SOP-RELIEF-1 PROCEDURE FOR REPLACEMENT OR REPAIR OF RELIEF VALVES

Objective: This procedure is performed for the replacement or repair of dual or single safety relief valves connected to a common relief vent header. This procedure provides general guidance to assure that replacement or repair of these valves is executed safely with no ammonia release to the atmosphere in close proximity to humans or other sensitive receptors.

Purpose: Allow for the safe replacement or repair of these valves with no ammonia release to the atmosphere in close proximity to humans or other sensitive receptors.

Concerns: Careful attention to valve positions is important to this procedure. Among the incidents we are trying to prevent are:

- Injury to operator(s)
- Exposure and injury of all employees to an ammonia release
- Release of ammonia in an hazardous manner

Plant Lockout / Tagout program should be followed when taking unit or system out of service, maintaining and returning equipment to service. Refer to plant program for details of Lockout / Tagout.

Department: Refrigeration

Operator: Refrigeration Operator and Assistant

Equipment: Hand Tools

Location: General ASME Pressure Vessel

Related documents: None

SOP-RELIEF-1 PROCEDURE FOR REPLACEMENT OR REPAIR OF RELIEF VALVES

Equipment Required

Personal Protective Equipment (PPE) required:

- hard hat
- chemical splash goggles
- full face shield
- gauntlet type rubber gloves

Apparel and clothing required:

- long sleeved shirt
- long pants (not shorts)
- leather shoes or boots

For emergency purposes have at hand ready to use:

- testing apparatus for determining concentration of ammonia in air
- full face gas mask with industrial size ammonia canister for each crew member
- SCBA breathing apparatus for each crew member in an easy to access location
- drench shower/eyewash combo (preferred)

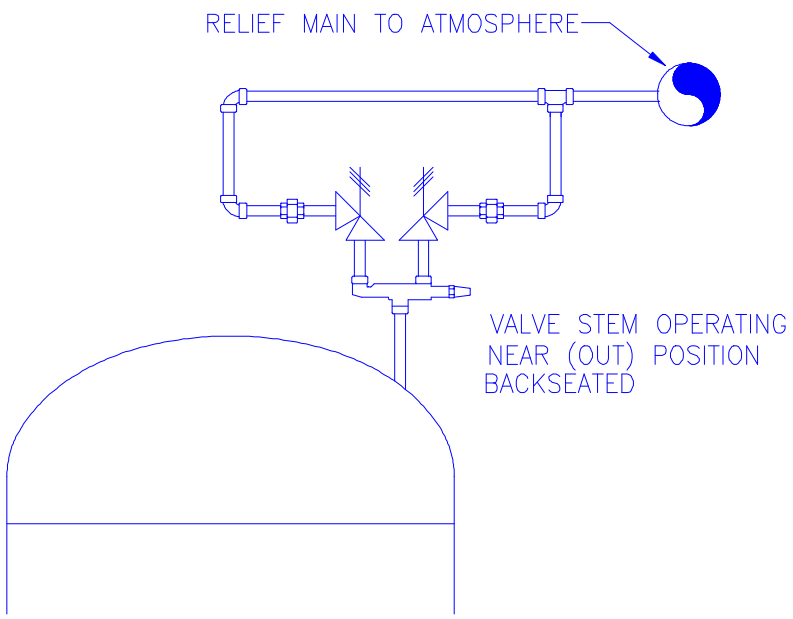
or

- garden hose

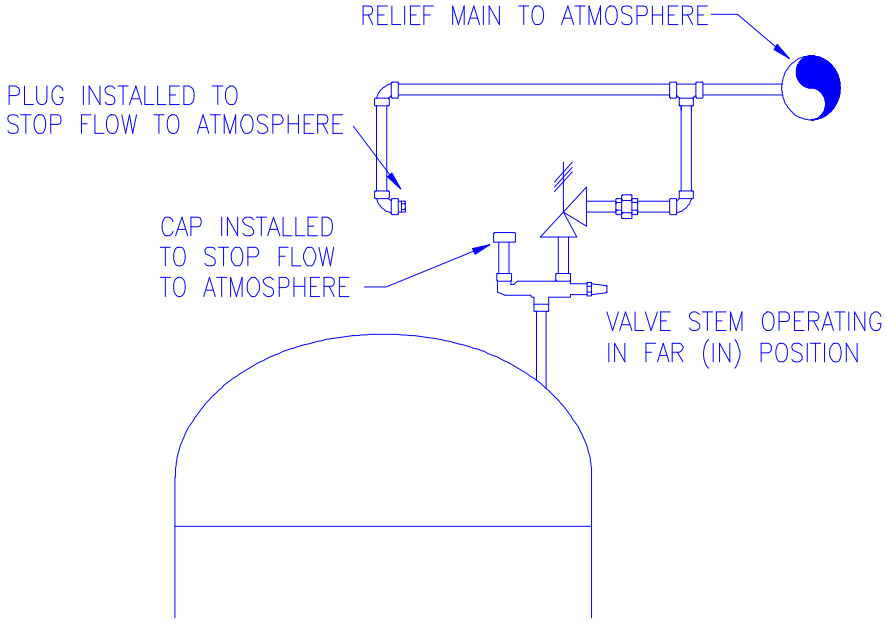
or

- five (5) gallons fresh water
- portable emergency eye wash
- fire extinguisher (A-B-C rated)

Dual Relief Valve System Drawing

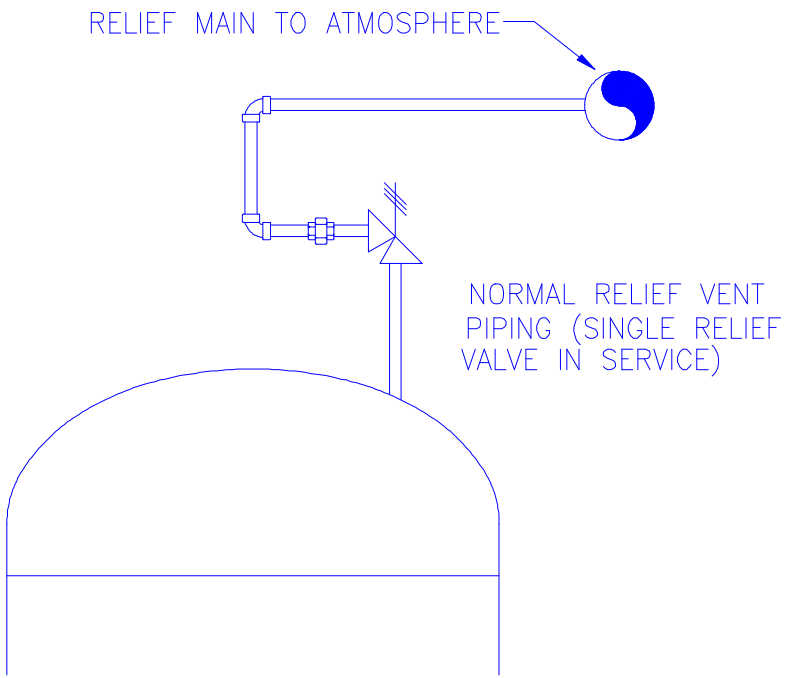


NORMAL RELIEF VENT PIPING
TO ATMOSPHERE

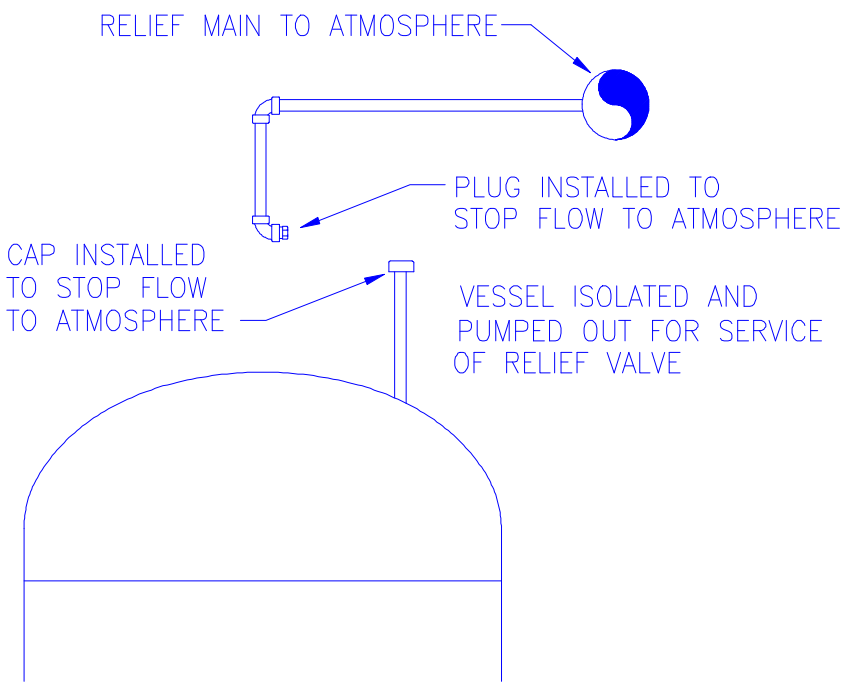


OPEN RELIEF VENT PIPING
TO ATMOSPHERE DURING RELIEF VALVE
REPAIR OR REPLACEMENT

Single Relief Valve System Drawing



NORMAL RELIEF VENT PIPING TO ATMOSPHERE

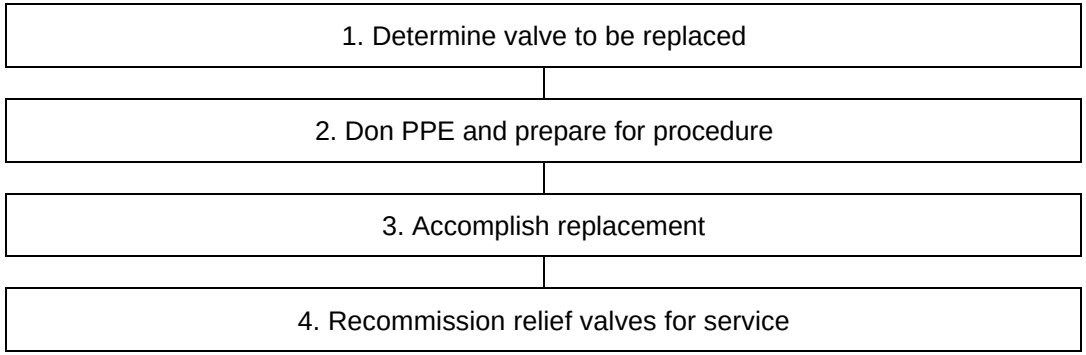


OPEN RELIEF VENT PIPING TO ATMOSPHERE DURING RELIEF VALVE REPAIR OR REPLACEMENT

SOP-RELIEF-1 PROCEDURE FOR REPLACEMENT OR REPAIR OF RELIEF VALVES

STANDARD OPERATING PROCEDURE (SOP)

TASK FLOW DIAGRAM



SOP-RELIEF-1 PROCEDURE FOR REPLACEMENT OR REPAIR OF RELIEF VALVES

	TASK		STEP	COMMENT
1.	Determine valve to be replaced	1.	Determine which relief valve is to be changed.	A leaking valve (flow through the valve) will generally have condensate or frost on the outside of the valve body. You may also be able to hear the valve leak. Valves should be recertified or replaced per IIAR guidelines. Generally accepted to be five years.
2.	Don PPE and prepare for procedure	2.	Don required clothing and PPE.	**NOTE:** One technician and an assistant must work together.
		3.	Complete open system entry form.	
		4.	Prohibit all vehicular and pedestrian traffic in vicinity of operation.	
		5.	Close all windows and doors leading into buildings downwind of the site or other areas of the building.	
		6.	Perform visual inspection of relief vent area.	
		7.	Refamiliarize yourself with location of breathing apparatus, escape routes, SCBA location, eyewash and shower station.	
		8.	Determine that opposite relief valve, or others on main header, are not presently relieving or that relief is imminent.	**HAZARD: Do not attempt to accomplish task if any other relief valve is currently relieving or potential for relief is imminent.**
		9.	Place ladder and tie off per OSHA requirements..	

	TASK		STEP	COMMENT
3.	Accomplish replacement	1.	Lockout / Tagout appropriate valves on pressure vessel: Single Relief Valve: Entire vessel must be pumped down, isolated, vented, and tagged-out. Dual Relief Valve: Isolate and tag-out the 3-way valve so that position cannot be changed during procedure.	
		2.	Remove relief valve outlet piping and immediately plug or cap piping outlet remaining in place to prevent this open pipe from becoming a relief gas outlet if another relief should blow.	See Pages 3 and 4, SOP-RELIEF-1
		3.	Vent upstream (high pressure) side of vessel or piping and remove relief valve. Single Relief Valve: Entire vessel must be vented. Dual Relief Valves: Space inside pipe between 3-way valve and relief valve will have some relatively high pressure ammonia present--Unscrew relief valve and bleed off to atmosphere **S-L-O-W-L-Y**.	
		4.	Immediately cap piping from 3-way valve or vessel. **OR** Immediately screw new relief valve to 3-way valve or piping from vessel.	A single relief valve in a dual relief valve assembly may remain out-of-service for an extended period of time if necessary.
		5.	Redo all piping connections	
		6.	After all piping and valve connections have been made, pressure test and check for ammonia leaks. Repair if necessary.	

	TASK		STEP	COMMENT
4.	Recommission relief valves for service	1.	Set 3-way valve for operation as backseated.	Backseating (or stem position out) this valve precludes the valve packing from having to be relied upon for sealing to the atmosphere.
		2.	Remove, clean, PM, and stow Personal Protection Equipment	
		3.	Give “ALL CLEAR” signal to open doors, windows, etc. and allow vehicular and pedestrian traffic	
		4.	Secure all tools and equipment utilized.	