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## 4 Steps to Mitigate Sensor Failure Risks

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# 10 Tips for PREPARING A TEMPORARY STEAM PLANT

If your plant relies on an industrial steam plant as an essential part of your process, there's a good chance you will someday need a temporary steam plant. Expect the worst and prepare a contingency plan.

**By Michael Medina,**  
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**T**he best time to plan for installing a temporary industrial steam plant is before the need arises. Although many plants operate around the clock without interruption, the likelihood of a requiring a temporary steam plant at some point is virtually 100 percent.

A temporary steam plant can be required for a number of reasons:

- Emergency repairs.
- Planned maintenance.
- Increased capacity requirements, including short-term demands.
- Equipment retrofits.
- Research and development projects.

It is important to be prepared for all possibilities.

Many factors in the operation of a steam plant determine the reliability and availability of steam supply. Preparing a plan in advance of the need for a temporary steam plant rental can help ensure success.

## **1** Understand Boiler Availability and Your Plant's Needs

Typically, three types of industrial boilers are offered for rent:

- Mobile boiler rooms, which consist of a firetube boiler and auxiliary equipment mounted as a complete system in a semi-trailer van.

- Trailer-mounted watertube boilers.
- Skid-mounted firetube and watertube boilers.

Generally, firetube rental boilers range in size from 50 to 1,000 hp. Larger watertube rental boilers can be 30,000 to 250,000 lb/hr. Operators can rent multiple boilers in parallel to meet the desired industrial steam plant capacity if one unit is not sufficient.

Rental boilers typically consist of the following equipment:

- Boiler.
- Burner.
- Combustion controls.
- Safety valves.
- Forced-draft fan and motor with starter.
- Blowdown valves.



Inside a typical mobile boiler room, a firetube boiler and auxiliary equipment are mounted as a complete system inside a semi-trailer van.

- Feedwater stop and check valves.
- Feedwater controls.
- Steam gauge and other trim.
- Flame-safeguard system.
- Non-return valve.
- Trailer or skid, depending on mounting.

Piping and other items required for installation are furnished by the customer or the installer.

As the operator, your company will be responsible for providing the capacity requirement (pounds per hour or horsepower) to the boiler rental company. They should be able to provide you with information on the dimensions and weights of the boiler you plan on renting.

## 2 Note Your Operating Requirements

Operating pressure, temperature and fuel source are three additional factors the supplier will need to know to provide the correct equipment for your process. Most rental boilers will fire natural gas or No. 2 oil. Others may fire propane, No. 6 oil, biofuel or another source of fuel. Note your plant's power requirements in your plan to ensure you have enough supply for the rental boiler. (Generally, a 480 V single-point connection is adequate.)

## 3 Decide Whether You Need Auxiliary Rental Equipment

Water treatment is vital to the life of all boilers. If your support equipment is down or in a location distant to the rental boiler, inquire about additional equipment rentals to complete the steam plant. Most rental boiler companies also can supply deaerators, water softeners, economizers, selective catalytic reduction (SCR) systems, blowdown tanks and other necessary equipment for your steam plant.

## 4 Find a Place to Spot the Boiler

The location of the temporary boiler should be easily accessible to all required utility connections (water, fuel and power). It should be able to support the weight of the boiler. Before finalizing the plan, compare site and equipment dimensions and watch for obstructions that can hinder entry of the rental boiler.

Keep in mind special requirements that relate to certain kinds of equipment. For instance, a skid-mounted boiler rental unit may require a special foundation, crane handling and special rigging.

## Boilers

Three 70,000 lb/hr trailer-mounted watertube boilers are working in parallel to meet steam capacity demand.



### 5 Factor in Travel Time

Shipping large equipment can take time. If you are able to anticipate the need for a steam plant (for a planned maintenance shutdown), factor the time it will take to ship the equipment to your facility into your steam-plant plan. Some suppliers offer pre-permitted trailer-mounted boilers for shipment; however, every state has different permitting requirements. Loose items such as gas regulators, economizers and auxiliary equipment may require a separate flatbed for shipment.

One way to shorten equipment delivery time is to select a supplier that has multiple storage locations for their rental equipment. This can minimize transportation costs as well as travel time.

### 6 Plan for Boiler Maintenance and Weatherproofing

To ensure continuous, safe and trouble-free performance, daily checks and routine maintenance must be performed during normal operation of the rental equipment. This includes inspection of all safety devices and low-water cut-offs during every shift. Feedwater treatment and blowdown services also must be performed to ensure proper boiler performance.

If you live in an area with freezing temperatures, plan and prepare to weatherproof your rental boiler. If you do not weatherproof it and a freeze occurs, your company will be responsible for any repairs caused by freeze damage. The rental boiler supplier should be able to provide you with maintenance instructions as well as freeze-protection recommendations prior to your rental.

### 7 Find a Local Contractor for Installation

Boiler rental companies provide the rental equipment; however, they typically do not install it. Find a reputable local contractor with boiler installation experience to set up your rental equipment. Be sure the rental company supplies detailed drawings and other data to aid installation.

### 8 Learn Local Codes and Permitting Requirements

Both construction and air permits are required by every state before installing a rental boiler; however, the requirements are different in each state. Check with your local permitting offices and get the equipment permitted before taking delivery on your rental boilers. Some permits take months to process. This site-specific permitting must be procured in advance of the rental equipment delivery.

If your emissions requirements are 15 ppm NO<sub>x</sub> or less, look for a supplier that also leases a selective catalytic reduction (SCR) system or an ultra-low-NO<sub>x</sub> boiler. Some rental companies offer pre-permitted ultra-low-NO<sub>x</sub> mobile boiler rooms and SCR systems for customers in certain areas such as the South Coast Air Quality Management District (SCAQMD) in California.



A 70,000 lb/hr trailer-mounted watertube boiler was rented with an SCR system to comply with strict emissions regulations of sub 9-ppm-NO<sub>x</sub> in the Central Valley of California.



A 120,000 lb/hr mobile boiler, economizer and SCR system were installed as a temporary industrial steam plant. The rental unit is reportedly the world's largest mobile industrial boiler.

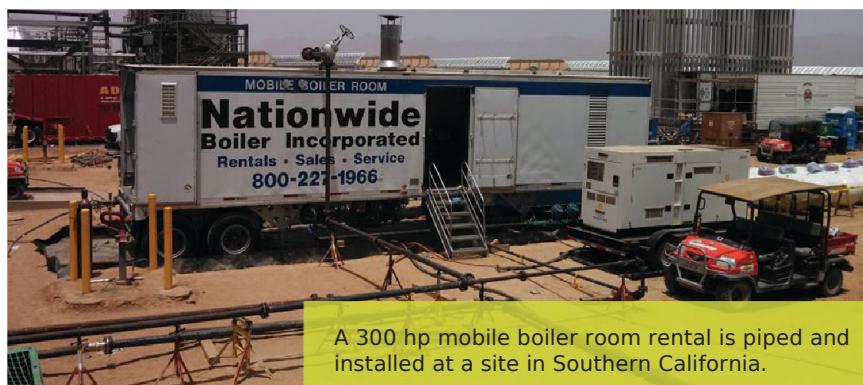
## 9 Be Aware of Rental Company vs. Customer/Operator Responsibilities

In addition to finding an installing contractor and obtaining permits, it is the responsibility of the plant owner/operator and leasee to provide the following:

- Piping and utilities.
- Adequate emissions-destruction capabilities and other site requirements.
- Freeze protection if needed.

A signed lease agreement, purchase order, deposit and proof of insurance coverage generally will be required by the rental boiler company before the equipment is delivered. A well-written lease agreement will carefully outline customer responsibilities and liabilities.

Most rental boiler suppliers can provide additional services for their owner/operators as needed. These include rental equipment engineering services, accessories, drawings and specifications, shipping arrangements, operation and maintenance manuals, startup technicians, operator train-



A 300 hp mobile boiler room rental is piped and installed at a site in Southern California.

ing, and, if needed, full-time industrial steam-plant operators.

## 10 Research and Select Your Industrial Steam-Plant Supplier

Make sure you choose a boiler rental company on which you can rely. The best way to evaluate a vendor is to check references and visit the facility to see the rental equipment. However, if this is not an option, starting with a plan for a temporary industrial steam plant will help you identify those suppliers with the capabilities and knowledge to satisfy your project.

In conclusion, consider whether the company is a full-time, dedicated rental company with experience, reliable equipment and the capabilities to handle your project. The preparation time required to create a contingency plan is minimal when compared to the possible production, time and money loss when an emergency situation occurs. As the saying goes, hope for the best but plan for the worst. It will be well worth it in the long run. ❄

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