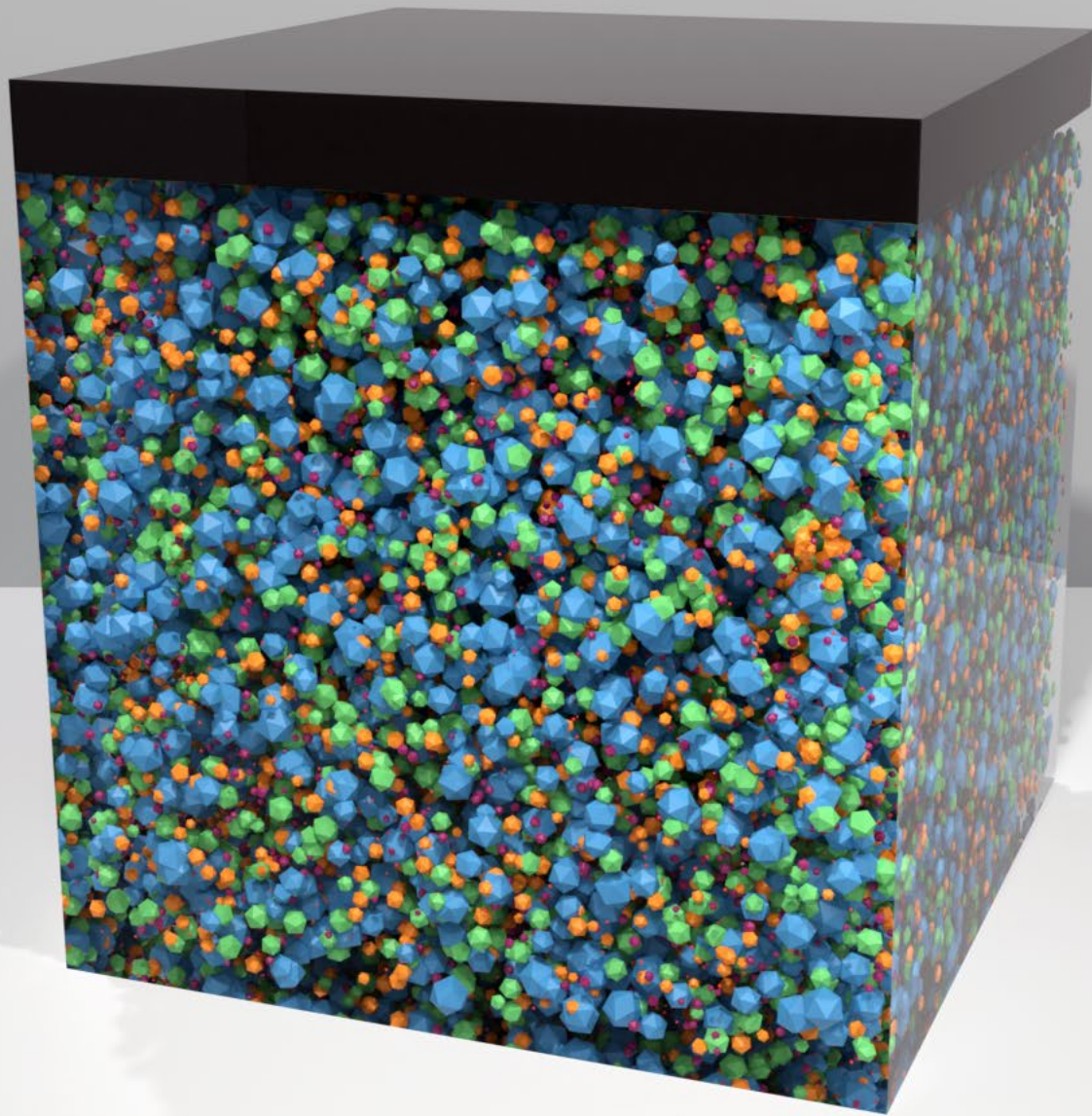


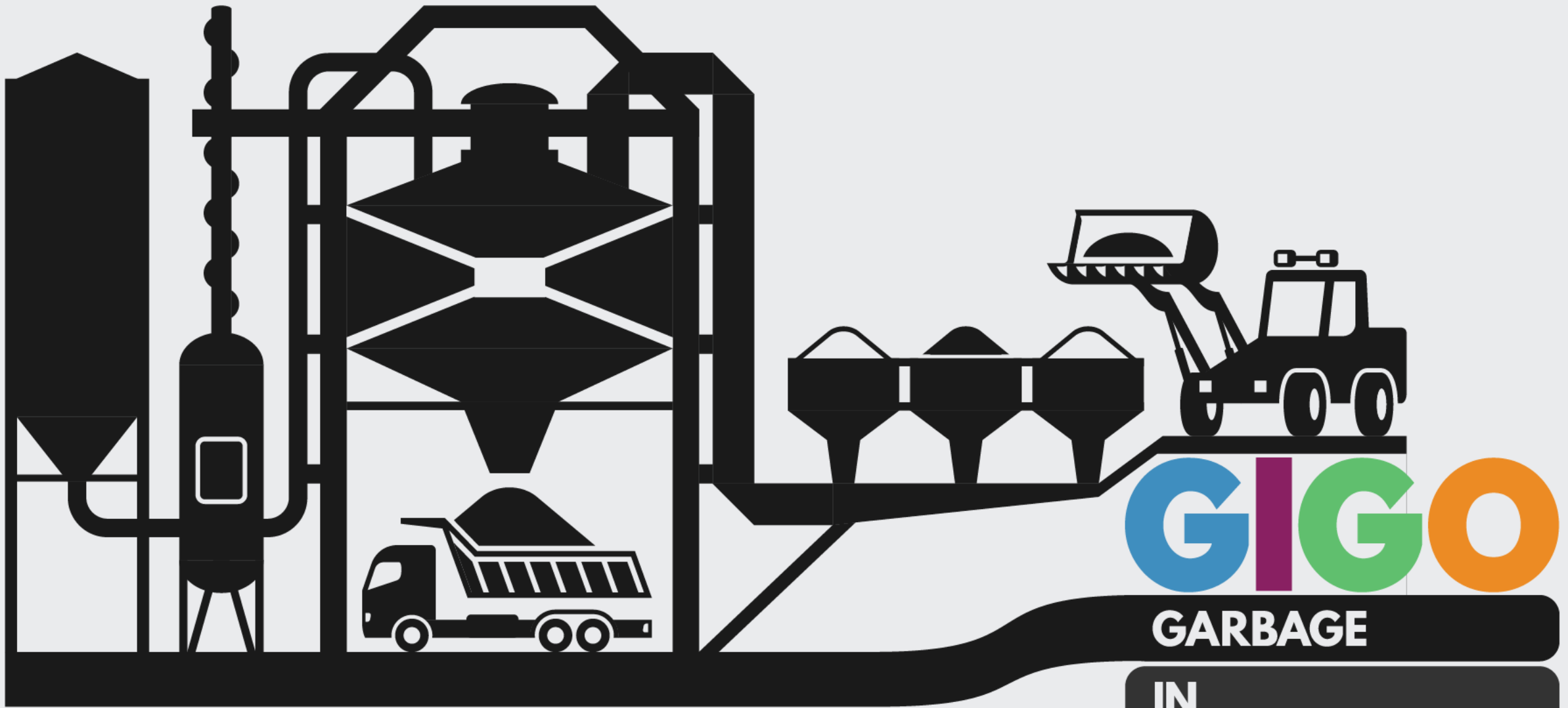
# Black to Basics

## Stockpiling



Martin  
Marietta





**GIGGO**

**GARBAGE**

**IN**

**GARBAGE**

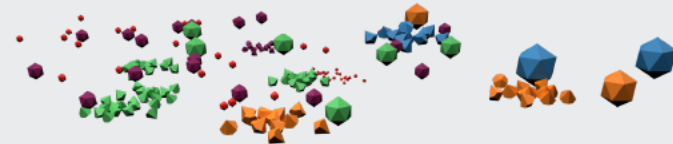
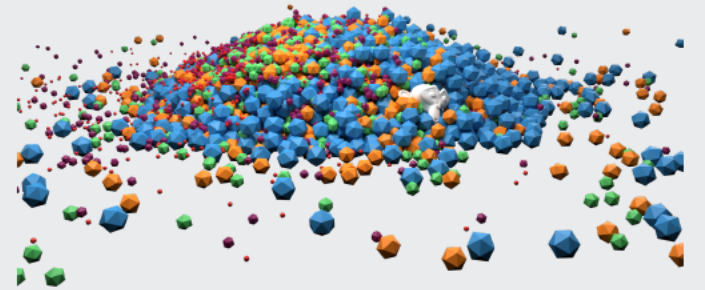
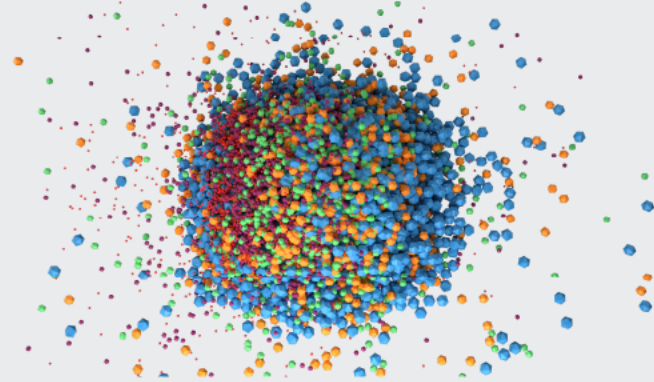
**OUT**

# Consistency is the end goal



# Typical stockpile issues

- Segregation
- Contamination
- Degradation

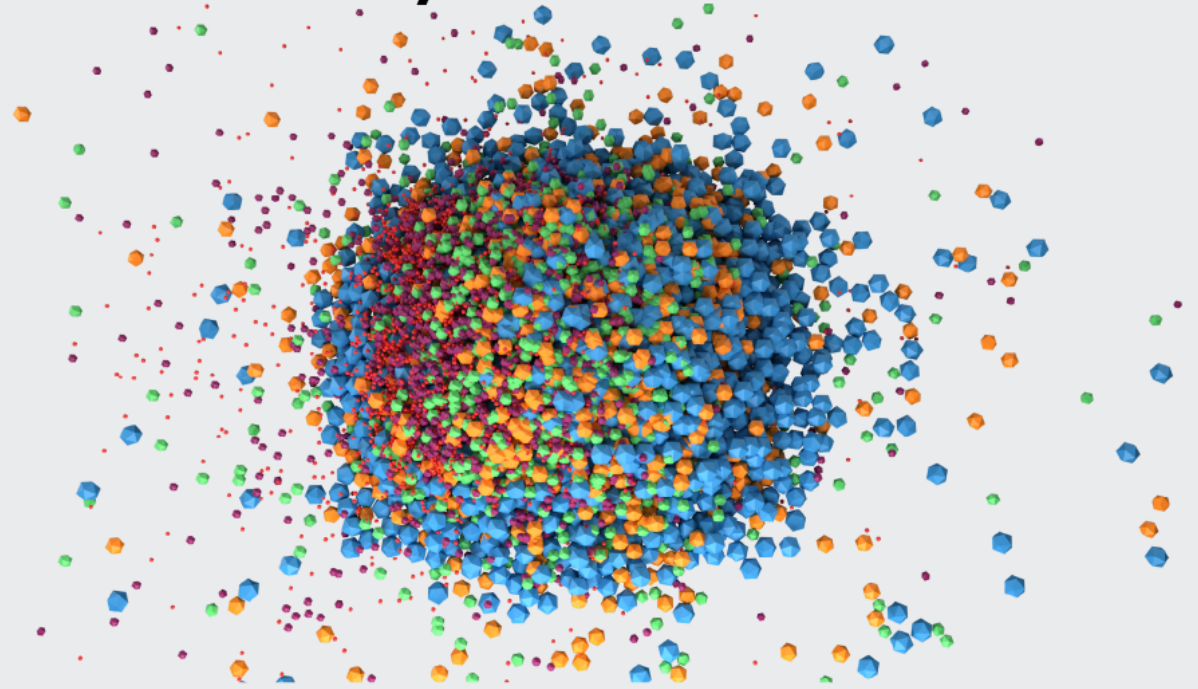


# Segregation

Redistribution of particles by size, shape, or density

## Impacts:

- Inconsistencies
- Mix structural changes
- Failed density tests





# Segregation

## Mechanisms

- Percolation

Finer particles sift through coarser during movement

- Flotation

Coarse particle rise to surface through vibration

- Momentum

Differences in inertia during motion cause lateral distribution by size











# Preventing segregation

## Best practices:

- Blend in - blend out  
Push up piles as they're built. Work face during load-out.
- Minimize handling  
Once they are build leave them alone.
- Conduct frequent visual examination



# Preventing segregation

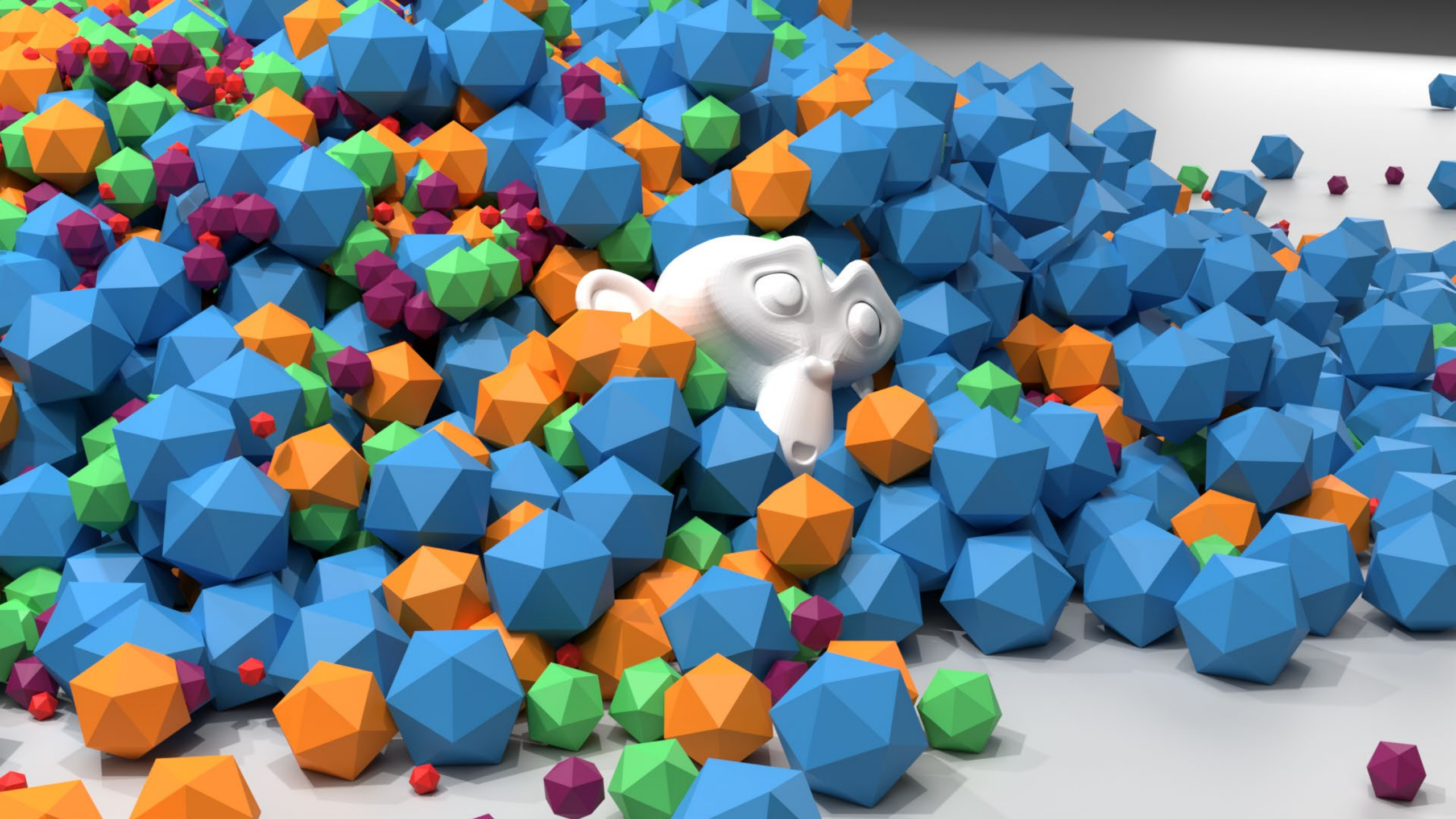
- Watch coarse aggregates with wide distribution of particle sizes.
- Dry stockpiles are at higher risk
- Damp fine aggregates are low-risk



# Contamination

Introduction of foreign material



















# Preventing Contamination

## Best practices:

- Build on firm base
- Avoid driving on stockpiles
- Frequent inspection



# Contamination

## Other best practices:

- Maintain distance between stockpiles
- Good housekeeping
- Knock out bucket between piles
- Keep bucket slightly elevated

# Loading out a pile

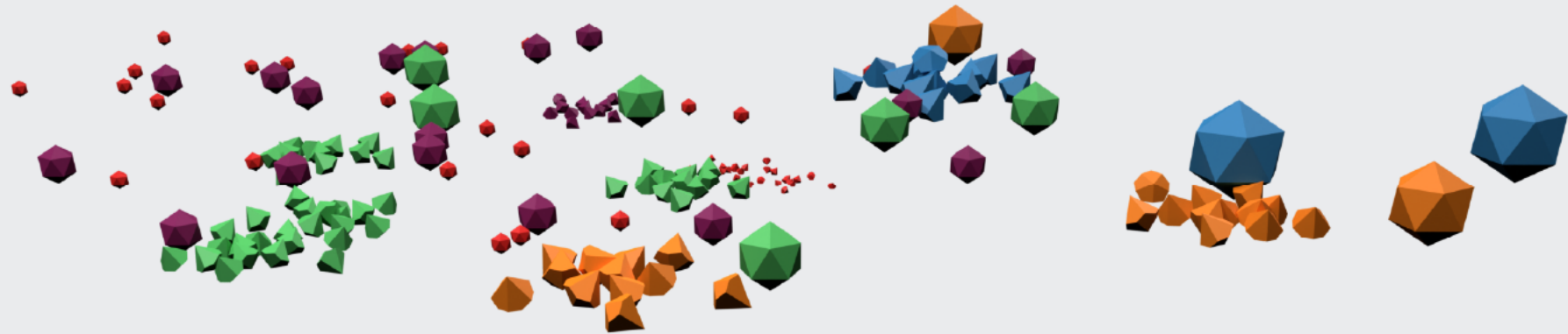
1. Knock out bucket if necessary
2. Approach pile
3. Lower bucket until it hits the ground
4. Raise bucket slightly
5. Enter strait into the face of pile
6. Rotate bucket up
7. Back out





# Degradation

Gradual attrition by mechanical means or natural weathering







# Preventing Degradation

## Best practices:

- Minimize inventory buffer
- First in - first out
- Avoid driving on stockpiles

# Inspection





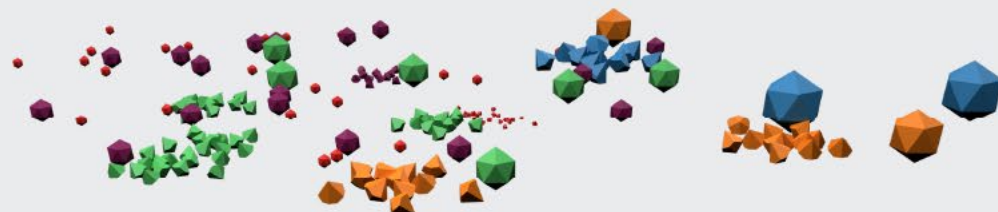






# Review

The three “ations”





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