

Southwest Clean Air Agency

GENERAL REQUIREMENTS FOR RAIN CAPS AND EXHAUST STACKS

1. RAIN CAPS: Good engineering design for vertically oriented exhaust stacks in the Pacific Northwest generally includes some type of rain protection device or rain cap. These devices are designed to keep rain, moisture and animals (birds and squirrels) out of the stack. Exhaust stacks are part of most equipment that has an air discharge to the environment. Good air pollution practices require that any air discharge be directed in a vertical fashion to facilitate good dispersion of air and potential contaminants (including odorous substances). Including any type of device at the end of a stack that redirects the discharge air back toward the ground defeats the purpose of having an exhaust stack. Typical types of equipment that discharge air from facilities includes: paint spray booths or similar operations, combustion sources like boilers, internal combustion engines, roof vents, baghouses and cyclone separators. Moisture can have a detrimental effect on processes and machinery if allowed to enter the top of the stack. Therefore, proper design of rain caps should take into account not only protection of processes and equipment but also not hinder the vertical discharge of air from this equipment. There are many different types of rain caps provided by many different vendors. Examples of acceptable configurations are provided below in Figure 1. Many variations of these configurations exist and may be acceptable as well.

2. EXHAUST STACKS: Exhaust stacks shall be vertically discharged to the atmosphere. The discharge point of the exhaust system shall be located at least three feet above the peak height of surrounding roofs (six feet is preferable). There shall be no flow obstruction at the point of discharge that inhibits vertical dispersion (i.e., rain cap, elbow, etc.). Exhaust stack configurations designed to prevent rain infiltration are generally acceptable provided the configuration does not obstruct vertical discharge. Good Engineering Practice (GEP) shall be utilized when designing and installing stacks. Examples of acceptable rain cap configurations are provided below in Figure 1.

3.

FIGURE 1: Acceptable types of weatherproof exhaust systems:

