

# Tolerable Flaw<sup>SM</sup> Diagrams

**N**ondestructive examination (NDE) of the critical welds in high energy steam piping, headers, and turbines is quickly becoming a standard periodic maintenance item in today's power plants. The NDE itself is usually quite straightforward. The problem comes when the NDE technician discovers a significant weld or base metal flaw indication. This leads to the following questions:

- ◆ **Should the flaw be repaired before placing the component back into service?**
- ◆ **Can the repair be delayed until a future planned outage?**

APTECH's remaining useful life (RUL<sup>®</sup>) service gives you the information you need to make the right decision. Prior to starting the NDE, we will supply you with a **Tolerable Flaw** diagram. The diagram will tell you how long the component can be operated with the observed flaw before proceeding with the repair or replacement.

Once a flaw is detected and sized, the Tolerable Flaw diagram can be used by the responsible party to determine the remaining allowable operating time. This operating time could be zero months, in which case the flaw must be repaired before restart, or it could be as long as five years or more.

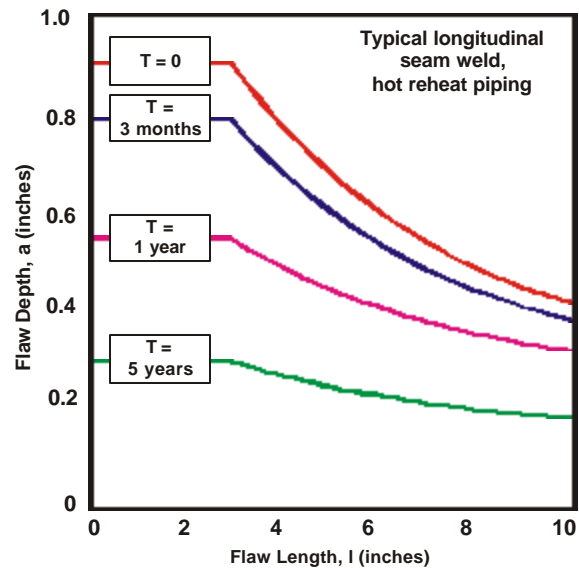
The result? Immediate answers on the component's suitability for service, without having to wait for an after-the-fact engineering analysis to determine the seriousness of the flaw.

Let us prepare Tolerable Flaw diagrams specifically for your plant's high energy components, such as:

- ◆ Boiler piping, headers, tubing
- ◆ Turbine casings, steam chests, rotors, disks, blades
- ◆ Pumps, fans, condensers, heat exchangers
- ◆ Pulverizers
- ◆ Nuclear components including steam generators, containments, reactor vessels, auxiliary components

The diagrams cover many different failure modes and their combinations, including creep, thermal and mechanical fatigue, erosion, corrosion, and stress corrosion cracking. Once prepared, the diagrams can be used during all future inspections.

For information regarding the office nearest you, please contact us in our Corporate Headquarters:



A Tolerable Flaw diagram is customized for specific component and operating conditions. It tells you how long the component can be operated before needing repair or replacement.