

## Combo vac boiler system over fuelling POTENTIALLY SERIOUS INCIDENT

### Description:

After hours of use on site, black smoke and a flame began coming out of a boiler stack. Systems were shut down and water was applied to the boiler cabinet.

### Lessons Learned:

Boilers are typically used during winter months and, after extended periods of inactivity, may require a full mechanical inspection.

Additional preventative maintenance activities may include the replacement of in-line fuel filters, cleaning of poor fuel quality build-up, dirty, gummy or tacky components.

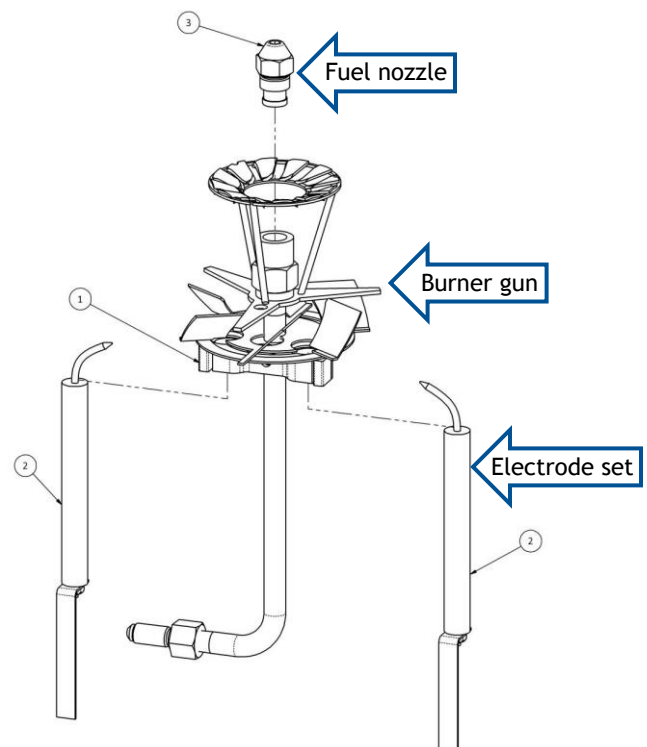
### Cause:

Water was being heated but the boiler was not working efficiently, which led to a localized fire.

The systems electrode was not functioning effectively, some of the fuel was inadequately combusted and gathered within the fire box prior to its ignition. The ignition of this excess fuel resulted in a black smoke and visible flame.



Typical combo vac unit.



Schematic of the boiler gun assembly (fuel system) that failed.

## Contributing Factors:

- Boiler cabinets are typically located in an insulated fire box to reduce potential damage caused by fire or inadequate combustion of diesel fuel. This containment reduced serious equipment damage and potentially further catastrophic event.

## Corrective Actions:

- The worker noticed that the boiler was not running efficiently and at that time an excess flame was observed. The equipment was manually shut down prior to activating the failsafe device.
- The company determined that fuel quality or residual build up did not play a role in this incident.
- All systems including mobile equipment should be inspected any time it does not perform as expected.
- Workers should be trained in identifying potential issues and recognizing that prompt reporting to management may prevent damage and potentially more severe incidents.
- Reminder that any long-term inactivity of equipment may require additional adjustments prior to use.

Help industry by sharing learnings from an incident. [Submit your Safety Alert.](#)

### SHARE AND COLLABORATE

Energy Safety Canada works collaboratively with industry to share information aimed at helping companies of all sizes improve safe work performance.

### DISCLAIMER

Use of this document or any information contained herein is at the user's sole risk. ESC makes no representations and assumes no liability. For further information on these restrictions, go to <http://www.energysafetycanada.com/legal.cfm>

### COPYRIGHT/RIGHT TO REPRODUCE

Copyright for this document is held by Energy Safety Canada, 2020. All rights reserved. Energy Safety Canada encourages the copying, reproduction and distribution of this document to promote health and safety in the workplace, provided that Energy Safety Canada is acknowledged. However, no part of this publication may be copied, reproduced or distributed for profit or other commercial enterprise, nor may any part be incorporated into any other publication, without written permission of Energy Safety Canada.