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## MULTICLONE MECHANICAL COLLECTOR INSPECTION GUIDE

Before entering any multiclone or associated ductwork you should have all equipment, fans and associated equipment locked out. The air quality checked to make sure the air is safe to breathe. The space should be well ventilated and the temperature checked to be in a safe range. You should never enter a closed space without someone to assist you in the case of a mishap or accident. Appropriate safety gear should be worn at all times.

### Enter Outlet Plenum

1. Check outlet plenum for outside light entry indicating air leaks or cracks in the housing. If the unit is insulated, visually check seams and dust patterns to see if leaks are indicated. Exposed metal may indicate leakage.
2. Look down outlet tubes to see if any are plugged (dust in tube). Map or note the exact location and nature of any occurrences.
3. Have someone take a light into inlet plenum and check for leaks (light entry) from inlet to outlet plenum. Check seams for dust pattern that would indicate inlet to outlet leakage.

### Enter Inlet Plenum

1. Check for outside air leakage.
2. Check for inlet flange and tubesheet leakage, note any cracks that may open up during operation.
3. Check (and map location) any clogged inlet ramps or spinners. Look for crow's feet like patterns of dust indicating an air or gas leak.
4. Note any spinner or ramp that is not sitting in the cone or sitting at an unusual angle.
5. Note and map any dust accumulation or "polished" areas.
6. Check for inlet to outlet leakage on the upper tubesheet.
7. Check for any bolted or welded tubesheet joint for air leakage.

### Enter Hopper

1. Check for outside air leakage.
2. Check for leakage from hopper to inlet.
3. Map or note dust accumulation pattern and location. Determine if hopper dust level has reached tubes.
4. Inspect inside of tube cones. (a bright flashlight is needed)
  - a. Look for unequal amounts of wear and map occurrences.
  - b. Note any dust accumulation inside the tube.
  - c. Note the wear in the inside of the lower cone and indicate the depth of wear and which cones have more wear, (i.e. cones 3 & 4 of row 1 have 1/8" wear near the outlet of the cone)

## Exterior Inspection

1. Check for dust as indications for leakage (for positive pressure systems) and dust discharge devices.
2. Check supporting equipment for leakage sources.
  - a. Valves
  - b. Dampers
  - c. Pressure Taps
  - d. Sight Ports
  - e. Access Doors

## Evaluation

1. Leakage can cause loss of pressure drop across the tubes, reduce collecting efficiency.
2. Leakage can cause direct dust bypass through collecting tubes.
3. Plugging can cause direct dust bypass through collecting tubes.
4. Hopper dust accumulation too close to cone outlet can cause direct dust bypass through collector cones. Only minimum dust storage is recommended due to potential hopper plugging.
5. Unequal inlet tube wear may indicate intermittent high hopper dust level and plugging.

## Airlocks, Dump Valves and Dust Discharge Devices

1. Airlocks should be inspected for wear and leakage annually, six month inspections are recommended for more abrasive dusts. When the tip clearances approach .050 inches, airlocks should be rebuilt or replaced.
2. All dust conveyors on the collector side of the air seal should be inspected for leaks, and sealed as needed.
3. Wear and abrasion is common in this area. Components should be inspected and rebuilt before they wear through or start leaking.
4. Leakage in this area can have a huge negative effect; it will reduce efficiency, and create excessive abrasion and wear in other areas of the collector. Costing the plant large amounts of money to repair damage triggered by air infiltration and leaky dust discharge devices.