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Subject: Loss of Start-Up Oxygen in CSE SR-100 Self-Contained Self-Rescuers

RESPIRATOR USER NOTICE

The certificate of approval for the CSE Corporation (CSE) SR-100 escape respirator, also known as a Self-Contained Self-Rescuer (SCSR) in mining, was issued jointly by the National Institute for Occupational Safety and Health (NIOSH) and the Mine Safety and Health Administration (MSHA) as a one-hour SCSR pursuant to 42 CFR § 84.3 (Respirators for mine rescue or other emergency use in mines). Approval was granted on February 23, 1989, under approval number TC-13F-0239.

NIOSH and MSHA became aware of a problem with the CSE SR-100 after observing that two SR-100s exhibited little or no start-up oxygen during NIOSH performance testing. Subsequently, CSE reported an additional failure of a cylinder to release sufficient oxygen during an in-process quality control check. CSE voluntarily stopped production of the CSE SR-100.

NIOSH and MSHA designed a plan to test field-deployed CSE SR-100s to determine the extent of oxygen cylinder failures in the population of approximately 70,000 units in underground coal mines. NIOSH and MSHA collected and tested the oxygen cylinders from 500 field-deployed units in order to determine if the defect rate among the deployed units was less than 1%. To have 95% confidence that the defect rate is less than 1%, no more than three units in the 500-unit sample could fail the test. Five units failed the test.

There are a small number of CSE SR-100s currently being used in non-mining applications (e.g., underground construction/tunneling or permit-required confined space entry). Continued use as a respirator in non-mining applications is contingent upon phase-out of the CSE SR-100s, and replacement of these respirators by a different NIOSH-approved respirator no later than May 31, 2012 ([reference OSHA ALERT OA-3541](#)). Continued use of these devices in underground mines is contingent upon implementation of the phase-out schedule for the devices described in [MSHA Program Information Bulletin \(PIB\) No. 12-09](#). CSE SR-100s which are removed from mines and non-mining applications must not be redistributed to any other industry. The CSE SR-100s must be disposed of in accordance with the manufacturer's user instructions.

Due to the large number of CSE SR-100s in underground coal mines, multiple SCSRs available to miners, the low probability of failure, and the shortage of immediately-available replacements, NIOSH and MSHA have determined that an orderly phase-out will be more protective to the safety of miners than immediate withdrawal of the devices. The MSHA PIB No. 12-09

describes the plan requiring operators to immediately begin phasing out CSE SR-100s in the most critical applications, with phase-out of all units in the mining industry to be completed by December 31, 2013. As emphasized in NIOSH user notices and MSHA user alerts beginning on February 25, 2010, mine operators and miners are reminded that they should obtain another SCSR if they encounter difficulty with the operation of an SCSR and miners must be trained in appropriate actions to take if they encounter difficulty in operating the device. NIOSH user notices and MSHA user alerts can be found at:

http://www.cdc.gov/niosh/npptl/topics/respirators/disp_part/cse.html and

<http://www.msha.gov/alerts/csesr100/csesr100alerts.asp>, respectively. The NIOSH Technical Report of this investigation, *Loss of Start-Up Oxygen in CSE SR-100 Self-Contained Self-Rescuers* [DHHS (NIOSH) Publication No. 2012-139], can be found at:

<http://www.cdc.gov/niosh/docs/2012-139/>.