

# SSST Quiz

9/30/2009

**Slide 1:** “For the Steam Distribution Operating Practices, Section 6 of the scoping tool, type the numbers corresponding to the following answers, for each question, then hit enter for each question, and then the advance arrow at the bottom of the screen (at the control bar):

**STEAM SYSTEM SCOPING TOOL, Version 1.0d** 6/12/2002

**STEAM DISTRIBUTION, END USE, RECOVERY - OPERATING PRACTICES**  
**OPTIONS FOR REDUCING STEAM PRESSURE - MINIMIZE STEAM FLOW THROUGH PRVs**

**What To Do** Investigate potential to use backpressure turbines in parallel with pressure reducing valves in your steam system.

**Why Important** In many steam systems, pressure reducing valves (PRVs) are used to provide steam at pressures lower than generated from the boiler. A potential opportunity for improving a steam system is to minimize the flow of steam through PRVs. One opportunity for doing this is to install backpressure turbines in parallel with PRVs in your steam system; in this way you can provide the low-pressure steam required and generate electricity or shaft power that can be utilized. A detailed economic analysis must be performed to evaluate this type of opportunity.

	<b>ACTIONS</b>	<b>SCORE</b>	<b>YOUR SCORE</b>
<b>PR1</b> How do you reduce steam pressure in your steam system?	steam generated at required pressure, or PRVs appropriately applied	10	
	backpressure turbines used in parallel with PRVs	10	
	boiler control used to reduce pressure	5	
	excess steam vented and/or used inefficiently	0	

### RECOVER AND UTILIZE AVAILABLE CONDENSATE

**What To Do** Determine how much of your available condensate you recover and utilize.

**Why Important** Returning a substantial portion of your condensate to your boiler can have both energy and chemical treatment benefits: a) condensate is hotter than makeup water, so less energy is required to convert condensate to steam; and b) condensate requires significantly less chemical treatment than makeup water, so there may be savings in chemical treatment costs associated with returning condensate. Returning as much condensate as possible also can help to reduce boiler blowdown (because fewer impurities are resident in condensate), and so minimize blowdown energy losses.

			YOUR SCORE
<b>CR1</b>	How much of your available Condensate do you recover and utilize?	<b>ACTIONS</b>	<b>SCORE</b>
		greater than 80%	10
		40% to 80%	6
		20% to 40%	3
		less than 20%	0

### USE HIGH-PRESSURE CONDENSATE TO MAKE LOW-PRESSURE STEAM

**What To Do** Investigate opportunity to utilize high-pressure condensate to produce useable low-pressure steam.

**Why Important** An opportunity for utilizing high-pressure condensate is to allow it to pass through a flash tank and utilize the flash steam in low-pressure steam applications. The remainder of the condensate, now at lower pressure and temperature, can then be sent back to the boiler for use in producing steam.

			YOUR SCORE
<b>FS1</b>	How much of your available Flash Steam do you recover and utilize?	<b>ACTIONS</b>	<b>SCORE</b>
		greater than 80%, or flash steam unavailable	10
		40% to 80%	6
		20% to 40%	3
		less than 20%	0

**PR1:** " Your steam demands require 400psig, 150 psig, and 20 psig pressures. Your boiler generates 400 psig and PRVs are used to reduce to 150 psig.

Answer: Steam generated at required pressure, or PRV's appropriately applied"

Type "10" points for your score at PR1, hit Enter. "Correct"

Select Fast Forward Button on the tool bar.

		ACTIONS	SCORE	YOUR SCORE
<b>PR1</b>	How do you reduce steam pressure in your steam system?	steam generated at required pressure, or PRVs appropriately applied	10	10
		backpressure turbines used in parallel with PRVs	10	
		boiler control used to reduce pressure	5	
		excess steam vented and/or used inefficiently	0	

**CR1:** "Approximately 75% of condensate is recovered at your boiler plant.

Answer: 40% to 80%"

Type "6" points for your score at CR1, hit Enter. "Correct"

Select Fast Forward Button on the tool bar.

		ACTIONS	SCORE	YOUR SCORE
<b>CR1</b>	How much of your available Condensate do you recover and utilize?	greater than 80%	10	6
		40% to 80%	6	
		20% to 40%	3	
		less than 20%	0	

**FS1:** "Your steam system utilizes approximately 50% of flash steam for condensate heat recovery.

Answer: 40% to 80%"

Type "6" points for your score at FS1, hit Enter. "Correct"

Select Fast Forward Button on the tool bar.

		<b>ACTIONS</b>	<b>SCORE</b>	<b>YOUR SCORE</b>
<b>FS1</b>	How much of your available Flash Steam do you recover and utilize?	greater than 80%, or flash steam unavailable	10	6
		40% to 80%	6	
		20% to 40%	3	
		less than 20%	0	

**Slide 7:** "Nice job! It looks like you have grasped the concept of using the Steam System Scoping Tool."