Concrete Batch Plant Investigations

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HOPHES: Environmental Public Health
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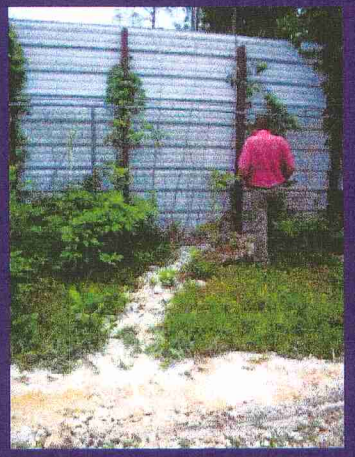
Common Problems at Concrete Batch Plant Sites

Unauthorized discharge from slump/waste concrete pile

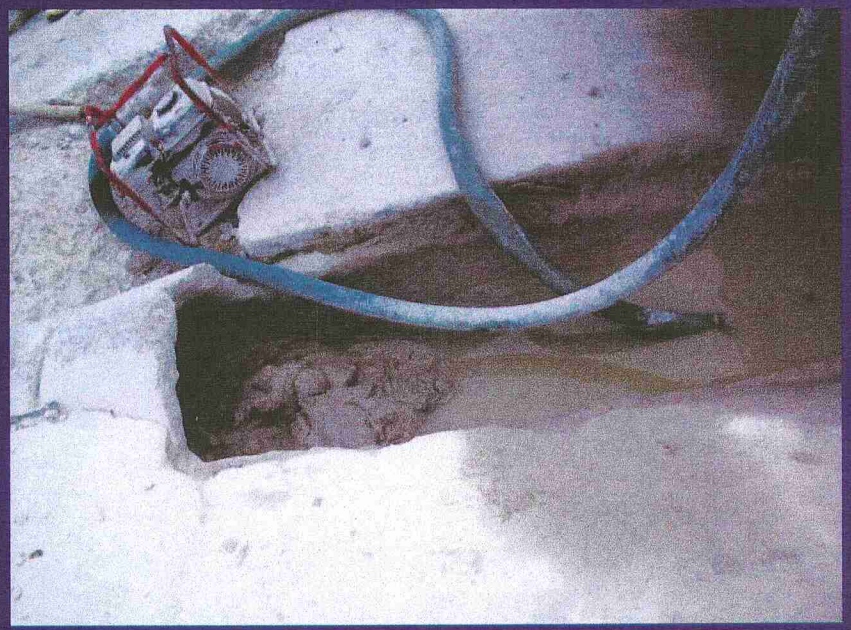


Failure to keep settling basin clean has resulted in overflow and discharge exceeding the limits of the permit

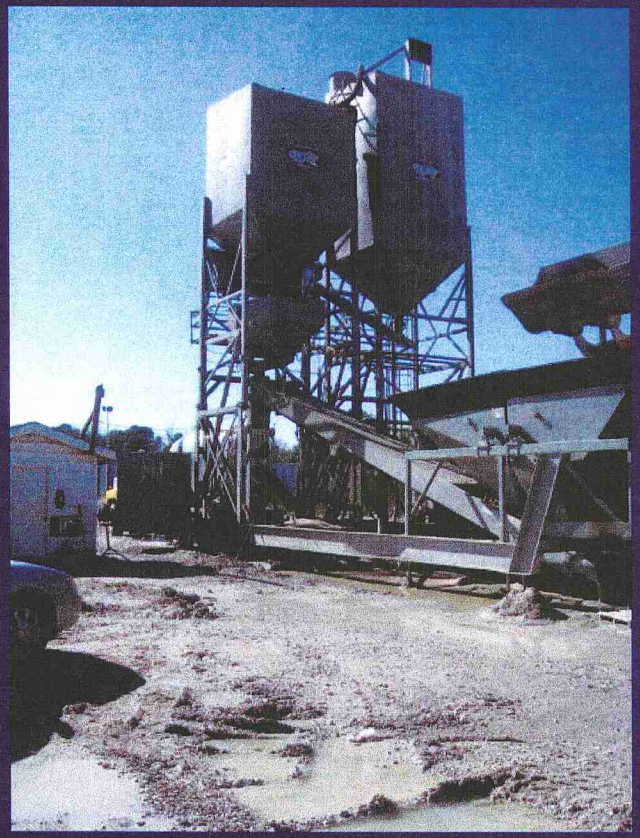
Though it is difficult to show dust emissions in a photo, this cement tanker has a damaged center hatch allowing dust to be emitted when silo is being filled

- No shroud present
- Central baghouse not working properly
- Result: emissions from the drop point

Poor housekeeping has led to blockage of wastewater control devices

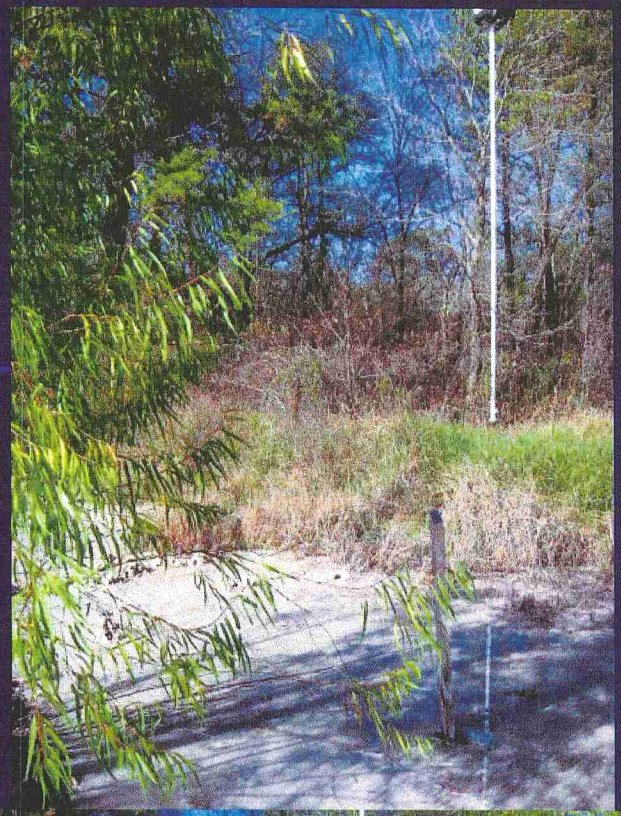


Road is paved as required but poor housekeeping (failure to sweep or clean) has allowed at least 2 inches of concrete dust to build up on paved surface and generate offsite emissions when traffic crosses the road



- This site was not paved at all.
- The plant itself was actually in the wrong location on the site.

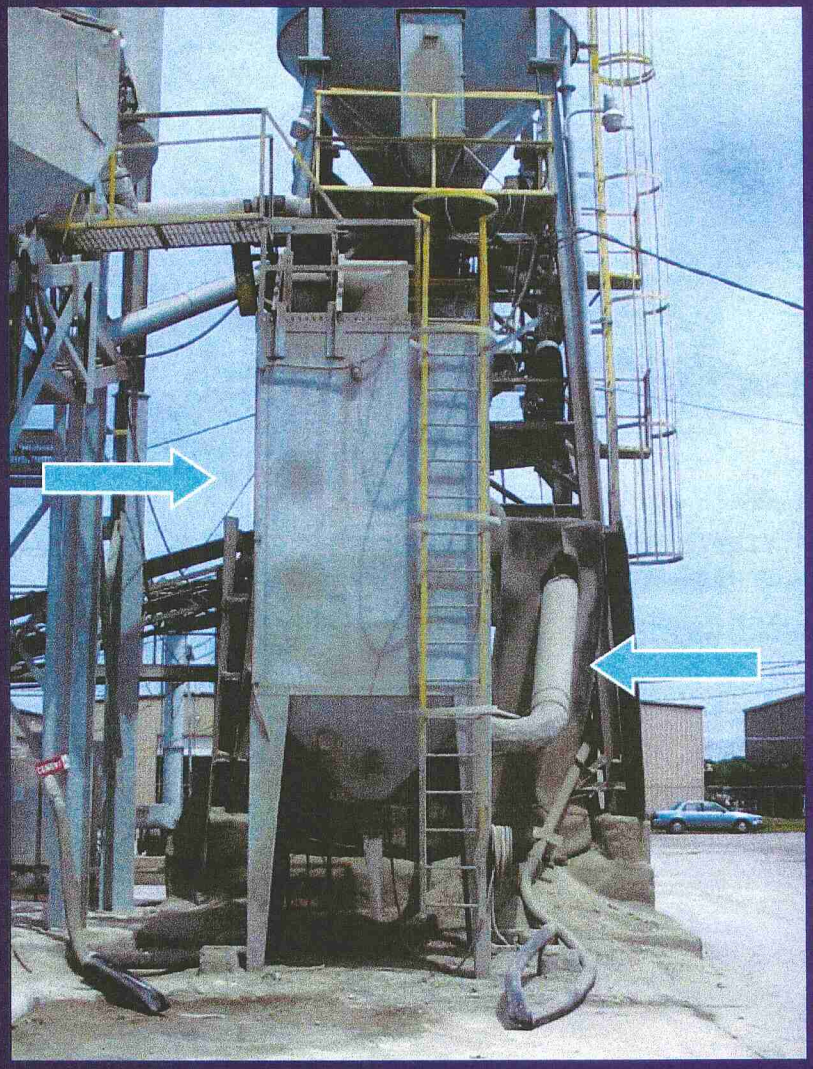
Failure to clean out settling basins and washout pits has caused them to overflow



Solid waste issues should not be forgotten

Air Emission Points cont'd

Central Baghouse



Piping

Air Emission Points cont'd

Air Emission Points

Offsite Issues

- At contract sites, the contractor is responsible for maintaining an SWPPP
- The contractor should set up and maintain a washout pit and waste concrete area if needed at any contract site and designate this location on the SWPPP
- Mixer truck drivers should not wash out their trucks at any location except the designated wash out pit and should never wash out their truck where it appears that the material will discharge off site.

Solid Waste

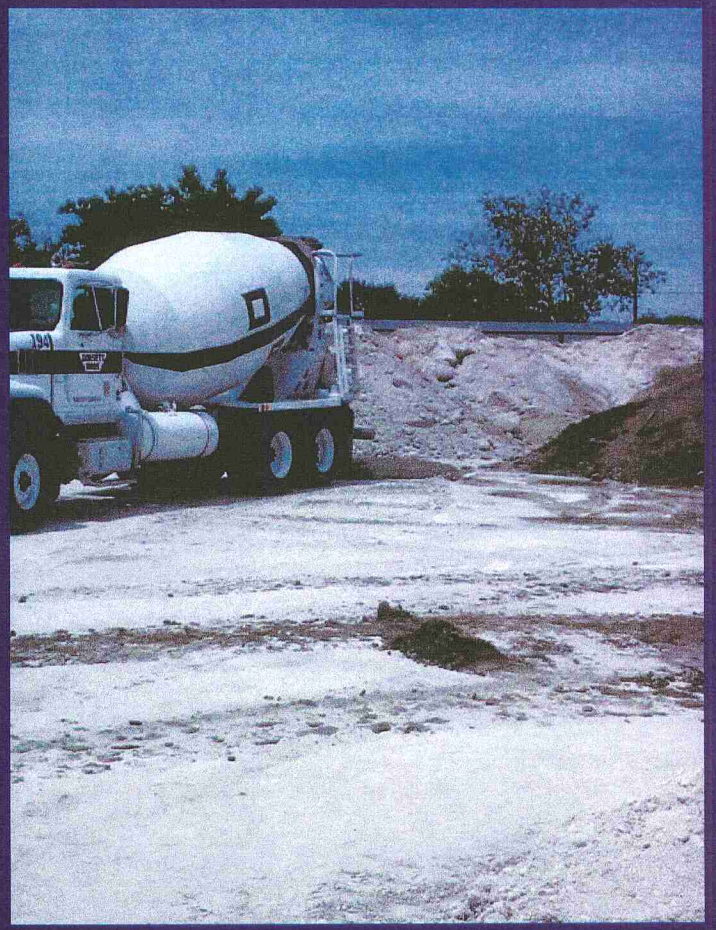
- Solid Waste is not a common problem at most concrete batch plants, however, it should not be ignored.
- Slump or waste concrete is recyclable product and must be managed as such. The discharge or dumping of waste concrete when not being managed as a recyclable material is a violation.
- Many (not all) plants have vehicle shops on site. All plants have diesel storage tanks.
  - Oil, transmission fluid, and other automotive wastes must be disposed of properly
  - Diesel spills must be cleaned up promptly

- Designated discharge points may be a formal outfall with a weir or may be the terminus of an on- site ditch or simply the edge of a driveway
- There may be more than one discharge point at a site
- The SWPPP will show where the designated discharge points are located

- Settling basins allow the concrete to settle to the bottom and reduce TSS
- Plants may have one or more basins throughout a site, some basins may look more like ditches with a series of low dikes
- Basins must be cleaned on a regular basis to prevent overflow due to silt build up

- Concrete washout pit.
- Pits may vary in size and shape
- Some pits may be concrete lined others may be earth lined

- Mixer trucks will discharge leftover concrete in the slump/waste concrete pile
- The pile will be worked and rotated daily to prevent large blocks from forming
- Waste concrete is a marketable recycled product used for road base

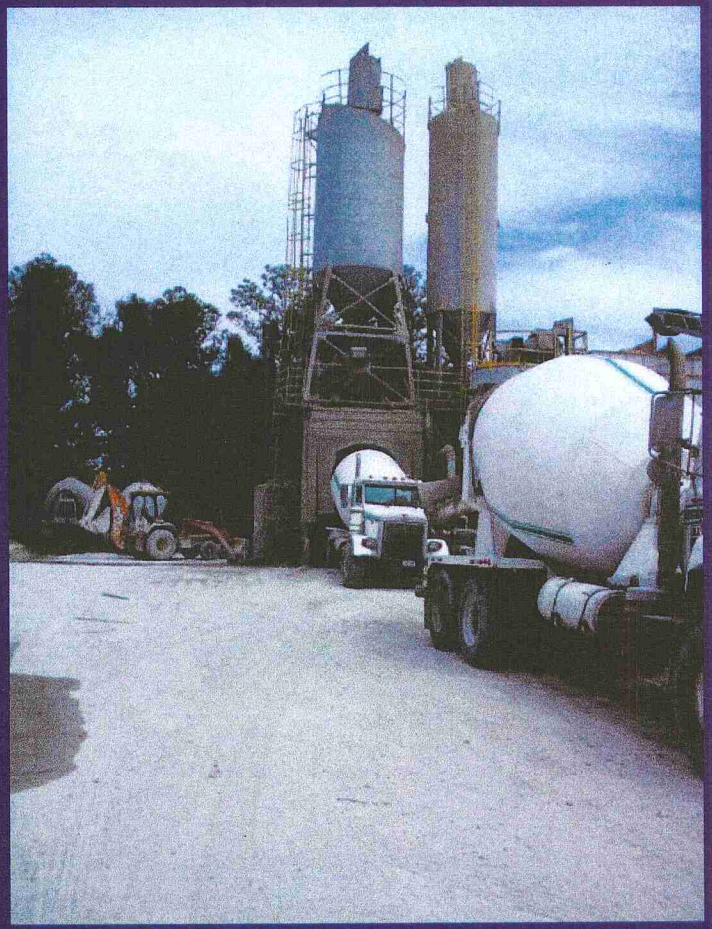


Wastewater Process

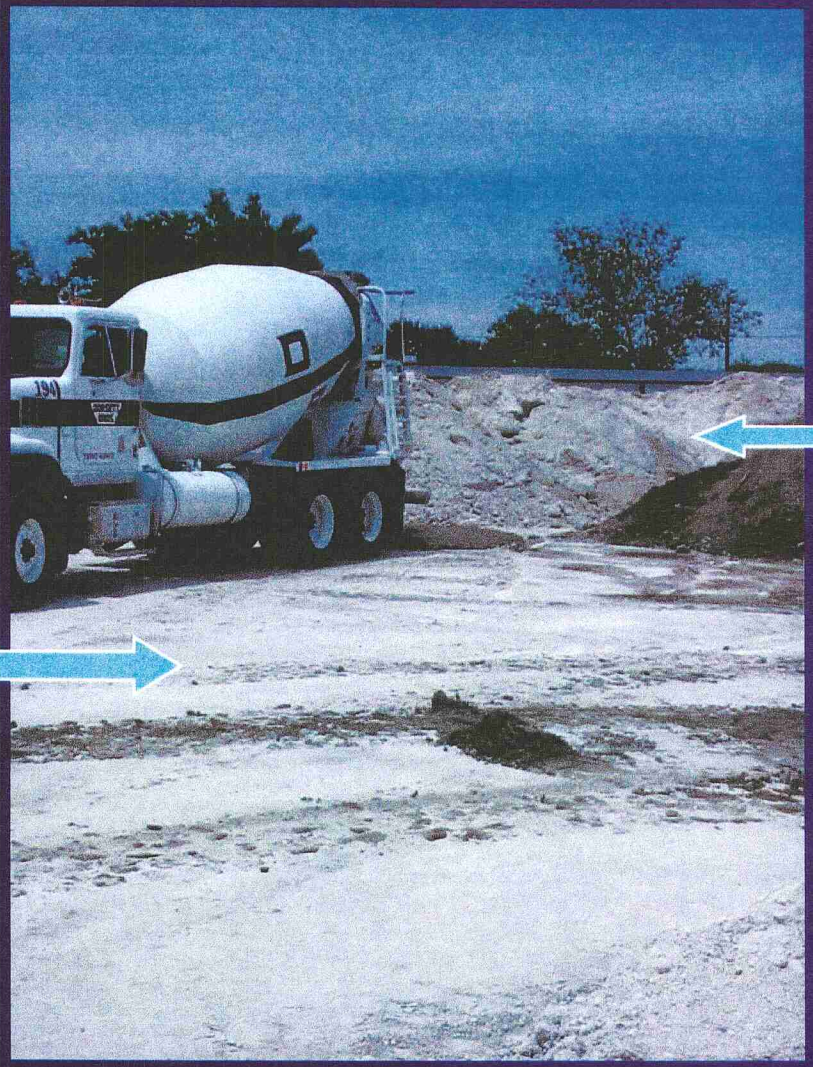
- Wastewater treatment at concrete batch plants varies widely but all functional systems will have some of the same basic equipment.
  - Slump/waste concrete pile
  - Washout basin
  - Retention basin
  - Designated discharge point

Typical causes of air emissions

- Road traffic
  - Most are paved (required) but not all
  - Major cause is bad housekeeping
    - Tracking from unpaved areas
    - From overfill at batch drop point
    - Dried dust from truck washout
    - Spills
    - Dust tracked onto public roads
  - Can be controlled with regular sweeping and watering of roads



Air Emission Points cont'd

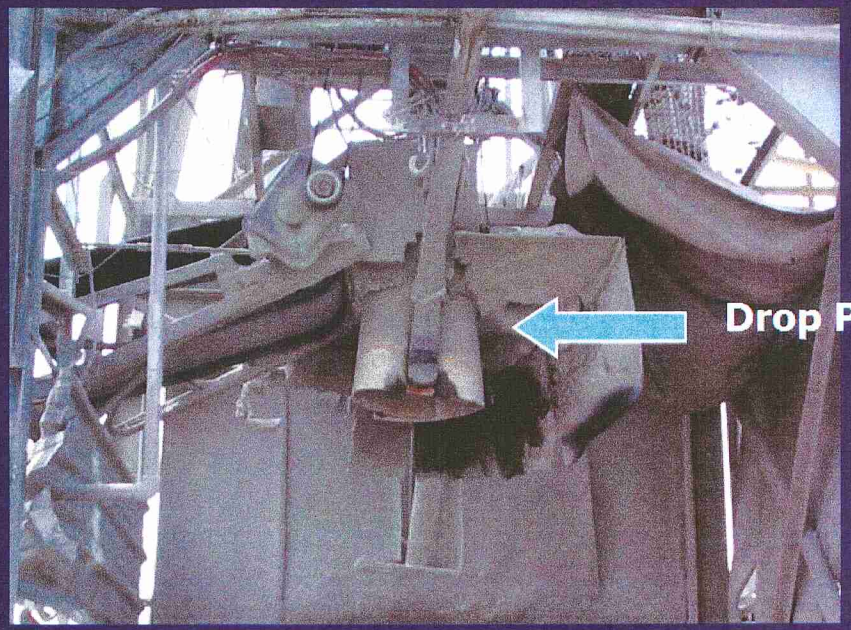


Slump/Washout Stockpile

Plant Roads

Air Emission Points cont'd

Weigh Hopper



Drop Point

Air Emission Points cont'd

Baghouses on
Cement/Fly Ash Silos

Air Emissions

- Air emissions can be generated at multiple locations within the plant
- Account for the majority of complaints received about concrete plants
- Generally consist of fine particulate dust that can be corrosive due to lime content.

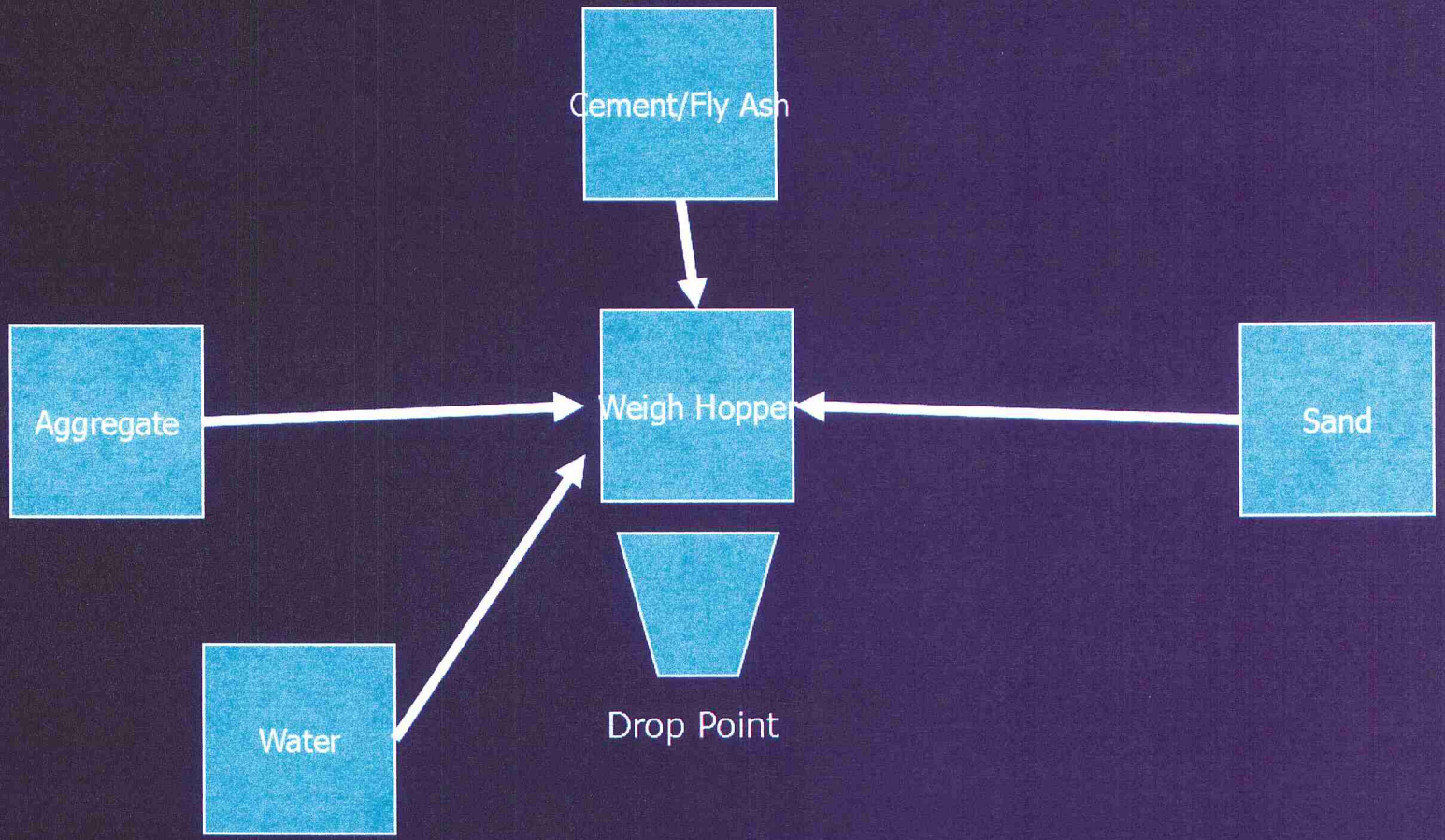
TIPS:

Airborn dust emissions of this type are difficult to photograph

Dust accumulated on a surface at a property can be wet with water and tested with pH paper to determine if it is caustic (high pH)

Use the plate trick to collect accumulating dust

Plant Operations



Plant Location

- Permanently located facilities
  - Baghouse at least 100 ft from property line
  - Equipment, stockpiles, vehicles at least 25 ft from property line
- Temporary facilities
  - May not be at site for more than 180 days and service a single project
  - Drop point, baghouse, shroud at least 100 ft from property line
  - Equipment, stockpiles, vehicles at least 25 ft from property line

Applicable Rules - Criminal

- TWC 7.177 – Violations of the Clean Air Act
- TWC 7.145 – Intentional or knowing unauthorized discharge
- TWC 7.147 – Unauthorized Discharge
- TWC 7.148 – Failure to properly use pollution control measures (water)

Applicable Rules – Solid Waste

- 30 TAC 330 – Municipal Solid Waste
- 30 TAC 335 – Industrial Solid Waste

Applicable Rules - Water

- TXG 110000 – Concrete Batch Plant General Permit
- TXR050000 – Multisector General Stormwater Permit
- TWC 26.121 – Unauthorized Discharge

Applicable Rules - Air

- 30 TAC 116.110 – Permits
  - All facilities must be authorized by a permit, a standard permit, or a permit by rule. Small mixers under 5 ft^3 are exempt.
- 30 TAC 101.4 – Nuisance
- 30 TAC 111.111 – Visible Emissions
- 30 TAC 111.141 to 111.149 – Materials handling, roads, construction
- 30 TAC 101.221 (a) – Maintaining Pollution Abatement Equipment