KS) Full-service aluminum foundry offering permanent molding, automatic sand casting, and large air-set casting capabilities.

In-house heat-treating, machining, powder coating, and surface finishing services support integrated manufacturing operations.

End Users (Consumers of Foundry Sand)

Municipal Solid Waste Landfills

- Kansas municipal solid waste landfills may use alternative daily cover (ADC) materials in place of traditional six-inch soil cover layers, provided the alternative materials perform equal to or better than soil in preventing blowing debris, minimizing vector access, reducing fire threats, controlling odors, and shedding precipitation. Landfill operators must obtain approval from KDHE's Bureau of Waste Management prior to implementing ADC programs. Foundry sand qualifies as ADC when it meets material performance standards and environmental safety criteria.
- Johnson County Landfill, Inc., the largest landfill in Kansas and the Kansas City metropolitan area, has capacity to accept municipal solid waste through 2027. The facility has explored various waste diversion strategies and alternative material applications to extend operational life.
- Sedgwick County operates Brooks Construction and Demolition Landfill, which accepted over 106,000 tons of construction waste in 2023. KDHE guidance documents identify foundry sand as an acceptable alternative cover material for construction and demolition landfills when properly characterized and approved.

Construction Contractors and Transportation Infrastructure

- Kansas Department of Transportation maintains a Prequalified Materials Listing that identifies approved materials and material sources for road construction projects. The listing covers aggregates, cementitious materials, asphalt components, and other construction materials used in state highway projects.
- Kansas County Highway Association members coordinate road construction and maintenance activities across Kansas counties. County road supervisors and engineers evaluate local material sources for subbase, fill, and aggregate applications in accordance with KDOT specifications and county engineering standards.
- Private construction contractors throughout Kansas utilize industrial byproducts as economical fill materials for commercial developments, parking facilities, and site preparation projects when materials receive KDHE beneficial use approval and meet project specifications.

Cement and Concrete Industries

- Kansas cement manufacturing operations have historically utilized industrial mineral resources including limestone, silica, and alumina compounds as raw materials. While no large-scale cement kiln reuse programs for foundry sand are currently documented, KDHE encourages demonstration projects that evaluate foundry sand as a silica feedstock substitute in cement production.

Supporting Programs and Agencies

Kansas Department of Health and Environment (KDHE) – Bureau of Waste Management Administers beneficial use approval system for industrial byproducts. Provides Solid Waste Reduction Grants and technical guidance

documents. Reviews applications through standardized Form SWP910 process.

Kansas Small Business Environmental Assistance Program (SBEAP) Operated through Kansas State University's Pollution Prevention Institute. Offers free regulatory compliance assistance and technical support. Connects businesses with environmental resources and permitting guidance.

Kansas Department of Transportation (KDOT) Maintains materials testing standards and prequalified materials listing. Provides Cost Share Program funding for local transportation infrastructure projects. Materials and Research Center evaluates alternative materials for highway construction applications.

American Foundry Society (AFS) Provides technical manuals, best practice guides, and case studies on foundry sand beneficial reuse. Kansas foundry members participate in regional conferences and technical committees. Promotes environmental stewardship and resource conservation in the foundry industry.

Kansas Geological Survey (KGS) Based at the University of Kansas. Conducts research on industrial and construction materials, including mineral resources and soil characteristics. Provides technical expertise on material properties relevant to engineering applications.

Key Collaboration Framework

Foundries generate characterized sand streams meeting environmental safety standards. Landfills and construction contractors provide end-use applications for approved materials. KDHE ensures regulatory compliance through case-by-case beneficial use approvals. SBEAP and KGS offer technical support, testing guidance, and material characterization assistance. Kansas County Highway Association and KDOT facilitate infrastructure project opportunities.

9. Success Story Highlights

Acme Foundry, Inc. Industrial Landfill Expansion (Coffeyville, KS)

Acme Foundry, Inc., a grey-iron casting foundry in Coffeyville, Kansas, received KDHE approval in 2022 to expand its industrial landfill permitted to accept foundry sand and other industrial byproducts. The permit modification increased the facility's disposal capacity from approximately 196,900 cubic yards to 712,600 cubic yards, an expansion of over 515,000 cubic yards. This represents a significant long-term commitment to managing spent foundry sand through beneficial reuse at an on-site industrial landfill, demonstrating the viability of foundry sand reuse infrastructure in Kansas. The expanded capacity allows the facility to accept foundry sand for many years, reducing the volume of material requiring disposal at municipal landfills.

10. Clear Business Case Summary

Why Foundries Should Reuse Sand:

- Save \$30–\$50 per ton vs. landfill disposal costs.

- Avoid environmental liability.
- Improve sustainability reporting for customers and regulators.

Why Contractors Should Reuse Sand:

- Get free or discounted sand for construction fill.
- Improve project bids by lowering material costs.

Why Landfills Should Accept Foundry Sand:

- Secure free cover material.
- Reduce operating costs.
- Increase daily cover efficiency.

11. Risk Management Overview

Beneficial reuse of foundry sand carries significant economic and environmental benefits, but participants must manage risk carefully to ensure compliance and protect their businesses.

Best Practices

- Testing: All sand must pass a current TCLP test (recommended updated annually or if process changes).
- Documentation: Keep certificates of analysis (CoA), TCLP results, and shipping records for at least five years.
- Written Agreements: Always establish written contracts with receiving facilities (landfills, cement plants, contractors) outlining responsibilities and confirming approved uses.
- Site-Specific Approvals: All beneficial uses require formal KDHE approval through the Form SWP910 application process. Applications must include comprehensive material characterization, environmental safety testing, and detailed beneficial use plans.
- Insurance: Verify liability coverage, and ensure your insurer understands your beneficial reuse activities.

ARS Support: ARS can assist participants in setting up compliance systems, testing protocols, and document templates to minimize legal risk.

12. Step-by-Step Workflow for Foundries

Simple Process to Start Foundry Sand Reuse:

- Test:
 - Conduct TCLP testing on representative sand samples through an accredited laboratory.
 - Confirm results meets KDHE standards.
- Document:
 - Save all lab results, including full reports and summary sheets.
- Partner:
 - Contact ARS to match your material to a reuse project (landfill, cement, construction).
- Agreement:
 - Sign a beneficial reuse agreement or memo of understanding.
- Ship:
 - Begin shipping sand as needed.
 - Label loads clearly and maintain load-out logs.
- Monitor:
 - If your production process changes (e.g., alloy change, new binder), re-test your sand.
 - Maintain communication with ARS and receiving partners.

Result: Compliance, savings, and sustainability without added operational headaches.

13. Real Cost Savings Example

Why Reuse Makes Financial Sense:

- Landfill Disposal Costs:
 - Disposal fee: ~\$70-\$150/ton
 - Landfill surcharge: +\$4.25/ton
 - Total = ~\$74.25-\$154.25/ton to landfill
- Beneficial Reuse Costs:
 - Transportation only: ~\$10-\$75/ton (varies by distance)

Savings Calculation:

If your foundry produces 1,000 tons/year:

Landfill cost: 1,000 tons x \$49.25 = \$49,250

Reuse transport cost (avg \$15/ton): 1,000 tons x \$15 = \$15,000

Total annual savings = ~\$34,250

Multiply this by 5–10 years and the impact becomes massive.

15. General FAQ & Landfill-Specific FAQ

Q: Is reused foundry sand safe for public use projects like roads or parks?

A: Yes, provided the sand passes environmental testing through a Kansas-certified laboratory and meets KDHE approval criteria. Foundry sand from iron, steel, and aluminum foundries has been proven safe for approved infrastructure applications including road base, landfill daily cover, and construction fill. KDHE and the U.S. EPA recognize beneficial reuse of foundry sand as environmentally sound when materials are properly characterized and used according to approved beneficial use plans.

Q: How often does foundry sand need to be tested?

A: Initial laboratory testing is required to support the KDHE beneficial use application. Retesting frequency depends on process consistency and material sourcing. Most foundries conduct annual testing or when they implement significant changes to casting processes, binder systems, or raw material suppliers.

Q: Can reused foundry sand be used near homes, gardens, or drinking water supplies?

A: Applications like road base and landfill cover are widely approved and safe. For use in soil amendments near gardens or homes, KDHE requires additional site-specific review and environmental safeguards. Soil contact applications near sensitive areas (drinking water wells, food production) typically require more extensive analysis and case-by-case KDHE approval.

Q: What happens if a reused sand load fails testing after reuse starts?

A: If post-use monitoring detects environmental concerns, remediation or removal would be required. This scenario is extremely rare with properly approved and tested sand. Rigorous initial testing and KDHE approval minimize this risk substantially.

Q: Who is responsible for proving the sand is safe — the foundry or the user?

A: The foundry (material generator) is responsible for initial testing, material characterization, and KDHE application submission. The end user must verify that they receive KDHE-approved material and use the sand only in accordance with the approved beneficial use determination.

Landfill-Specific FAQ

Q: Does foundry sand affect landfill leachate or groundwater?

A: No. Studies by the EPA and USDA confirm that properly tested ferrous foundry sand does not contribute hazardous leachate or pose groundwater contamination risks when used in landfill applications.

Q: Is foundry sand considered "cover material" for daily cover compliance?

A: Yes. KDHE regulations approve foundry sand (used alone or mixed up to 50% with soil) as alternative daily cover material, provided the material receives prior KDHE beneficial use approval and meets performance standards for dust control, vector exclusion, and precipitation shedding.

Q: Do we need special equipment to handle foundry sand?

A: No. Standard landfill equipment (dozers, loaders, compactors) can handle foundry sand easily without modification.

Q: How do we document use for compliance purposes?

A: Maintain daily cover logs documenting material source, volume applied, date, and location within the landfill. Keep copies of the KDHE beneficial use approval letter. Documentation supports regulatory compliance and demonstrates proper material management.

Q: What if sand chemistry changes?

A: If the foundry changes casting alloys, binder systems, or raw material suppliers, re-testing is recommended before continuing use. Notify KDHE if process changes occur, as they may require updated material characterization or beneficial use approval.

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