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**Issue Date:** June 23, 2010

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**Subject: Background and Summary of CSE SR-100 Investigations**

The NIOSH investigation into low startup oxygen levels in the CSE SR-100 was initiated as a result of observations made during the testing of several CSE units by the Long Term Field Evaluation Program (LTFE). During testing, the oxygen startup cylinders in two (2) SR-100 units failed to release a sufficient quantity of oxygen. As a result of this finding, NIOSH and MSHA opened an investigation concerning field-deployed SR-100s. Subsequently, CSE reported the failure of an oxygen startup cylinder during an in-process quality control check conducted as part of production. Information collected up until the time of CSE's self-reported failure had pointed to environmental factors as the cause of the LTFE failures. While there is still information to suggest that environmental factors may increase the likelihood of these failures, the new information from CSE placed the source of the observed failures back to the point of manufacture. The two most recent events suggest that a manufacturing quality issue cannot be ruled out as contributing to the failure of the oxygen starter cylinders. The root cause is not yet established since the investigations are still ongoing, but rough handling and elevated temperature exposure will likely increase the rate of these failures.

When reporting the startup oxygen cylinder failure to NIOSH and MSHA, CSE estimated the frequency of such failures to be approximately 1% based on their analysis of available inventory. On February 18, 2010, CSE announced a voluntary stop sale and on February 25, 2010, provided a users notice to the affected customer base. Due to this voluntary stop sale, CSE is not making SR-100 units available for replacements. CSE has also opened its own investigation employing a variety of resources including independent consultants. NIOSH estimates of the failure rate, which also include LTFE testing of field-deployed SR-100s, are slightly higher, but do not dispute CSE's own estimate, both showing that the majority of field-deployed SR-100s have sufficient startup oxygen.

NIOSH and MSHA have investigated the SR-100 start up characteristics and have analyzed failure data provided by CSE. The NIOSH and MSHA response has placed its emphasis on effectively resolving the failure while continuing to protect the health and safety of those individuals who may need to use self-rescuers in an emergency. Because of complex issues involving the failure mode, the low failure rate, and the inability of all industry sources to provide large numbers of replacements in a timely manner, full resolution will take some time. NIOSH and MSHA believe the availability of supplemental self-rescuers, due in large part to the MINER Act of 2006, lessens the risk to users from any possible failures. The agencies want to stress to all miners that the redundancy has been put in place for their protection, and that they should employ a second self-rescuer in case of any difficulty they might encounter when trying to don a self-rescuer.