

Glassboro Intermediate School Boiler Status Report

Background

On April 6, 2017 the Glassboro Intermediate School was evacuated due to high levels of carbon monoxide. After the building was evacuated, district maintenance staff along with South Jersey Gas employees inspected the boiler room. During this inspection it was noted that a drive belt for the exhaust fan on one of the boiler had broken and therefore was not pushing flue gasses up the chimney. District staff replaced the drive belt and vented the building. South Jersey Gas and the Glassboro Fire Department walked the building and checked CO levels, eventually getting zero CO level throughout the building. The building was cleared for occupancy. Boilers were not restarted due to the warm temperatures.

On April 7, 2017 Monarch Boiler Repair was called to inspect the boilers to ensure they were in proper working condition. During this work it was noted that a pressure switch which would shut the boiler down in the event of an exhaust fan failure had malfunctioned. Monarch repaired the pressure switch and no other repairs were required

A special meeting of the Board of Education was held on April 12, 2017 to discuss the evacuation of the Intermediate School and address parent concerns. During this meeting Steve Smith, Chief of the Glassboro Fire Department agreed to re-test the Intermediate School for CO. Drew Sole, Peter Calvo and William Mullins, GIS parent, accompanied Mr. Smith to the Intermediate School.

Existing Conditions

During this inspection of the boiler room the following conditions were noted:

- The boilers were restarted and the GFD tested for elevated levels of CO. Elevated CO levels were not detected on the first three floors of the building. Upon entering the attic, elevated CO levels were noted. The chimney was inspected and it was discovered that the metal portion of the chimney was corroded and flue gasses were leaking into the attic space. The boilers were shut down and have not been restarted.
- Interlock switches held in the "made" condition, fresh air louvers were closed. At the time of the walkthrough, work was being completed on the new HVAC control system at the Intermediate School. The control contractor made this change to the switch to facilitate his work. The switches were in proper working order prior to the work beginning. The original fresh air inlet louvers still

exist in the boiler room and are not capable of being closed. These louvers are sized in excess of the cubic feet per minute boiler requirements and still function as a makeup air source for the boiler room.

- Small natural gas leak was noted. South Jersey Gas was called and the boiler was tagged out. It has not operated since start up requested by the GFD.

Next Steps

- Chimney has been inspected by Continental Chimney and Engineering. Architect is currently developing scope of work to repair chimney and bring it up to current code requirements. A new 30" stainless steel chimney will be installed and the chimney cap will be redesigned for proper ventilation. The Gloucester County Office of Education has been contacted about awarding this contract as an Emergency Contract. The Executive County School Business Official has given approval for this process.
- Chimney repairs will be inspected by local construction official.
- Work to be performed during the Summer of 2017 (annual cleaning scope):
 - Open, brush and vacuum fire sides of boilers.
 - Open, flush out and clean water side of boilers.
 - Replace with new any and all gaskets as needed.
 - Check and clean water feed controls to assure proper operation.
 - Replace belt on induced draft fan on each boiler.
 - Prep boilers for annual State inspection.
 - Upon completion of the State inspection close boilers and place back in service.
 - Operational check of installed devices (operation switch, high limit switch, flame sensors, running interlocks (low and high gas), combustion air, Minimum water level, low fire start.
 - Lubricate exposed linkage and motors when fitted for lubrication.
 - After start up Combustion Analytical Test will be performed on both boilers.
- Annual cleaning will be scheduled for some time in July or August. Will not schedule this work until the chimney is deemed repaired and safe for boiler operation.
 - Work will be performed by Monarch Boiler Construction who is ASME certified and carries the "R" symbol. The "R" authorizes the repair of high and low pressure boilers in the field. The "R" Symbol was awarded to Monarch by the National Board of Boiler & Pressure Vessel Inspectors.
- Gas leak noted during April 6th walkthrough will be repaired and South Jersey Gas will be called to inspect repair at the time of the boiler inspection.

- Quarterly Preventative Maintenance scope:
 - Operational check of all installed devices to include but not limited to the operation switch, high limit switch, flame sensors, running interlocks, low and high gas, combustion air, minimum water level, low fire start and inspect belt for induced draft fan.
- This will be scheduled throughout the year since these boilers are to run in the summer as well to provide dehumidification. This too will be performed by Monarch Boiler Construction.
- Similar Scope is being developed (annual PM inspection) for all our condensing boilers at the other facilities. This work can be done by Northeast Mechanical Contractors under the MRESC bid. Northeast currently uses Monarch Boiler Construction for large boilers such as the ones at Intermediate School.