



# The LSB FEEDWATER CONTROL PROGRAM

## APPLICATION AND MONITORING GUIDE

Jointly Produced by:

*STEAM ENGINE LUBRICATION SPECIALTIES* and *TERLYN INDUSTRIES*  
Fall City, Washington and Clearwater, Florida

## INTRODUCTION

The LSB Feedwater Control Program utilizes *TERLYN INDUSTRIES'* LSB8000 and LSB4000 single dose liquid treatment to eliminate scale formation and help prevent corrosion in low to moderate pressure carbon steel steam boilers. This guide booklet is jointly produced by Steam Engine Lubrication Specialties and *TERLYN INDUSTRIES*. Our intent is to provide the steam boiler operator with a clear understanding of the principles that make LSB products work, how to apply LSB to a steam boiler operating under average conditions and how to monitor the program to ensure efficient, effective results.

Steam Engine Lubrication Specialties became involved in marketing LSB products because good feedwater control improves downstream conditions in the steam circuit to reciprocating steam engines. This, in turn improves the performance of our Green Velvet Steam Cylinder Oil. We have a very clear interest in helping boiler operators provide clean, dry steam to the steam engines we lubricate.

LSB products are used in hundreds of steam boilers throughout the United States. These products have proven their worth by helping eliminate scale and prevent corrosion in applications from small scale and full size steam locomotives to commercial process boilers in factories and institutions. This guide booklet is the result of many years experience with LSB. The LSB Feedwater Control Program is easy to implement and maintain by both experienced and inexperienced boiler operators.

## OBJECTIVES

The objectives of this guide booklet are straightforward and are aimed at applying and monitoring LSB as an integrated program that achieves good results with the least investment of time and money. The primary objectives are:

- Clearly state, in layman's terms, the principles that make LSB products work. Describe how these principles are used to achieve the multiple benefits attributed to the LSB Feedwater Control Program.
- How to get started with the LSB Feedwater Control Program and what potential problems and perturbations to guard against with new un-scaled boilers and older scaled boilers.
- Discuss the importance of maintaining the boiler water's total dissolved solids (TDS) and pH (alkalinity/acidity) within acceptable limits. Why good instrumentation is essential. How to interpret instrument readouts and modify the LSB Feedwater Control Program to produce acceptable instrument readings.
- How to maintain the LSB Feedwater Control Program's stability after feedwater equilibrium is achieved.

## SCOPE

The scope of this guide booklet is limited to boilers that operate below 350 psi gauge pressure. The focus of the LSB Feedwater Control Program is aimed primarily at boilers operating with 100%, or nearly 100% make up feedwater from various raw, or softened water make up sources such as surface water, ground water wells and municipal water supplies. This is an important distinction as most commercial water treatment services are designed around steam plants that return most of the system condensate to the boilers as feedwater. Boilers operating with 100% raw make up feedwater tend to scale faster and more heavily than boilers operating primarily on condensate feedwater. The LSB Feedwater Control Program has been developed specifically for the more severe 100% make up situation.

