Tennessee Board of Boiler Rules

Boiler Attendant Variance Rule

Revision 9 - May 2011

INTRODUCTION

These Guidelines for Computerized Remote Monitoring of Boiler Systems (Guide) is prepared for the use of the Tennessee Board of Boiler Rules (Board) and Chief Inspector or the Chief Inspector's Designee. It is not intended to replace or interpret the requirements of the Tennessee Rules and Regulations Chapter 0800-03-03-.04.

In addition, to assist the Board, this Guide will be provided to Applicants for Boiler Remote Monitoring Variances for their use in cross referencing the paragraphs in their System Operating Manual (Manual) with the applicable control requirements of the Guide.

This Guide is based on the rulings by Board. The Guide is subject to revision based on changes made in the aforementioned rules and regulations.

An inspection must cover the Manual and its implementation of the remote monitoring system. It is recognized that the scope of operation, personnel and equipment will vary from applicant to applicant. Therefore, the Board and Chief Inspector or the Chief Inspector's Designee are advised that though all aspect of the Guide are followed, the structure of the Guide may change from applicant to applicant. The Manual need not follow the exact order format of this Guide.

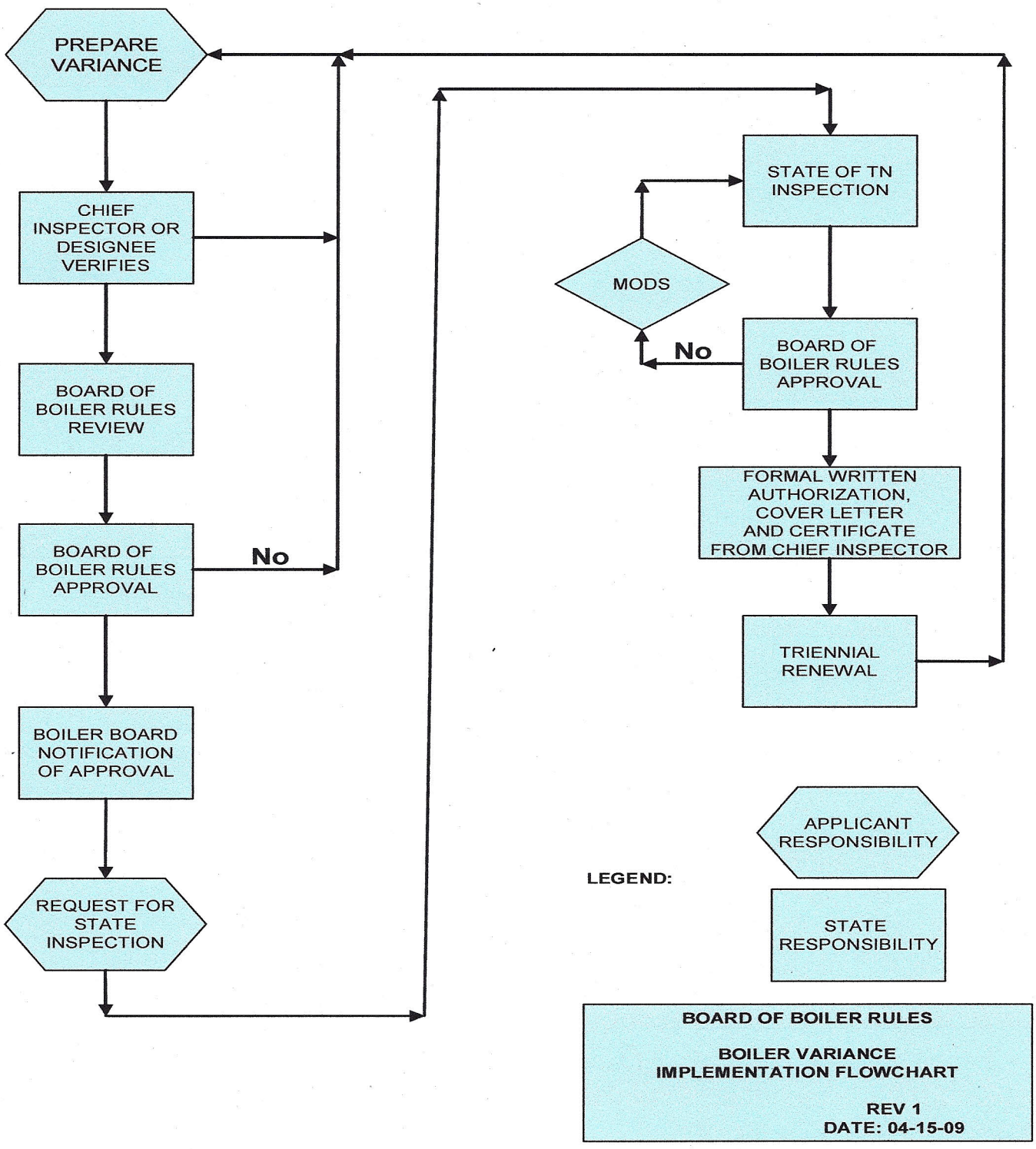
All inquiries must be submitted to the Chief Inspector. Suggestions for revisions or clarification to this Guide should be directed to the Chief Inspector.

A variance will expire three years after approval is granted by the Board or three years after the last inspection of the Manual by the Chief Inspector or the Chief Inspectors Designee. It is the responsibility of the variance holder to request a renewal of their variance by written request to the Board one-hundred and eighty (180) days prior to expiration. The request shall contain a statement of any change to the Manual and the date of the last inspection by the Chief Inspector or Chief Inspector's Designee.

HOW TO USE THIS GUIDE

Review each checklist item in the "Checklist for Attendant Variance Requests" (Checklist) and note the appropriate answer and paragraph/page number in the Manual which covers the subject addressed in the columns labeled "Applicant Response" & "Manual References". In the case where a checklist item gives more than one alternative for fulfilling the applicable Guide/Rule requirement, mark "N/A" in the column labeled "Applicant Response" adjacent to those alternatives that do not apply. "N/A" should also be used to indicate that a particular item is "not applicable" to the system under review.

The original Checklist and Manual shall be provided to the Board for consideration at their regularly scheduled or called meeting, and a copy provided to the Chief Inspector or the Chief Inspector's Designee at the implementation inspection of the remote monitoring system.



BOARD OF BOILER RULES

BOILER VARIANCE IMPLEMENTATION FLOWCHART

REV 1
DATE: 04-15-09

GUIDELINES FOR COMPUTERIZED REMOTE MONITORING OF BOILER SYSTEMS

Revision 9 - May 2011

I. INTRODUCTION

1. General Requirement 0800-03-03-.04(22) of the Rules put forth by the Tennessee Board of Boiler Rules under Statutory Authority of the T.C.A. Section 68-122-102 states the following:

   (a) A power boiler having a rating of either 5 h.p. or 50 sq. ft. of heat absorbing surface or greater shall not be operated for periods of longer than twenty (20) minutes without being checked by an attendant who has been qualified by the owner in its operation, regardless of whether the boiler is equipped with automatic feedwater regulator, fuel or damper regulator, high and low water alarm, or other form of automatic control.

   (b) A variance from the requirements of (a) above may be issued by the Board. All requests must be submitted to the Chief Inspector no less than forty-five (45) days prior to the next regularly scheduled or called meeting of the Board.

2. The Board grants variances to this rule under conditions that result in the same (or better) degree of safety that is implied in Rule 0800-03-03-.04(22). A computerized remote monitoring system is a minimum requirement necessary to satisfy the degree of safety desired.

3. A variance grant will expire three (3) years after approval is granted by the Board. It is the responsibility of the variance holder to request a renewal of their variance by written request to the Board one-hundred and eighty (180) days prior to expiration. The request shall contain a statement of any change to the manual and the date of the last inspection by the Chief Inspector or Chief Inspector's Designee.

4. In order to assist those entities requesting a variance, the Board has developed the Guide for the purpose of expressing minimum system capabilities and operating procedures. With the realization that each system and location for which a variance is requested is different, it is expected that all systems will satisfy and follow the Guide and format. Compliance with the Guide does not guarantee approval of any variance request. Approval of the variance does not imply endorsement of any system, product, or component of same.

II. SYSTEM OPERATING MANUAL

1. The Manual is a document that clearly describes the boiler system that is to be remotely monitored, the means by which the system is to be remotely monitored, personnel responsible for the remote monitoring, and the emergency procedures to be followed by the personnel at the remote monitoring station. It should be kept in mind that this Manual is not a boiler operator training manual; however, a training program for remote monitors is an integral part of it. The variance is based on this Manual. Any changes must have prior review and acceptance of the Tennessee Board of Boiler Rules. A current copy of the Manual shall be filed with the Chief Inspector, Division of Boiler, Elevator and Amusement Device Inspection, Tennessee Department of Labor and Workforce Development.

2. The Manual should be composed of, at least, the following specific sections. The person responsible for the boiler facility shall be identified and this person shall have the responsibility of keeping the Manual current. The physical location of the Manual shall be noted. The address and telephone number of the person responsible for the keeping of the Manual shall be included.

   A. The Boiler System. This section should describe the type of boiler(s) control systems, the normal operation and boiler attendants which complies with Rule 0800-03-03-.04(22). The physical location, address and telephone number of the boiler(s), personnel and other plant facilities should be described, preferably, with a plot plan of the plant. A simplified diagram of the power piping system and the feed water piping is also desired.

   B. The Computerized Remote Monitoring System. This section should describe the system that is used to monitor those safety aspects of the boiler operation that are mentioned in Rule 0800-03-03-.04(22). Included in this are descriptions of the computerized monitoring station, the hardware, the remote alarm system, the emergency shutdown means from the remote station, the personnel at the remote station, etc. The primary controller shall be dynamic self checking. The primary purpose of the remote monitoring system is to monitor boiler safety conditions and to provide alarm and emergency shutdown. If the remote monitoring system has other capability (or responsibility) it should be described in this section of the manual.

   The remote monitoring stations shall be attended/monitored at all times when the variance is in effect.

   An attendant/operator visit to the Boiler Room at least every four (4) hours to verify satisfactory boiler system operation is required.

C. **Remote Monitoring Personnel**. This section describes personnel responsible to the remote monitoring station. Included should be the minimum qualifications for such personnel, their training for the remote monitoring, and the duties to which they are assigned. Contact information such as address, telephone number and FAX number are required.

   a. Selection criterion.

   b. Training program for remote monitoring responsibilities. An organizational chart showing clear lines of authority are required as well as a manual log listing all manual holders.

   c. Other assigned responsibilities.

D. **Remote Boiler Monitor Personnel Duties/Responsibilities**. This section describes the specific duties/responsibilities the remote boiler is assigned in relation to the safe operation of the boiler system.

   a. Duties on a day-to-day basis. These shall include, at the beginning of each shift and in cooperation with a boiler attendant/operator, a test of the systems, boiler, remote monitoring, and communications, etc. The test shall be performed at the boiler.

   b. Responsibilities during a boiler alarm.

E. **Emergency Procedure - Remote Monitoring Station**. This section is a "high-lighted" section that can be quickly turned to at the onset of an alarm condition. It delineates those responsibilities the remote monitor is assigned during an alarm condition only. A placard showing emergency procedures shall be prominently displayed at the remote monitoring station.

III. SYSTEM DATA

The information in this section represents supporting data and information concerning the remote monitoring system described in II.2.B.

Checklist for Attendant Variance Requests

This checklist has been developed to assure that the basics of the Guidelines for Computerized Remote Monitoring of Boiler Systems are included in the System Operating Manual.

Item No.		Applicant Response	Manual References	Satisfactory Check-Off (Board/Inspector Use)
	INTRODUCTION			
1.	Is the correct rule referenced?	YES ☐ NO ☐ N/A ☐		YES ☐ NO ☐
2.	Is this a computerized remote monitoring system?	YES ☐ NO ☐ N/A ☐		YES ☐ NO ☐
3a.	Does the cover letter request a variance?	YES ☐ NO ☐ N/A ☐		YES ☐ NO ☐
3b.	Does it indicate the physical address, exact location of the power boiler(s) and a contact phone number?	YES ☐ NO ☐ N/A ☐		
3c.	Does it confirm that a company representative will be present at the quarterly meeting of the Board when the variance request is being considered?	YES ☐ NO ☐ N/A ☐		
	SYSTEM OPERATING MANUAL			
4.	Does the Manual clearly describe the boiler system that is being remotely monitored?	YES ☐ NO ☐ N/A ☐		YES ☐ NO ☐
5.	Does the Manual clearly describe the means by which the system is being remotely monitored?	YES ☐ NO ☐ N/A ☐		YES ☐ NO ☐
6.	Does the Manual clearly describe the personnel responsible for the remote monitoring?	YES ☐ NO ☐ N/A ☐		YES ☐ NO ☐
7.	Does the Manual clearly describe the emergency procedures to be followed by the personnel at the remote monitoring station?	YES ☐ NO ☐ N/A ☐		YES ☐ NO ☐
8.	Does the Manual clearly describe the training program for remote monitors?	YES ☐ NO ☐ N/A ☐		YES ☐ NO ☐
9.	Is this a new, modified or renewal variance request? An approved variance request shall have a revision page placed behind the title page of the System Operating Manual. Any change to an approved System Operating Manual must be summarized along with the date of the change on the revision page of the System Operating Manual.	New ☐ Modified ☐ Renewal ☐		YES ☐ NO ☐
10.	Is the person responsible for the boiler facility clearly identified and is the address and telephone number included?	YES ☐ NO ☐ N/A ☐		YES ☐ NO ☐

11.	Does this person have the responsibility of keeping the Manual current?	YES ☐ NO ☐ N/A ☐		YES ☐ NO ☐
12.	Are the physical location(s) of the Manual included?	YES ☐ NO ☐ N/A ☐		YES ☐ NO ☐
	BOILER SYSTEM			
13.	Does the Manual clearly describe the type(s) of boiler control system(s)?	YES ☐ NO ☐ N/A ☐		YES ☐ NO ☐
14.	Does the Manual clearly describe the normal operation(s)?	YES ☐ NO ☐ N/A ☐		YES ☐ NO ☐
15.	Does the Manual clearly describe the physical location(s) and address(es) of the boiler(s) and other plant facilities?	YES ☐ NO ☐ N/A ☐		YES ☐ NO ☐
16.	Does the Manual include a plot plan of the plant?	YES ☐ NO ☐ N/A ☐		YES ☐ NO ☐

	COMPUTERIZED REMOTE MONITORING SYSTEM			
17.	Does the Manual include a simplified diagram of the power piping system and the feed water piping?	YES ☐ NO ☐ N/A ☐		YES ☐ NO ☐
18.	Does the Manual include a description of the system that is used to monitor those safety aspects of the boiler operation that are required in Rule 0800-03-03-.04(22)?	YES ☐ NO ☐ N/A ☐		YES ☐ NO ☐
19.	Does the Manual include a description of: a. The computerized monitoring station? b. The hardware? c. The remote alarm system? d. The emergency shut down means from the remote station? e. The personnel at the remote station?	 YES ☐ NO ☐ N/A ☐ YES ☐ NO ☐ N/A ☐ YES ☐ NO ☐ N/A ☐ YES ☐ NO ☐ N/A ☐ YES ☐ NO ☐ N/A ☐		 YES ☐ NO ☐ YES ☐ NO ☐ YES ☐ NO ☐ YES ☐ NO ☐ YES ☐ NO ☐
20.	Does the remote monitoring system prevent unauthorized access?	YES ☐ NO ☐ N/A ☐		YES ☐ NO ☐
21.	Are the primary controller(s) and all sensors dynamic self checking?	YES ☐ NO ☐ N/A ☐		YES ☐ NO ☐
22.	What other capability (or responsibility) does the remote monitoring system have?			YES ☐ NO ☐
23.	Is the remote monitoring station(s) attended/monitored at all times when the variance is in effect?	YES ☐ NO ☐ N/A ☐		YES ☐ NO ☐
24.	Does an attendant/operator go to the boiler room at least every four (4) hours to verify that the boiler is operating satisfactorily?	YES ☐ NO ☐ N/A ☐		YES ☐ NO ☐

	REMOTE MONITORING PERSONNEL			
25.	What are the minimum qualifications for remote monitoring personnel?			YES ☐ NO ☐
26.	What training do the remote monitoring personnel receive?			YES ☐ NO ☐
27.	Who is responsible for their training?			YES ☐ NO ☐
28.	Who administers the training?			YES ☐ NO ☐
29.	What procedures are in place for annual training of both experienced/new personnel? This training shall also be provided and properly documented prior to the variance inspection for a new variance request or a renewal request.			YES ☐ NO ☐
30a. 30b.	Do the remote monitoring personnel have other duties? Can these other duties distract from the remote monitor's responsibilities toward the boiler(s)?	YES ☐ NO ☐ N/A ☐ YES ☐ NO ☐ N/A ☐		YES ☐ NO ☐
31.	Does the Manual include an organizational chart showing clear lines of authority?	YES ☐ NO ☐ N/A ☐		YES ☐ NO ☐
32.	Does the Manual include a recorded log listing all Manual holder(s) and location(s), contact information such as physical address(es), telephone number(s) and FAX number(s)?	YES ☐ NO ☐ N/A ☐		YES ☐ NO ☐
33.	Does the Manual include a training log that contains the date, name, instructor signature and remarks?	YES ☐ NO ☐ N/A ☐		YES ☐ NO ☐
34.	Does the Manual include the remote monitoring personnel's other assigned responsibilities?	YES ☐ NO ☐ N/A ☐		YES ☐ NO ☐

REMOTE BOILER MONITORING PERSONNEL DUTIES/RESPONSIBILITIES				
35.	Does the Manual include the remote boiler monitor('s) duties for each shift on a day-to-day basis?	YES ☐ NO ☐ N/A ☐		YES ☐ NO ☐
36.	Does the Manual include a test of: a. The systems? b. Boiler water column? c. Remote monitoring? d. Communications? e. Other?	YES ☐ NO ☐ N/A ☐ YES ☐ NO ☐ N/A ☐ YES ☐ NO ☐ N/A ☐ YES ☐ NO ☐ N/A ☐ YES ☐ NO ☐ N/A ☐		YES ☐ NO ☐ YES ☐ NO ☐ YES ☐ NO ☐ YES ☐ NO ☐ YES ☐ NO ☐
37.	Are the tests performed at the boiler?	YES ☐ NO ☐ N/A ☐		YES ☐ NO ☐
38.	Does the Manual include the remote boiler monitor('s) responsibilities during a boiler alarm?	YES ☐ NO ☐ N/A ☐		YES ☐ NO ☐
39.	Does the Manual include an example of the Boiler Log used during operation under the variance?	YES ☐ NO ☐ N/A ☐		YES ☐ NO ☐

EMERGENCY PROCEDURE – Remote Monitoring Station				
40.	Is the "**Emergency Procedure – Remote Monitoring Station**" a high-lighted section that can be quickly turned to at the onset of an alarm condition?	YES ☐ NO ☐ N/A ☐		YES ☐ NO ☐
41.	Does the Manual delineate those responsibilities that the remote monitor is assigned during a boiler alarm condition only?	YES ☐ NO ☐ N/A ☐		YES ☐ NO ☐
42.	Is there a placard showing emergency procedures prominently displayed at the remote monitoring station?	YES ☐ NO ☐ N/A ☐		YES ☐ NO ☐

COMMENTS (Board / Inspector Use)