California Boiler
Inspectors Association 2016

Guidelines for Preparing for a Temporary Steam Plant

Nationwide Boiler, Inc.
Agenda

- Level of Preparedness
- Reasons for Temporary Steam Plant
- Planning Stages
- Qualifying a Rental Boiler Company
- Common Questions

- Equipment Offerings
- Site Considerations
- Advantages
- Lessee/Lessor Scope
- 5 - Reasons
- Questions & Answers
Are You Prepared for Possible Steam Interruptions?

- Management expects 24/7 operations.
- Contingency plans in place?
- Temporary tie-ins installed?
- Adequate insurance coverage?
- What is the loss of production worth?
- How long can operations last without steam?
- Rental boiler company?
Reasons for a Temporary Steam Plant

- Unplanned Outages
- Planned Outages
- Peak Loads
- Delays Bringing New Plant On-line
Unplanned Outage: World Trade Center

- **Reason**: 20” main steam line severed as a result of WTC collapsing.

- **Problem**: Buildings nearby were left without heat.

- **Solution**: 2- 70,000 lb/hr trailer-mounted boilers and 140,000 lb/hr mobile feedwater van.

- **Timing**: Delivered, brought on-line, and operational in a matter of days.
Unplanned Outage: World Trade Center
Unplanned Outage: Ferndale, WA

• **Reason**: Freeze damage to boiler sensing lines and controls.

• **Problem**: Refinery operating with reduced capacity.

• **Solution**: 1- 120,000 lb/hr trailer-mounted boiler.

• **Timing**: 4-day delivery from CA, brought on-line, and operational in 10-days.
Unplanned Outage: Ferndale, WA
Planned Outages
Planned Outages
Increased Capacity: Seasonal Peak Load

Paper Mill - Pomona, CA

- 120,000 lb/hr Nebraska Boiler
- 400 psi design sat.
- Low NOx Burner
- CataStak™ SCR System
- 5 PPM NOx
Increased Capacity: Seasonal Peal Loads

District Heating - San Francisco, CA

- 70,000 lb/hr Nebraska Boiler
- 400 psi design sat.
- Low NOx Burner
- CataStak™ SCR System
- 5 PPM NOx
New Plant Delays (Antonov Delivery)

• **Reason:** New LNG plant in Australia

• **Problem:** Lost production

• **Solution:** 2 boilers needed for continued process steam

• **Timing:** 3 day delivery on the Antonov aircraft
Planning Stages

1. Identify Steam Requirements
   • capacity
   • operating press.
   • steam temp (saturated or superheat)
   • fuel type

2. Rental Duration
   • 1 month
   • 3 month
   • 6 month
   • 12 month plus

3. Delivery Timing
   • weekday vs. weekend
   • winter vs. summer months
Winter Installation:

Eielson AFB, Fairbanks, AK

140,000 lb/hr Temporary Steam Plant
Planning Stages

4. Locate Utility Tie-ins
- fuel
- treated feedwater
- boiler chemicals
- electrical
- steam
- blow downs
- instrument air

5. Air Permits
- varies with AQMD
- permit to construct
- permit to operate

continued
- permit details: timing
cost
source test
variances
### Planning Stages

#### 6. Miscellaneous
- boiler placement and foundations
- review and implement a HAZOP procedure

#### continued
- request descriptions and drawings from equipment supplier

#### continued
- Implement a Master Rental Agreement between Lessor & Lessee
Qualifying a Rental Boiler Company

- How long have they been in business?
- Types of boilers offered?
- Do they offer rental / purchase / lease-buy?
- Availability and when can they deliver?
- Rental term / duration (price points)?
- Offer ancillary equipment?
- Offer turn-key services?
Qualifying a Rental Boiler Company

- Ask for references?
- Are there guarantees?
- Where is the service support out of?
- What is the age and condition of the rental boiler?
- What is required from the Lessee to obtain a boiler rental?
- Do the boilers meet Cal Code and ultra low Nox emission requirements?
Qualifying a Rental Boiler Company

- Does the rental company have insurance coverage?
- The size of the rental fleet?
- What is their safety record?
- Do they have any pre-permitted units?
- Are renting boilers their primary business, or just a sideline activity?
Common Questions

How long since the boiler was last inspected and tested?

When do rental charges begin and end?

Are rental charges suspended if the boiler fails?

What equipment and supplies are included in rental charges?

Are start up charges included or additional?

Certificates of Insurance?
Common Questions (continued)

- Who provides the oil pump/tanks?
- Who supplies the gas regulator?
- Who provides the forced draft fan?
- Who provides the smokestacks / EPA ports?
- Who pays the freight?
- Who makes freight arrangements?
Common Questions (continued)

- Who provides the hookup?
- Who supplies the utilities?
- What about feedwater treatment?
- How should boilers be operated?
- How about disconnecting?
- How is boiler to be prepared for shipment?
- Who pays for the loading / unloading?
Equipment Offerings

• Mobile / Stationary Steam Plants
• Trailer-Mounted Watertube Boilers
• Package Boilers In Stock
• Water Treatment Equipment
• Environmental Solutions
  – CataStak™ SCR Systems
• Heat Recovery Solutions
  – EconoStak Economizers
Equipment Offerings (continued)
Equipment Offerings (continued)

World’s Largest Trailer-Mounted Boiler
Equipment Offerings (continued)

- Deaerators
- Feedwater Pumps
- Demineralizers, Water Softeners, Chemical FS
- Blowdown Tanks

- Diesel Generators
- Air Compressors
- Valves
- Controls
- Potable Hot Water Systems
Site Considerations

- Personnel Protection: Hot Piping
- Freeze Protection
- Fencing / Barriers
## Site Considerations (continued)

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<td>8’ x 14’ x 30’</td>
<td>30K lbs</td>
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<td>20-40K lb/hr</td>
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<td>60K lbs</td>
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<tr>
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<td>10’ x 14’ x 50’</td>
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<td>250K lb/hr</td>
<td>13’ x 18’ x 50’</td>
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<td>302K lbs</td>
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Site Considerations (continued)

- **MIN**: Engineered Fill
- **OK**: Asphalt Pad
- **BEST**: Concrete Pad

FOUNDATION REQUIREMENTS
Site Considerations (continued)

engineered fill & concrete

asphalt

concrete
Site Considerations (continued)

All weight must be off running gear on mobile boiler rooms and trailer-mounted boilers during operation!

NOTE: some sites require seismic tie-downs.
Advantages of Trailer-Mounted Boilers

• Up to 1,000 HP
• Self-contained
• Fast, easy hook-up
• Secure
• Aesthetical pleasing
• Convenient
Advantages of Trailer-Mounted Boilers

- Up to 125,000 lb/hr
- Quick response
- No cranes or rigging required
- Simple to position/install
- Fast, easy start-up
Advantages of Trailer-Mounted Boilers

• Faster delivery vs. rail car shipments
• Removable gooseneck
• Hydraulic ram / foot for assisting in leveling and blocking
Advantages of Trailer-Mounted Boilers

• Removable 3-axle deck to shorten boiler footprint.
• Or rear deck can be utilized for an operator platform.
• Rear air-bags: leveling
Advantages of Mobile Boiler Rooms

- Typical storage when removed from boiler / trailer frame
Top 5 Reasons as to “How a Rental Job Can Go Bad?”

1. Inadequate Planning and Budget Allotment
2. Non-engineered Installation
3. Lack of Qualified Operators
4. Poor or Lack of Water Treatment
5. Lack of Maintenance
Partial Customer List

- Tesoro
- Chevron
- Phillips 66
- Southern California Edison
- Sempra
- San Onofre
- Weyerhaeuser
- Georgia-Pacific
- Newark Paperboard
- International Paper
- Smurfit Newsprint
Partial Customer List

- City of Los Angeles
- East Mesa Detention Center
- County of San Diego
- Southwest Marine
- NASCO
- NAS Coronado
- EJ Gallo
- JG Boswell
- Chicken of the Sea Tuna
- Circle Foods
- Del Monte Foods
WHAT YOU WANT TO AVOID
Guidelines for Preparing a Temporary Steam Plant

Questions & Answers

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Emergency Preparedness Guide:
http://www.nationwideboiler.com/literature_media/publications.html