

State Facilities Boiler Questionnaire

Please complete this questionnaire by November 8th and fax it to Stephen Terry at the Industrial Assessment Center at NC State University, at (919) 515-7968. If you don't know an answer, then leave it blank. If you don't measure a temperature, pressure, or % concentration, then write-in "NM". If you have specific boiler systems questions, you may call Mr. Terry at (919) 515-1878. Please write any comments or additional information on the back of this form or attach them. Thank you for your cooperation in this important survey. If you have general questions about the O&M Conservation Program, you may call Craig Gammarino, Program Manager at the NC State Energy Office, at (919) 733-1891. A summary of our findings will be sent to you at the conclusion of the project.

Your Name: _____ **Phone #** _____ **Email:** _____

Department _____ **Division** _____

Complex Name _____ **County - Complex #** _____

1. Does your Boiler Plant have a Water Softener (Y/N)? _____
2. What type of water treatment program does your plant utilize?
 Circle one: Phosphate Chelant Polymeric
3. What company provides your water treatment services? _____
4. What is the annual cost of chemical water treatment? \$_____
5. How much condensate is returned to the boilers (in %) _____
6. What is the source of make-up water? Circle one: City Well
7. Does your boiler plant have a deaerator (Y/N)? _____
 - If so, what is the water temperature in the DA tank? _____ °F
 - If not, what is the water temperature in the condensate tank? _____ °F
8. Does your plant use continuous blowdown (Y/N)? _____
9. Does your plant use bottom blowdown (Y/N)? _____
 - How often is bottom blowdown done per day? _____
 - How long do you leave the bottom blowdown valve open? _____
 - Does your plant have blowdown heat recovery (Y/N)? _____
10. How many soot blowers are on each boiler? _____
 - How frequently are they operated? _____
 - When are they operated (time of day)? _____
 - Does soot blowing affect stack temperature (Y/N)? _____
11. How many steam traps do you have at your facility? _____

- What percent are not working? _____
- Do you have a steam trap maintenance program in place (Y/N)? _____

12. If you fire oil in your boilers, please answer the following questions as best you can.

- What type of oil do you fire? Circle one: #2 #4 #5 #6
- How many oil storage tanks do you have? _____
- How large are they? _____
- Are they above or below ground? Circle one: Above Below
- Are they heated (Y/N)? _____
- If so, how? Circle one: Steam Electric
- Are they insulated (Y/N)? _____
- Do you have any problems with the oil in the storage tanks (Y/N)? _____

If so, briefly explain: _____

- Do you use an oil additive (Y/N)? _____
- If so, for what purpose – Circle One:
Sludge Improve Combustion Reduce Corrosion Other
- Do your burners use oil atomization (Y/N)? _____
- If so, what type of atomization is used: (Circle One) Steam Air

13. How does the steam load change by season (i.e., how many boilers are used in the summer and winter)?

14. What types of steam loads do your facility support (i.e., mostly heating, process loads, etc.)

15. How would you evaluate your boiler house?

Circle One: Very Good Good Fair Poor

16. What is done well at your facility? _____

17. What are the worst problems at your facility? _____

18. Rank your needs by number, write "1" as the greatest need:

_____ Training	_____ Poor Insulation
_____ Instrumentation	_____ Maintenance
_____ Steam / Water Leaks	_____ Other: _____
_____ _____	_____ _____

Boiler System Data

	Boiler No. 1	Boiler No. 2	Boiler No. 3	Boiler No. 4
Boiler Manufacturer				
Date of Manufacture				
Serial Number				
Type (firetube or watertube)				
Boiler Capacity (lb/hr or hp)				
Operating Pressure, psig				
Feedwater Temperature, °F				
Number of Burners				
Primary Fuel				
Backup Fuel				
Annual Fuel Usage				
Annual Fuel Cost				
Annual Water Usage Gal/yr				
Annual Water Cost				
Forced Draft Fan (Y/N)				
Induced Draft Fan (Y/N)				
Economizer (Y/N)				
Air Heater (Y/N)				
Normal Firing Rate (Low, Medium, High)				
Flue Gas Temperature at Normal Load				
Leaving Boiler, °F				
Leaving Economizer, °F				
Leaving Air Heater, °F				
Oxygen in Flue Gas, % at Normal Firing Rate				