PART 115 – BENEFICIAL USE STATUTE

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Michigan Department of Environmental Quality
Solid Waste Regulations

• Part 115, Solid Waste Management, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended
• Michigan’s Solid Waste Management Act Administrative Rules
• Subtitle D of the federal Resource Conservation and Recovery Act of 1976, as amended
Michigan Solid Waste Policy

- Views waste as a resource
- Challenges decision making based on the three principles of sustainability: economic vitality, ecological integrity, and improved quality of life.
- Next Steps: Governor’s Recycling Council convened to guide implementation of Solid Waste Policy.
Waste Utilization

• Using waste, site or source separated materials, or other approved material for beneficial purposes
  – reuse
  – recycling
  – composting
  – energy recovery
  – gasification
  – anaerobic digestion
  – etc.
Municipal Solid Waste
Where We Are Today

1999 Data Collection by Michigan Recycling Coalition

Solid Waste Stream in Michigan

- Recycling: 20%
- Incineration: 11%
- Landfill: 69%

Recycling Incineration Landfill

[Legend: Recycling, Incineration, Landfill]
### 2016 Michigan Industrial By-Products Reuse (Tons)

<table>
<thead>
<tr>
<th>Material</th>
<th>Recycled</th>
<th>Disposed</th>
<th>Percent Recycled</th>
<th>Percent Volume Change from 2015</th>
<th>2009 Volumes</th>
<th>Percent Volume Change from 2009</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pulp/paper/wood sludge</td>
<td>114,720</td>
<td>139,399</td>
<td>45%</td>
<td>-6%</td>
<td>39,889</td>
<td>+188%</td>
</tr>
<tr>
<td>Shingles</td>
<td>20,482</td>
<td>?</td>
<td>?</td>
<td>-47%</td>
<td>19,650</td>
<td>+4%</td>
</tr>
<tr>
<td>Scrap Wood^4</td>
<td>110,120</td>
<td>?</td>
<td>?</td>
<td>-4%</td>
<td>26,432</td>
<td>+317%</td>
</tr>
<tr>
<td>CKD</td>
<td>25,089</td>
<td>428,642</td>
<td>6%</td>
<td>+114%</td>
<td>29,081</td>
<td>-14%</td>
</tr>
<tr>
<td>LKD^5</td>
<td>47,619</td>
<td>?</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>Foundry Sand</td>
<td>84,406</td>
<td>199,451</td>
<td>30%</td>
<td>-22%</td>
<td>66,870</td>
<td>+26%</td>
</tr>
<tr>
<td>Food Processing</td>
<td>21,215</td>
<td>?</td>
<td>?</td>
<td>+79%</td>
<td>16,073</td>
<td>+32%</td>
</tr>
<tr>
<td>Coal Ash^2</td>
<td>200,000</td>
<td>1,104,968</td>
<td>15%</td>
<td>-11%</td>
<td>174,900</td>
<td>+14%</td>
</tr>
<tr>
<td>Drywall</td>
<td>24,645</td>
<td>?</td>
<td>?</td>
<td>+1,200%</td>
<td>1,048</td>
<td>+2,250%</td>
</tr>
<tr>
<td>FGD</td>
<td>28,680</td>
<td>?</td>
<td>?</td>
<td>+12%</td>
<td>32,328</td>
<td>-11%</td>
</tr>
<tr>
<td>Wood Ash^1</td>
<td>8,172</td>
<td>90,051</td>
<td>8%</td>
<td>+42%</td>
<td>5,592</td>
<td>+46%</td>
</tr>
<tr>
<td>Totals^3</td>
<td>685,148</td>
<td>?</td>
<td>?</td>
<td>-14%</td>
<td>411,863</td>
<td>+66%</td>
</tr>
</tbody>
</table>
Why Recycle?

✓ Good For Economy
✓ Creates Jobs
✓ Reduces Waste
✓ Good for Environment
✓ Saves Energy
✓ Preserves Landfill Space
✓ Prevents Global Warming
✓ Reduces Water Pollution
✓ Protects Wildlife
✓ Creates New Demand
Annual Benefits of Using Coal Combustion Products:

- **Fly ash in concrete =** 15.0 million tons used in 2005
- **FGD Gypsum in wallboard =** 8.2 millions tons used in 2005

Saved 158 trillion BTUs of energy ...enough to provide electricity to over 4 million homes for a year.

It also saved 11.2 million tons of CO$_2$ and 10,500 tons of methane (greenhouse gases) from being emitted into our atmosphere year.....similar to taking 1.9 million cars off the road for a year.
Annual benefits of using foundry sand:

- 212 billion BTUs of energy saved per year
  - Enough to provide electricity to over 5,500 houses for a year.

- Over 20,000 tons of CO2 emissions prevented
  - Equivalent to taking 3,382 cars off the road for a year.

<table>
<thead>
<tr>
<th>Application</th>
<th>Amount used annually</th>
</tr>
</thead>
<tbody>
<tr>
<td>Road base</td>
<td>144,288 tons</td>
</tr>
<tr>
<td>Construction fill</td>
<td>1,140,914 tons</td>
</tr>
<tr>
<td>Asphalt pavement</td>
<td>494,390 tons</td>
</tr>
<tr>
<td>Concrete pavement</td>
<td>303,531 tons</td>
</tr>
<tr>
<td>Manufactured soils</td>
<td>220,949 tons</td>
</tr>
</tbody>
</table>
Beneficial Use Regulations

- PA 178 of 2014 – amends parts 31, 85, 115, and 201
- PA 179 of 2014 – amends Part 201
- PA 180 of 2014 – amends PA 162 of 1955
Ways Materials are Exempted from Solid Waste Regulation

• Prior authorizations
  – Generic site/source separated
  – Site specific site/source separated
  – Inert (for general reuse or site specific reuse)
  – Agricultural use approvals
  – Self-declared

• Beneficial use statute
  – Beneficial use by-products
  – Listed as not a waste (Section 11506)
  – Listed as inert
  – Listed as site/source separated
Prior Authorizations

- **Self-declared**
  - Verso Paper
  - GM
  - Grand Haven BLP
  - USG

- **Generic**
  - water softening limes
  - fish waste
  - ethanol syrup

- **Site specific**
  - Cadillac Castings
  - Bentek
  - AUA’s
Materials defined as Beneficial Use By-Products

- **Cement Kiln Dust/Lime Kiln Dust**: Particulate matter collected in air emission control devices serving Portland cement kilns and lime kilns.
- **Coal Bottom or Wood Ash**: Ash particles from combustion of coal or any type of ash or slag resulting from wood burning.
- **Coal or Wood Ash**: Material recovered from an air pollution control system or non-combusted residue from combustion of coal, wood, or both (although only cementitious ash is suitable for use as fill).
- **Dewatered Grinding Sludge**: from public transportation agency road projects.
- **Flue Gas Desulfurization Material**: Material recovered from air pollution control systems that capture sulfur dioxide during wood, coal, or fossil fuel combustion including synthetic gypsum.
Materials defined as Beneficial By-products (continued)

- **Foundry Sand**: Silica sand used in metal casting process from ferrous or nonferrous foundries.
- **Lime Softening Residuals**: from treatment and conditioning of water for domestic use or community water supply.
- **Mixed Wood Ash**: Material recovered from air pollution control systems or non-combusted residue from combustion of wood, scrap wood, railroad ties, and tires.
- **Pulp and Paper Mill Ash**: Non-combusted residue remaining after combustion of coal, wood, pulp and paper mill material, wood or biomass pellets, rail road ties, tires, and scrap wood.
Materials defined as Beneficial By-products (continued)

- **Pulp and Paper Mill Material**: Materials generated at pulp and paper mills including wastewater treatment sludge; rejects from screens, cleaners, and mills; bark, wood fiber, and chips; scrap paper and causticizing residues.

- **Soils Washed or Removed from Sugar Beets**.

- **Spent Media from sandblasting**: with uncontaminated soil, newly manufactured, and unpainted steel.

- **Stamp Sands**: Sand remaining after stamping and processing copper bearing ores.
Specific Beneficial Uses for By-Products

• **Beneficial Use 1** means use as aggregate, road material, or building material if it will be bonded or encapsulated by cement, limes, or asphalt.

• **Beneficial Use 2** means use as construction fill, road base, soil stabilizer, or road shoulder material.

• **Beneficial Use 3** means application of material as a fertilizer, a soil conditioner under Part 85, or a liming material under 1955 PA 162.

• **Beneficial Use 4** means use to stabilize, neutralize solid, or treat waste; to treat wastewater or sludge; to stabilize hazardous substances; or to serve as landfill construction material.

• **Beneficial Use 5** means soil mixtures using foundry sand and organic material to manufacture soil.
<table>
<thead>
<tr>
<th>USE/MATERIAL</th>
<th>Bonded by lime, cement, or asphalt Beneficial Use 1</th>
<th>Construction fill under impervious surface/Road shoulder Beneficial Use 2</th>
<th>Land Applied Beneficial Use 3</th>
<th>Remediate/ treat waste or used as fill at landfills Beneficial Use 4</th>
<th>Soil blending Beneficial Use 5</th>
<th>Flue gas scrubbing reagent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wood ash/coal bottom ash</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Wood ash/coal ash</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pulp/paper mill ash</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mixed wood ash</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cement kiln dust/Lime kiln dust</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Foundry sands (ferrous/aluminum)</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Stamp sands</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pulp/paper mill material</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Sand blasting media from new products</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dewatered concrete grinding slurry</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Lime Softening residuals</td>
<td></td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sugar beet soils</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Flue gas desulfurization sludge</td>
<td>X</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Analytical Requirements

- **Beneficial Use 1** – no specific testing required. Material can’t be a regulated hazardous waste.
- **Beneficial Use 2** – must perform leaching tests on 11 metals. Limit = 20 times the Part 201 generic health based drinking water criteria.
- **Beneficial Use 3** – MDARD dictates testing protocol. Cumulative pollutant loading rates are set for 8 metals.
- **Beneficial Use 4** - no specific testing required. Material can’t be a regulated hazardous waste.
- **Beneficial Use 5** – limits set for total and leachable levels of 10 metals, benzene, formaldehyde, phenol, and trichloroethylene.
Beneficial Use 2
USES

- Construction fill on non-residential property
  - Placed at least 4 feet above seasonal high groundwater table.
  - Must not come into contact with surface water.
  - Is covered with concrete, asphalt, or other material approved by the DEQ.
  - Less than 4 feet thick unless under a building where there is no limit.
- Road base or soil stabilizer less than 4 feet thick.
- Road shoulder material less than 4 feet thick covered with concrete, asphalt, or gravel.
Conditions on Use

• Stored at the site of generation or use for less than 3 years.

• Stored in a manner that maintains usefulness, controls wind dispersal, and prevents loss beyond storage area.

• Storage does not impact groundwater or surface water.

• Must be legitimate use by being used according to generally accepted engineering, industrial, or commercial standards.
Conditions on Use (continued)

- Generator or broker must notify DEQ of any site that will exceed 5,000 cubic yards of material prior to placement.
- Generator or broker of over 1,000 cubic yards must report yearly reuse volumes to DEQ.
- A contractor, consultant, or agent of the owner must tell the owner that beneficial use by-products have beneficial use for Beneficial Use 2 on the property.
- The owner of a property must tell the future owner that beneficial use by-products have beneficial use for Beneficial Use 2 on the property.
Land Application
Land Application

• The land application of the following materials as a fertilizer, soil conditioner, or liming material is regulated by the Michigan Department of Agriculture and Rural Development:
  – Wood ash
  – Coal bottom ash
  – Pulp and paper mill ash
  – Cement kiln dust
  – Lime kiln dust
  – Foundry sands
  – Pulp and paper mill material
  – Dewatered concrete grinding slurry
  – Lime softening residuals
  – Sugar beet soils
  – Flue gas desulfurization sludge
Notifications/ Reporting

<p>| | | | | | |</p>
<table>
<thead>
<tr>
<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>30</td>
<td>815,073,273</td>
<td>30</td>
<td>1,213,5</td>
<td></td>
</tr>
<tr>
<td></td>
<td>30</td>
<td>549,630,000</td>
<td>30</td>
<td>928,0</td>
<td></td>
</tr>
<tr>
<td></td>
<td>30</td>
<td>384,741,000</td>
<td>30</td>
<td>549,6</td>
<td></td>
</tr>
<tr>
<td></td>
<td>30</td>
<td>1,076,839,5</td>
<td>30</td>
<td>1,319,3</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>677,850,6</td>
<td>30</td>
<td>669,1</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>591,625,9</td>
<td>395,672</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>549</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Reporting to the DEQ

- **Beneficial Use 1** – generator/broker of over 1,000 cubic yards send yearly report to DEQ.

- **Beneficial Use 2**
  - Generator/broker of over 1,000 cubic yards send yearly report to DEQ;
  - Generator/broker notifies DEQ of any site receiving over 5,000 cubic yards;
  - A contractor, consultant, or agent of the owner must tell the owner that beneficial use by-products have ben use for Beneficial Use 2 on the property;
  - The owner of a property must tell the future owner that beneficial use by-products have ben use for Beneficial Use 2 on the property;

- **Beneficial Use 3** – Generator/broker registers/licenses with MDARD.

- **Beneficial Use 4** – Generator/broker of over 1,000 cubic yards send yearly report to DEQ.

- **Beneficial Use 5** – Generator/broker of over 1,000 cubic yards send yearly report to DEQ.
Conditions on Use (Ben Uses 1, 2, 4, and 5)

- Not a regulated hazardous waste.
- Allows for storage at site of generation or reuse for 2 years before 75% needs to be reused in the third year.
- Must be stored in a manner that maintains usefulness, controls blowing, and prevent loss of the material beyond storage area.
- Stored in a manner that protects groundwater and surface water;
- The use is a legitimate use.
- Use is consistent with generally accepted engineering, industrial, or commercial standards.
- Storage and use must comply with NREPA.
- No open dumping allowed.
Petitioning the DEQ
Items a Generator can Petition the DEQ to Approve

The recent changes allow the DEQ to approve:

- Materials other than asphalt, concrete, or gravel to cover Beneficial Use 2 projects.
- Beneficial Use 4 materials for construction at licensed landfills.
- Additional materials as beneficial use by-products, inert material, source separated materials, or low-hazard industrial waste.
- Additional waste to the list of pulp and paper mill material.
- Approve the use of beneficial use by-products for Beneficial Use 2 at residential properties.
- Materials as a beneficial use by-product that do not meet the listed contaminant limits based on specific site conditions.
Petitioning Process

• Rule 118a contains the requirements to petition the DEQ, which include:
  – Name and address of facility
  – Contact person information
  – Description of how the material is generated
  – Analytical testing on a representative number of samples
  – Chain of custody
  – QA/QC
Other Exemptions Contained in the Beneficial Use Statute
Statutory Exemptions

- Ferrous or non-ferrous scrap.
- Foundry or steel mill slag.
- Garbage that is composted or land applied.*
- Coal bottom ash used as cold weather road abrasive.*
- Stamp sands used as cold weather road abrasive.*
- Non-hazardous secondary material approved for combustion under 40 CFR Part 241.*
Inert Materials

- Rocks
- Trees, stumps, and similar land clearing debris.
- Uncontaminated excavated soil or dredge material.
- Construction brick, masonry, pavement, or broken concrete.
- Asphalt pavement or concrete pavement.
Inert Criteria

• Old Criteria – Act 307 Type B criteria based on a 1 in a million risk.
• New Criteria – Part 201 generic residential criteria based on 1 in 100,000 risk.
• Background as defined by Part 201.
Source Separated Materials

• Glass, metal, wood, paper, plastic, etc.
• Scrap wood, rail road ties, tires, or paint solids used as fuel.*
• Drywall or FGD used to produce drywall.*
• Shingles used for fuel or to produce hot mix asphalt.*
• MSW incinerator ash used for ADC.*
• Utility poles used for poles or posts.
• Rail road ties used for landscaping.
• Recovered paint solids used as fuel*
• Rail road ties used in landscaping
Low Hazard Industrial Waste

- Coal ash or wood ash
- Cement kiln dust
- Pulp and paper mill material
- Scrap wood
- Water treatment sludges
- Foundry sand
- Mixed wood ash
- Street cleanings
- Asphalt shingles
- New construction drywall
- Chipped or shredded tires
- Copper slag and stamp sands
Storage Requirements

• Beneficial use by-products – requires no permit or license. The use or storage can’t violate a groundwater or surface water criteria.
• Source separated materials – none listed.
• Inert material – none listed.
• Low-hazard industrial waste – owners/operators of a unit must ensure no violation of Part 31 and that no contamination has resulted after closure of the storage unit.
• Other wastes – must be stored in a Rule 130 contained waste pile.
Speculative Accumulation

- Beneficial use by-products – 3 years at the site of generation or use.
- Source separated material – 1 year.
- Low-hazard industrial waste – 3 years at the site of generation and 1 year at site of use
- Inert material – no limit.
- Yard clippings – 3 years.
Relationship of Beneficial Use Statute to Other Environmental Protection Statutes

- **Part 31** – Water Resources Protection
- **Part 201** – Environmental Remediation
- **Part 301** – Inland Lakes and Streams
- **Part 325** – Great Lakes Submerged lands
Part 31

• The storage or use of beneficial use by-products can not violate either groundwater or surface water protection criteria.

• A person does not need a Part 31 permit for the storage, placement, or use of beneficial use by-products done in compliance with Part 115.
Part 31 Water Quality Standards

- Standards are the most restrictive of any of the following:
  - The health based residential criteria.
  - The aesthetic criteria.
  - The groundwater/surface water criteria (default GSI criteria have been developed depending on where a material will be used.)
Part 201

• A person may use background as defined in Part 201 to compare excavated soils or dredge material to determine if the material is contaminated.

• Contamination caused by the storage, placement, or use of beneficial use by-products or inert material would not create a “facility” if used in compliance with Part 115.

• The placement, storage, or use of beneficial use by-products in compliance with Part 115 is not a “release.”
Parts 301 and 325

- Recent statutory changes allows an applicant of a dredge permit the ability to use their knowledge to determine if their dredge spoils have the potential to be contaminated.

- Any project in a known or suspected location that could contain contaminated spoils will need to test in accordance with the dredge procedure unless the material is going to a licensed landfill, a Corps of Engineers confined disposal facility, or is being left upland, on-site, with clean cover and a deed restriction.

- The DEQ is in the process of amending the dredge procedure to comply with the recent changes.
Protecting Your Liability

• If you believe that there is any chance for there to be variability in the process that generated your beneficial use by-product you may want test more than just one sample.

• Since the storage and use of your beneficial use by-product can not violate any water quality standards and they can be stored for up to 3 years you may want to undertake some “due diligence” and inspect any site a broker or end-user may place your material

• You should decide if you want your material placed/used at many sites or if you prefer to use larger volumes at fewer locations
Observations

• The industrial waste recycling rate has gone down 25% since the beneficial use provision went into effect
• Many generators still want a written approval from the DEQ for materials and uses exempted by the statute
• Generators are doing more testing than the statute requires
• We lose the ability to count recycling volumes for materials land applied under MDARD
Questions
For additional information contact:

Duane Roskoskey, P.E.
Department of Environmental Quality
Waste Management and Radiological Protection Division
Phone: 517-582-3445
E-mail: roskoskeyD@Michigan.Gov

• Web site: Go to www.michigan.gov/deqwaste, click on “Solid Waste” on the left menu, then on “NEW - Beneficial Use Provisions” in the middle of the page.