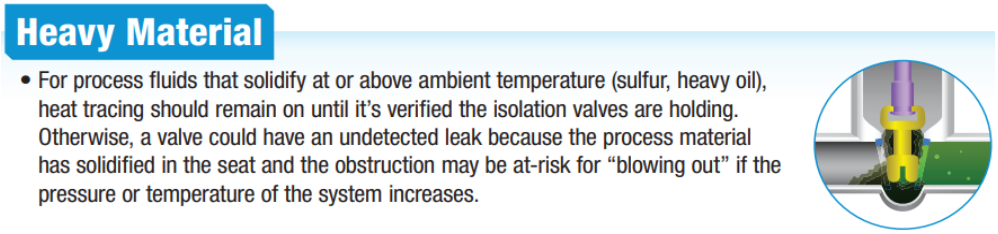
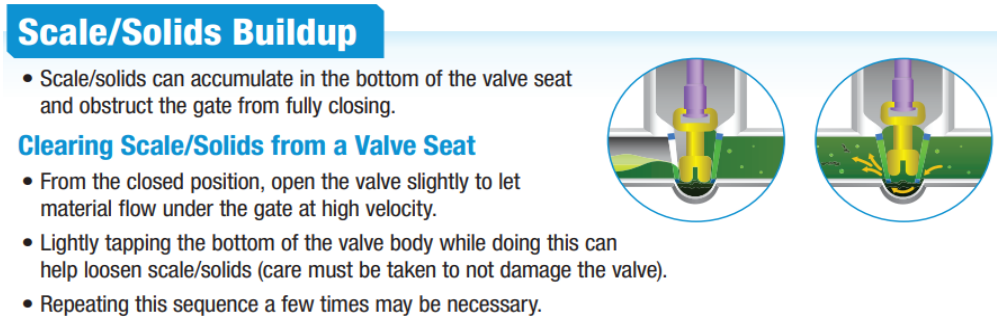
Attachment N – Isolation of Equipment Containing Heavy Materials/Solids

Energy isolation of heavy materials/solids (see definition A.18) shall be accomplished following the steps outlined below.

1. A “double block” isolation method shall be utilized whenever practical.
2. When chain operated valves are used as the single point of isolation of heavy materials/solids the valves shall be verified closed by some other means beyond just relying on the chain wheel (due to reduced torque, loss of visual cues and chain hang-ups). Visual verification that the gate valve stem is in the lowest achievable position and wrench tightening valves is the preferred method for achieving effective single point isolations.
3. When isolating equipment that contains heavy materials/solids special care should be taken to keep the material hot and in a liquid state during the de-inventory and de-pressuring steps. If equipment has already been isolated and cooled down, it must be assumed that the system is “set up” and re-heating will be necessary before de-pressuring and de-inventory begins. Solvent materials (i.e. LCO) can be used to “cut” heavy process materials and remove them from process equipment.



4. When isolating equipment with materials containing a large amount of solids (e.g. coke, catalyst, etc.), special care should be taken to ensure the isolation valves don’t have solids built up in the gate valve seat. Before removing the plug or cap, or breaking the line, check the gate valve stem to determine if an abnormal amount of threads are showing while the valve is in the closed position – this could indicate the valve gate is not fully seated. Refer to the Troubleshooting Valve Isolation Poster (RSP 1121-010-ATT3).



5. The following troubleshooting techniques can be used to assist in identifying leaking valves:
   a. Portable temperature guns can be used to identify leaking valves. In heavy oil hot services, a leaking valve will exhibit an increase in temperature across it.
   b. If a valve is leaking on a pump/compressor, the pressure will increase to either suction or discharge pressure.