



## **Description of Incident on June 2, 2009**

In normal operating conditions, the main exhaust duct is maintained at -2.3 inches of water, hence maintaining the building static pressure at -0.1 to -0.08 inches of water. The air system is designed to shut all supply fans and exhaust fans if, for any reason, the building pressure approaches -0.001 inches. As per the sequence, then the first exhaust fan will start...and so on until everything is back to the normal operation. At 9:04 a.m. the air pressure was -0.001 inches of water and the alarm sounded in the building and subsequently all of the fan system shut down, automatically bringing the building pressure to neutral or close to neutral. This was recorded at +0.02 inches of water for 26 seconds and then the pressure went back to negative. The building was evacuated and our Emergency Response Team was notified. The Emergency Response Team responded. A debriefing of the event was held on June 9th, 2009. From the data that was collected, all indications proved that the air systems worked as per the programmed design, whereby, all the fans are hardwired interlocked and will shut down to a safe mode "neutral" if any of the mechanical components have failed.

## **What Made the Pressure Rise in the First Place?**

The Western Environmental Controls (WES) operator received a low static pressure alarm on the main exhaust header; this is one of the early safety precautions. The main header pressure was reading - 2.1 inches of water instead of the normal range of -2.3 to -2.6 inches of water. He also noticed that one of the running exhaust fan (EF7) had an electric current of 34.4 Amp instead of the expected 53 Amp. The WES operator informed the West Valley Building Guard that he was intending to rotate to EF5 and shut down EF7 in an effort to improve the static pressure. While doing this the system pressure was still negative but the building pressure reached the -0.001 inches of water mark (the building static pressure normal should be at -0.08 inches of water). At this point the "safe mode" came into effect automatically and everything automatically went to neutral, i.e. all the exhaust and supply fans were shut down.

## **Preventive Measures**

The system is designed with a "safe mode" hard wired to shut all fans and go to neutral at anytime the building pressure reaches -0.001 inches of water static pressure that might have been caused by the failure of any of the mechanical components such as fan belts, dampers, filters, or sensors. This was a good indication that our system works, but this does not require an ERT response which the current SOP is calling for.

## **Justification to Change Current Standard Operating Procedures**

As explained above, there will be no chance of any air movement, as all fans are hard wired to shut down as soon as the building static pressure reaches -0.001 inches of water and this our safe mode.

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