



State of Tennessee
Department of Labor and Workforce Development
Division of Workplace Regulations and Compliance
Boiler Unit
Tennessee Board of Boiler Rules

Guide for the Extension of Boiler Internal Inspections

INTRODUCTION

Under T.C.A. §68-122-110(a), each boiler used or proposed to be used within this state, except boilers exempt in T.C.A. §68-122-105, shall be thoroughly inspected as to their construction, installation, condition and operation as follows:

(1) Power boilers shall be inspected **annually** both internally and externally while not under pressure, and shall also, if possible, be inspected externally while under pressure approximately six (6) months following the date of each internal inspection (emphasis added).

Notwithstanding T.C.A. §68-122-110(a), the Board may, in its discretion, grant a variance for longer intervals between inspections. This Guide for the Extension of Boiler Internal Inspections (Guide) and Checklist for Boiler Inspection Variance Requests (Checklist) have been prepared setting forth conditions which must be met before a variance for longer intervals between inspections may be granted. They are not intended to take precedence over or interpret the requirements of T.C.A. §§68-122-101 *et seq.* or the rules and regulations in Chapter 0800-3-3, Boiler Inspections.

To view the full-text of T.C.A. §§68-122-101 *et seq.*, go to: <http://www.lexisnexis.com/hottopics/tncode/>. To view the rules and regulations, go to: <http://www.tn.gov/sos/rules/0800/0800-03/0800-03-03.pdf>. In addition, the Board recommends that applicants have access to a current set of applicable code books/jurisdictional laws, such as the Boiler and Pressure Vessel Code of the American Society of Mechanical Engineers Code (ASME Code) and the National Board Inspection Code (NBIC).

To assist the Board and the Chief Inspector or the Chief Inspector's Designee, this Guide and Checklist will be provided to applicants for boiler inspection variance requests for their use. Applicants will be required to develop a Boiler Operating, Inspection, and Maintenance Program (Program) and cross reference the paragraphs described therein with the applicable control requirements in the checklist. E v e n t h o u g h each system and location for which a variance is requested is different, it is expected that all Programs will satisfy and follow the Guide and Checklist. Compliance with the Guide and Checklist do not guarantee approval of any variance request. Approval of the variance does not imply endorsement of any system, product, or component of same.

The Board may grant a variance by determining whether or not an applicant's Program will satisfy the degree of safety desired considering the period of time requested. If a variance is approved, the Board will determine the expiration date keeping in mind that an inspection certificate is valid for power boilers for twenty-four (24) months. The Chief Inspector or Chief Inspector's Designee will conduct an acceptance inspection and issue an inspection certificate. However, any boiler that fails an external inspection shall be shut down and inspected internally, and the variance shall be rescinded.

It is the responsibility of a variance holder to request a renewal of the variance in writing to the Board prior to its expiration. The request shall contain a summary of any change(s) to the Program, the item number(s) from the Checklist, page number(s), paragraph(s), and the date of the last inspection by the Chief Inspector or Chief Inspector's Designee.

A boiler inspection variance request, Program, checklist and ten (10) copies should be submitted to the Chief Inspector or the Chief Inspector's Designee no less than **forty-five (45) days** prior to the next regularly scheduled or called meeting of the Board. This time is required for the request to be processed, and for the Board to review the documents prior to the next meeting. The documents should be sent to the attention of the Chief Inspector or the Chief Inspector's Designee, Department of Labor and Workforce Development, Division of Workplace Regulations and Compliance, Boiler Unit, 220 French Landing Drive, Nashville, Tennessee 37243. For assistance, call (615) 741-2123 or 1-888-629-2895.

An applicant will receive a confirmation letter verifying receipt of the documents and addition of the request to the next Board meeting agenda. A knowledgeable company representative should make a presentation at the meeting, and answer any questions that the Board may have. To view the public notice for all meetings on Tennessee's public participation calendar, go to: <https://apps.tn.gov/pmn/index.html>.

BOILER OPERATING, INSPECTION, AND MAINTENANCE PROGRAM

Overview

The Program is a document that clearly describes the boiler system that is to be operated, inspected, and maintained (the means by which the Program is to be implemented), personnel responsible, and emergency procedures to be followed by the personnel at a remote monitoring station, if applicable. The variance will be based on this Program. Any changes to a Program must be approved by the Board. A copy of an approved Program shall be filed in the office of the Chief Inspector or the Chief Inspector's Designee. Applicants for boiler inspection variance requests should notify and obtain agreement from their Authorized Inspection Agency or Inservice Inspection Agency prior to implementation of their variance. NOTE: All boiler and boiler water treatment system personnel must have easy access to a complete copy of the Program at all times.

In the introduction of the Program, the personnel responsible for the safe operation of the boiler facility, Program, boiler risk based inspection program, and boiler water treatment system should be identified. The minimum qualifications for such personnel, their training including continuing education, and the duties to which they are assigned should be included. Contact information such as addresses, telephone numbers and fax numbers should also be included.

The Program should be composed of, at least, the following specific sections:

1. Boiler System. This section should describe the manufacturer(s) and type(s) of boiler(s) including the Tennessee number(s), date(s) of installation(s), control system(s), normal operation, and whether or not there are boiler attendants. The physical location(s), address(es) of the boiler(s) and other plant facilities should also be described including a plot plan of the plant. A simplified diagram of the power piping system and the feed water piping is also required.

2. Boiler Inspection. This section should describe the external and internal inspection plans to satisfy T.C.A. §68-122-110, Chapter 0800-3-3, and the boiler inspection variance request. This section should all also describe the Nondestructive Examination (NDE) methods implemented to ensure wall thicknesses of pressure retaining items meeting the minimum wall thickness requirement as per the ASME Code and NBIC. Damage mechanisms should also be identified along with recommended mitigation plans.

3. Boiler Records. This section should describe and provide an example of the following boiler records maintained by the applicant:

- a. Boiler Data Sheet(s);
- b. Boiler Operation Log(s);
- c. Date(s) and time(s) the boiler(s) is/are out of service;
- d. Reason(s) for any unplanned shutdown of the boiler(s);
- e. NBIC "R" forms for boiler repairs and alterations;
- f. Safety valve certification(s).
- g. Repair history of the boiler/burner system showing compliance to ASME CSD-1.

Note: During the acceptance inspection by the Deputy Inspector, or the Deputy Inspector's Designee, the actual records listed above, since the last internal inspection, shall be made available for review.

4. Boiler Water Treatment System. This section should describe the boiler water treatment system for the boiler(s) described in the Program. Included in this are descriptions of the purpose of continually controlling and limiting corrosion and deposits in accordance with the manufacturer's recommendations, equipment, control system, and alarm notification process. This section should also include supporting data regarding the boiler water treatment system described.

5. Boiler Water Treatment System Records. This section should describe the following boiler water treatment system records maintained by the applicant:

- a. Daily analysis of water samples that adequately describe the condition of the water and identify any characteristics of the water that may result in deterioration of the boiler(s);
- b. Monthly chemical analysis reports by the chemical supplier.

6. Boiler and Boiler Water Treatment System Maintenance. This section should describe boiler repairs and alterations as per the ASME Code and NBIC. Maintenance of the boiler water treatment system should also be included.

Note: During the acceptance inspection by the Deputy Inspector, or the Deputy Inspector's Designee, the actual records listed above, since the last internal inspection, shall be made available for review.

An applicant's program should be in a 3-ring binder with a table of contents, revised table of contents, if required, overview and introduction with a sectional page numbering system. The overview and introduction should be identified, dated and numbered as follows:

00-00-2014	1	Overview and Introduction
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The Program sections should be identified as follows: 1. Boiler System; 2. Boiler Inspection; 3. Boiler Records; 4. Boiler Water Treatment System; 5. Boiler Water Treatment System Records; and 6. Boiler and Boiler Water Treatment System Maintenance. They should appear at the bottom right of each dated and numbered page as follows:

00-00-2014	1.1	1. Boiler System
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When the Board reviews a Program, the Board may decide to grant the variance, issue a contingent approval of the variance, or deny the variance. When a contingent approval of the variance is issued, an applicant may be

required to add or delete information and send a revised table of contents and revised pages to the Chief Inspector or the Chief Inspector's Designee for review. If acceptable, they can be inserted later in the 3-ring binder. An example of a revised page is as follows:

00-00-2014	1.1 - 1	1. Boiler System
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The revised page should be inserted between pages 1.1 and 1.2.

If there is a renewal variance request, the summary should be placed in front of the approved Program. An example of a renewal page with changes is as follows:

00-00-2014	1.1R	1. Boiler System
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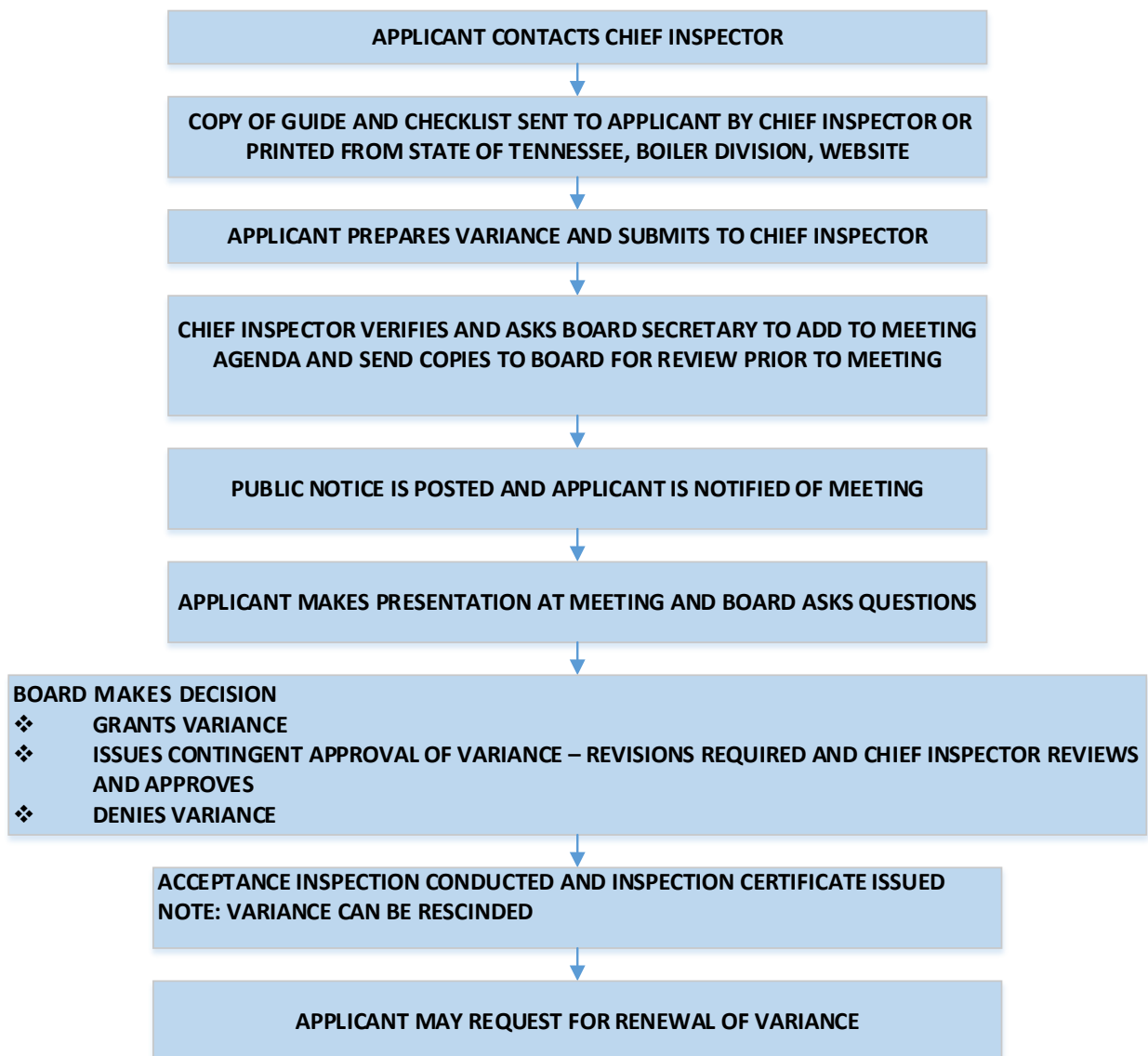
The renewal page should be inserted where applicable.



STATE OF TENNESSEE
DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
DIVISION OF WORKPLACE REGULATIONS AND COMPLIANCE
BOILER UNIT

TENNESSEE BOARD OF BOILER RULES

STEPS FOR A BOILER INSPECTION VARIANCE REQUEST
JULY 2014



Checklist for the Extension of Boiler Internal Inspections

This checklist has been prepared to assure that the requirements of the Guide are included in the Program. An applicant should review each checklist item number and mark "YES", "NO", or not applicable ("N/A") in the "Applicant Response" column. An applicant should also indicate the page number(s) and paragraph(s) where the information can be found in the "Program References" column.

Item No.		Applicant Response	Program References	Satisfactory Check-Off (Board/Inspector)
OVERVIEW AND INTRODUCTION				
1	Is T.C.A. §68-122-110(f) referenced in the cover letter and Program?	YES <input type="checkbox"/> NO <input type="checkbox"/> N/A <input type="checkbox"/>		YES <input type="checkbox"/> NO <input type="checkbox"/>
2a.	Does the cover letter request a variance and the period of time for the extension of the boiler internal inspection ?	YES <input type="checkbox"/> NO <input type="checkbox"/> N/A <input type="checkbox"/>		YES <input type="checkbox"/> NO <input type="checkbox"/>
2b.	Are the personnel responsible for the boiler facility, Program, boiler risk based program, and boiler water treatment system clearly identified and are their addresses, telephone numbers, and fax numbers included?	YES <input type="checkbox"/> NO <input type="checkbox"/> N/A <input type="checkbox"/>		YES <input type="checkbox"/> NO <input type="checkbox"/>
2c.	Does it confirm that a company representative will be present at a scheduled or called meeting of the Board when the variance request is being considered?	YES <input type="checkbox"/> NO <input type="checkbox"/> N/A <input type="checkbox"/>		YES <input type="checkbox"/> NO <input type="checkbox"/>
3	Does the boiler(s) utilize a water treatment system?	YES <input type="checkbox"/> NO <input type="checkbox"/> N/A <input type="checkbox"/>		YES <input type="checkbox"/> NO <input type="checkbox"/>
4	Does the boiler(s) utilize a risk based inspection Program?	YES <input type="checkbox"/> NO <input type="checkbox"/> N/A <input type="checkbox"/>		YES <input type="checkbox"/> NO <input type="checkbox"/>
5	Does it indicate that all boilers operating under an approved variance pursuant to T.C.A. §68-122-110 (f) shall be inspected externally while under pressure approximately every six (6) months for the duration of the variance?	YES <input type="checkbox"/> NO <input type="checkbox"/> N/A <input type="checkbox"/>		YES <input type="checkbox"/> NO <input type="checkbox"/>
6	Does it indicate that any boiler that fails an external inspection as prescribed by T.C.A. §68-122-110 (f)(3), shall be shut down, inspected internally, and the variance shall be rescinded?	YES <input type="checkbox"/> NO <input type="checkbox"/> N/A <input type="checkbox"/>		YES <input type="checkbox"/> NO <input type="checkbox"/>
7	Does the Program clearly describe the boiler system that has a boiler inspection variance request?	YES <input type="checkbox"/> NO <input type="checkbox"/> N/A <input type="checkbox"/>		YES <input type="checkbox"/> NO <input type="checkbox"/>
8	Does the Program clearly describe the minimum qualifications, training including continuing education, and the duties of the personnel responsible for the boiler operation?	YES <input type="checkbox"/> NO <input type="checkbox"/> N/A <input type="checkbox"/>		YES <input type="checkbox"/> NO <input type="checkbox"/>

9	Does the Program clearly describe that the boiler is fully attended as per the boiler attendant rule?	YES <input type="checkbox"/> NO <input type="checkbox"/> N/A <input type="checkbox"/>		YES <input type="checkbox"/> NO <input type="checkbox"/>
10	Does the Program clearly describe the boiler water treatment system?	YES <input type="checkbox"/> NO <input type="checkbox"/> N/A <input type="checkbox"/>		YES <input type="checkbox"/> NO <input type="checkbox"/>
11	Does the Program clearly describe the minimum qualifications, training including continuing education, and the duties of the personnel responsible for the boiler water treatment system?	YES <input type="checkbox"/> NO <input type="checkbox"/> N/A <input type="checkbox"/>		YES <input type="checkbox"/> NO <input type="checkbox"/>
12	Does the Program include a description of the following:			
	a. Risk Based Inspection Methods	YES <input type="checkbox"/> NO <input type="checkbox"/> N/A <input type="checkbox"/>		YES <input type="checkbox"/> NO <input type="checkbox"/>
	b. Water Treatment System Program	YES <input type="checkbox"/> NO <input type="checkbox"/> N/A <input type="checkbox"/>		YES <input type="checkbox"/> NO <input type="checkbox"/>
	c. Fuel Type(s)	YES <input type="checkbox"/> NO <input type="checkbox"/> N/A <input type="checkbox"/>		YES <input type="checkbox"/> NO <input type="checkbox"/>
	d. Boiler Component Operating Temperatures	YES <input type="checkbox"/> NO <input type="checkbox"/> N/A <input type="checkbox"/>		YES <input type="checkbox"/> NO <input type="checkbox"/>
13	Is this a new, revised or renewal variance request?	New <input type="checkbox"/>		YES <input type="checkbox"/> NO <input type="checkbox"/>
		Revised <input type="checkbox"/>		
		Renewal <input type="checkbox"/>		
BOILER SYSTEM				
14	Does the Program clearly describe the physical location(s) and address(es) of the boiler(s) and other plant facilities?	YES <input type="checkbox"/> NO <input type="checkbox"/> N/A <input type="checkbox"/>		YES <input type="checkbox"/> NO <input type="checkbox"/>
15	Does the Program clearly describe the manufacturer(s) and type(s) of boiler(s), date(s) installed, TN numbers, days of operation, last inspection date(s), temperatures, pressures, safety relief valves, steaming capacity, etc.?	YES <input type="checkbox"/> NO <input type="checkbox"/> N/A <input type="checkbox"/>		YES <input type="checkbox"/> NO <input type="checkbox"/>
16	Does the Program include a description of the system that is used to monitor those safety aspects of the boiler operation that are required in Chapter 0800-3-3?	YES <input type="checkbox"/> NO <input type="checkbox"/> N/A <input type="checkbox"/>		YES <input type="checkbox"/> NO <input type="checkbox"/>
17	Does the Program clearly describe the control systems and normal boiler operation(s)?	YES <input type="checkbox"/> NO <input type="checkbox"/> N/A <input type="checkbox"/>		YES <input type="checkbox"/> NO <input type="checkbox"/>
18	Does the Program include a plot plan of the plant?	YES <input type="checkbox"/> NO <input type="checkbox"/> N/A <input type="checkbox"/>		YES <input type="checkbox"/> NO <input type="checkbox"/>
19	Does the Program include a simplified diagram of the power piping system and the feed water piping?	YES <input type="checkbox"/> NO <input type="checkbox"/> N/A <input type="checkbox"/>		YES <input type="checkbox"/> NO <input type="checkbox"/>
BOILER INSPECTION				
20	Does the Program describe the external and internal inspection plans?	YES <input type="checkbox"/> NO <input type="checkbox"/> N/A <input type="checkbox"/>		YES <input type="checkbox"/> NO <input type="checkbox"/>
21	Does the boiler risk based inspection program meet the requirements of the ASME Code and NBIC?	YES <input type="checkbox"/> NO <input type="checkbox"/> N/A <input type="checkbox"/>		YES <input type="checkbox"/> NO <input type="checkbox"/>

22	Has the Applicant for the boiler inspection variance notified and obtained agreement from their Authorized Inspection Agency or Inservice Inspection Agency prior to implementation of their variance?	YES <input type="checkbox"/> NO <input type="checkbox"/> N/A <input type="checkbox"/>		YES <input type="checkbox"/> NO <input type="checkbox"/>
23	Does the Program include a listing of potential damage mechanisms, corrosion rates, remaining life, likelihood of failure, consequences of failure, etc. in a mitigation plan?	YES <input type="checkbox"/> NO <input type="checkbox"/> N/A <input type="checkbox"/>		YES <input type="checkbox"/> NO <input type="checkbox"/>
24	Does the Program include NDE processes that are utilized?	YES <input type="checkbox"/> NO <input type="checkbox"/> N/A <input type="checkbox"/>		YES <input type="checkbox"/> NO <input type="checkbox"/>
25	Does the Program include how data is gathered, evaluated, etc.	YES <input type="checkbox"/> NO <input type="checkbox"/> N/A <input type="checkbox"/>		YES <input type="checkbox"/> NO <input type="checkbox"/>
BOILER RECORDS				
26	Boiler Outages - Planned and Unplanned with dates, reasons, findings, and resolutions	YES <input type="checkbox"/> NO <input type="checkbox"/> N/A <input type="checkbox"/>		YES <input type="checkbox"/> NO <input type="checkbox"/>
27	Boiler Repairs and Alterations as per the NBIC "R" Forms and ASME Code?	YES <input type="checkbox"/> NO <input type="checkbox"/> N/A <input type="checkbox"/>		YES <input type="checkbox"/> NO <input type="checkbox"/>
28	Records showing that safety relief devices, safety valve certifications, instrumentation, boiler controls, and other equipment necessary for safe operation are current, in service, properly tested/calibrated, and satisfy the jurisdictional laws and rules and regulations?	YES <input type="checkbox"/> NO <input type="checkbox"/> N/A <input type="checkbox"/>		YES <input type="checkbox"/> NO <input type="checkbox"/>
29	Boiler Data Sheet(s)	YES <input type="checkbox"/> NO <input type="checkbox"/> N/A <input type="checkbox"/>		YES <input type="checkbox"/> NO <input type="checkbox"/>
30	Boiler Operating Log(s)	YES <input type="checkbox"/> NO <input type="checkbox"/> N/A <input type="checkbox"/>		YES <input type="checkbox"/> NO <input type="checkbox"/>
31	Boiler Water Treatment System Maintenance Records	YES <input type="checkbox"/> NO <input type="checkbox"/> N/A <input type="checkbox"/>		YES <input type="checkbox"/> NO <input type="checkbox"/>
32	Boiler Inspection Records	YES <input type="checkbox"/> NO <input type="checkbox"/> N/A <input type="checkbox"/>		YES <input type="checkbox"/> NO <input type="checkbox"/>
33	Personnel Qualifications, Training Records and Continuing Education	YES <input type="checkbox"/> NO <input type="checkbox"/> N/A <input type="checkbox"/>		YES <input type="checkbox"/> NO <input type="checkbox"/>
BOILER WATER TREATMENT SYSTEM				
34	Does the Program clearly describe the boiler water treatment system for the purpose of controlling and limiting corrosion and deposits?	YES <input type="checkbox"/> NO <input type="checkbox"/> N/A <input type="checkbox"/>		YES <input type="checkbox"/> NO <input type="checkbox"/>
35	Does the Program clearly describe the equipment, control system and alarm notification process?	YES <input type="checkbox"/> NO <input type="checkbox"/> N/A <input type="checkbox"/>		YES <input type="checkbox"/> NO <input type="checkbox"/>
36	Is the water treatment program operated continuously in accordance with the manufacturer's recommendations?	YES <input type="checkbox"/> NO <input type="checkbox"/> N/A <input type="checkbox"/>		YES <input type="checkbox"/> NO <input type="checkbox"/>

BOILER WATER TREATMENT SYSTEM RECORDS			
37	Does the Program clearly describe the requirements for daily analysis of water samples that adequately describe the condition of the water and identify any characteristics of the water that may result in deterioration of the boiler?	YES <input type="checkbox"/> NO <input type="checkbox"/> N/A <input type="checkbox"/>	YES <input type="checkbox"/> NO <input type="checkbox"/>
38	Does the Program clearly describe the monthly chemical analysis reports by the chemical supplier?	YES <input type="checkbox"/> NO <input type="checkbox"/> N/A <input type="checkbox"/>	YES <input type="checkbox"/> NO <input type="checkbox"/>
39	Does the boiler water treatment system include periodic testing/calibration by the manufacturer or third party?	YES <input type="checkbox"/> NO <input type="checkbox"/> N/A <input type="checkbox"/>	YES <input type="checkbox"/> NO <input type="checkbox"/>
40	What other capability or responsibility does the Program have?	YES <input type="checkbox"/> NO <input type="checkbox"/> N/A <input type="checkbox"/>	YES <input type="checkbox"/> NO <input type="checkbox"/>
BOILER AND BOILER WATER TREATMENT SYSTEM MAINTENANCE			
41	Does the Program describe the Boiler Repairs and Alterations as per the ASME Code and NBIC	YES <input type="checkbox"/> NO <input type="checkbox"/> N/A <input type="checkbox"/>	YES <input type="checkbox"/> NO <input type="checkbox"/>
42	Does the Program describe the maintenance of the boiler water treatment system?	YES <input type="checkbox"/> NO <input type="checkbox"/> N/A <input type="checkbox"/>	YES <input type="checkbox"/> NO <input type="checkbox"/>
COMMENTS (Board/ Inspector Use)			