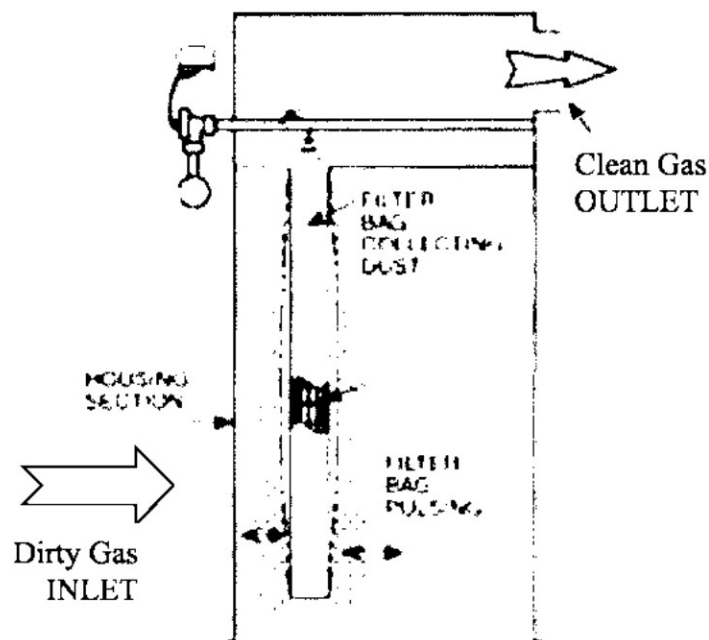


Figure 3-1: Typical Pulse-Jet Fabric Filter Process Flow Diagram



Pulse-jet fabric filters use the simple process of forcing the flue gas, which contains small particles, through a felted fabric. This process causes the particles to collect on the fabric, usually bags, by sieving. The material of the filter bags is determined by the operating conditions, namely the temperature of the flue gas. Also, the size of the filter bags is dependent upon the gas flow based on an air-to-cloth ratio, to avoid too great of a pressure drop from dust cake buildup.

As the dust cake buildup develops on the filter bags, they require cleaning. For pulse-jet fabric filters, the flue gas flows from outside the felted bags to the inside of the bags, and then the clean gas exhausts at the top of the bags. Therefore, the particles are collected on the outside of the bags. A wire cage is inserted inside the bags to prevent the bags from collapsing during normal operation. The bags are cleaned intermittently by pulse-jet cleaning, which is a short burst of high-pressure air directed at the top of the bag, which establishes a shock wave that proceeds down the bag. The wave-like vibration of the bag causes the particulate buildup on the outside of the bag to fall off the bags and into hoppers. As bags are periodically cleaned, the remaining bags take on the extra demand so that the system can continue to operate while bags are being cleaned. This also maintains a generally constant pressure drop across the system. After passing through the filter bags, the flue gas leaves the fabric filter free of almost all particulate matter.