Automatic/Manual Damper
In the past, when two different rooms containing either chlorine or sulfur dioxide had to be evacuated, automatic louvers were installed that block the gas flow from the opposite room from where the leak occurred. Since the standard airflow of the Sentry 2000 is 3000 ACFM, it is possible to use manual dampers to each room and balance the flow rate of gas from each room. The engineer can choose any flow rate desired from each room such as 2000-CFM to the storage room and 1000-CFM to the evaporator room. The elimination of automatic dampers will reduce to initial cost of the ductwork system and remove a potential source of failure during the chlorine or sulfur dioxide leak.

System Flow Rates
The basic system is rated at 3000 ACFM. If an application should require additional gas flow to the scrubber for any reason, the Sentry 2000 can be increased in flow rate with calculated results. The packed bad portion of the system will increase in height based on the required flow rate, but the total length and width of the unit will not change with the normal inlet conditions as specified with by the UFC. Scrubber flow rates can easily be increased to 4500 - 5000 CFM. The fan horsepower of the system will increase to 10 hp. Cost of the system will increase approximately 15% depending on the type of system specified. This additional cost may be saved by the elimination of automatic louvers and the required electrical components.

System Ventilation Capability
Since the caustic is stored in the sump and the caustic recycle pump does not need to run when the scrubber fan is operating, the system can be used for ventilation of many of the chlorine and sulfur dioxide rooms. The fan can be turned on when personnel are in the room or run continuously. Airflow can be adjusted by manual or automatic louvers if required. When the chlorine or sulfur dioxide detector system turns on and starts the scrubber pump, the system will wet the packing and the gas will be scrubbed.

In warm climates this approach will work very well. Using this feature can eliminate a primary ventilation system that adds additional cost to the project.

Double Containment
The standard scrubber system will need a containment dike for the caustic in case of a leak. We offer a true double containment tank system that will eliminate the need for the containment dike. Only a concrete pad will be required. This system will be extremely useful in modification of existing buildings for the addition of the chlorine scrubber.

In addition, the double containment system with the top mounted pumps will eliminate the need for pump seals, water flushing of the seals and freeze protection of the water flush if a seal pot is not used. Refer to a typical specification for details.
Safety Relief Vents from Evaporators

Sparger System
In the past, the safety relief vents from evaporators have been piped to the atmosphere outside the storage room. Currently many applications will require that the safety valves be piped to the scrubber. One of the options on our system installs a sparger tube into the caustic storage tank on the side near the bottom of the storage vessel.

If the safety valve system is piped to the scrubber, it should be piped through a barometric loop with an air purge as recommended by the Chlorine Institute Inc. Pamphlet #9. Many engineers will eliminate the barometric loop due to height constraints of the building. Please refer to the Powell sparger drawing in this section for further details.

Vent to Storage Room Scrubber Inlet
In lieu of venting the relief valves to the scrubber sparger, many engineers are terminating the vents to the inlet duct area of the scrubber in the container storage room. If the safety valve should relieve into the containment room scrubber inlet ductwork, the gas detector will turn on the scrubber and scrub the gas. The main concern with this approach is employee safety during the time of release and scrubber operation if the employee is in the area.

Vacuum Relief Vents
In the past, the vacuum relief vents have been piped to the atmosphere. Many engineers are now piping these vents to the area near the scrubber inlet ductwork in the containment room.