

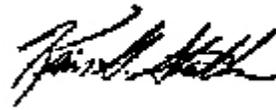
EFFECTIVE DATE: 07/26/12

EXPIRATION DATE: 03/31/2014

PROCEDURE INSTRUCTION LETTER NO. I12-V-18

FROM:

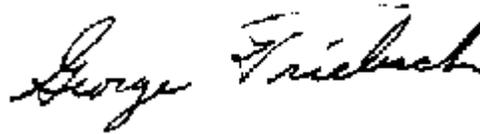
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SUBJECT:

Phasing Out CSE Corporation SR-100 Self-Contained Self-Rescuers  
and Enforcement

### **Scope**

This Procedure Instruction Letter (PIL) is intended for all Coal and Metal and Nonmetal Mine Safety and Health enforcement personnel and replaces PIL No. I10-V-15.

### **Purpose**

The purpose of this PIL is to inform mine enforcement personnel of the plan to phase out the CSE Corporation SR-100 Self-Contained Self Rescuer (SCSR) due to the results of a National Institute for Occupational Safety and Health (NIOSH)/MSHA study to evaluate the oxygen starter system on the SR-100 SCSR. The oxygen starter system failed to operate in 5 out of 500 units tested. MSHA and NIOSH agree that action is needed to assure the safety and health of miners, and that the SR-100 SCSR must be phased out of use in a timely and orderly manner. In addition, NIOSH has determined that the manual start procedure for the SR-100 should only be used as a last resort. The manufacturer's manual start procedure (a.k.a. the Cold Start procedure) is more difficult to activate and it may take more time for the SR-100 SCSR to generate sufficient oxygen to allow for a rapid escape. MSHA wants to assure that miners are trained to

know what to do if they have a problem starting their SR-100 SCSR. This PIL describes the phase-out process and required enforcement actions. This PIL also clarifies MSHA's standards pertaining to inspection and testing of SCSRs and maintenance of mine operators' inventories of SCSRs.

### **Procedure Instruction**

MSHA is requiring action to assure that miners have adequate SCSR protection while SR-100 SCSRs are being phased out in coal and metal and nonmetal mines. These actions shall be implemented as soon as practicable, but not later than 30 days after issuance of PIB No. P12-09. The actions outlined in PIB No. P12-09 are a continuation of practices required in earlier MSHA and NIOSH notices, and MSHA's directions to the agency's enforcement staff, including PIL NO. I10-V-15.

***Actions to protect coal miners who do not have a fixed work location and who wear/carry SR-100s with additional SCSRs provided in accordance with 30 C.F.R. § 75.1714-4(a)(2):***

- For miners without fixed work locations (examiners, pumpers, etc.), within 30 days of the issuance of PIB No. P12-09 a mine operator must either replace the SR-100 SCSR with any other approved 1-hour SCSR or provide an additional SR-100 SCSR so that these miners wear or carry a total of two SR-100s.

***Enforcement:*** A coal mine operator should be cited for a violation of 30 C.F.R. § 75.1714(a) if the miners described above are not provided with either an additional SR-100 or a different approved 1-hour SCSR.

- If necessary, the mine operator may temporarily borrow SR-100s starting from the farthest outby caches. SR-100s can be borrowed from both primary and alternate escapeway caches; however, other outby caches can also be used in a manner that maintains maximum protection for miners. Units borrowed from outby caches must be replaced as soon as possible.

***Enforcement:*** SCSRs borrowed from an escapeway cache must be replaced as soon as possible if the cache does not contain at least one SCSR, which provides protection for a period of one hour or longer, for every person who will be in by that location as per 30 C.F.R. § 75.1714-4(c)(1). Mine operators should act expeditiously and in good faith to replenish affected caches. If a mine operator has a sufficient supply of SCSRs available, then it is expected that any affected cache will be replenished without delay, or affected miners could be furnished with the required SCSR from inventory. If a mine operator does not have a sufficient supply of SCSRs available, then the operator is expected to order SCSRs without delay. If SR-100s are borrowed from outby caches, then a mine operator should be cited for a violation of 30 C.F.R. § 75.1714-4(c)(1) if the operator does not provide the appropriate number of SCSRs in the caches as described above.

- If any approved plans are affected by implementing the measures described above, then a mine operator will need to submit necessary revisions to the appropriate District Manager within 30 days from the date of PIB No. P12-09. Plans that may be affected include the Emergency Response Plan (ERP), the Mine Emergency Evacuation and Firefighting Program of Instruction (30 C.F.R. § 75.1502), SCSR Storage Plans under 30 C.F.R. §§ 75.1714-2(e) and 75.1714-2(g)(2), and Training Plan revisions pursuant to 30 C.F.R. § 48.3(p).

*Actions for phase-out of all CSE SR-100s used in mining applications:*

**1) No later than one year from the date of PIB No. P12-09, operators must:**

- Replace SR-100s with any other approved 1-hour SCSR in the following order of priority:
  - 1) SCSRs for miners who wear/carry SR-100 SCSRs and do not have a fixed work location, and along travel routes used by these miners as per 30 C.F.R. § 75.1714-4(a)(2).
  - 2) SCSRs for miners who wear/carry SR-100s and have fixed work locations, and SCSRs on mantrips.
- Begin replacement in caches beginning with those for working sections.

**2) No later than December 31, 2013, operators must:**

- Finish phase-out of SR-100s. No SR-100s should remain in any mine after December 31, 2013.

***Enforcement:** At coal mines, if the timelines described above are not met then the operator should be cited for a violation of the applicable standard related to wearing, carrying, and/or storing an approved SCSR device.*

**3) For Metal and Nonmetal mines, operators must:**

- Replace all SR-100s by December 31, 2013, for compliance with 30 C.F.R. § 57.22315.

***Enforcement:** At metal and nonmetal mines, operators who provide SR-100s for compliance with 30 C.F.R. § 57.22315 must have replaced all SR-100s with other approved 1-hour SCSR models by December 31, 2013. If the SR-100s are not replaced by December 31, 2013, the operator should be cited for a violation of 30 C.F.R. § 57.22315.*

*Actions to protect all miners using SR-100 SCSRs:*

- Consistent with existing requirements and PIB No. P12-09, all coal miners should always have immediate access to a spare SCSR in case the first SR-100 SCSR they try to activate fails for any reason.
- When possible, all miners should immediately obtain another NIOSH/MSHA approved SCSR if they encounter any difficulty with the operation of any SR-100 SCSR.
- NIOSH has determined that the manual start procedure for the SR-100 SCSR should only be used as a last resort. The manufacturer's manual start procedure (a.k.a. the Cold Start procedure) is more difficult to activate and it may take more time for the SR-100 SCSR to generate sufficient oxygen to allow for a rapid escape. In the event that the starter oxygen fails to deploy or oxygen escapes through the mouthpiece due to improper donning, a miner's first recourse should be to use another available NIOSH/MSHA approved SCSR. The limitations of the manual start and the proper procedures for manually starting the SR-100 SCSR must be emphasized to all miners, as soon as practicable, and in the quarterly training. If the manual start procedure is used, the manufacturer's procedure must be followed explicitly.
- MSHA inspectors will check to make sure all miners are trained in the use of the manual start and to only manually start the SR-100 SCSR as a last resort if there are no other NIOSH/MSHA approved SCSRs available. If this procedure is used, the manufacturer's procedure must be followed explicitly.

***Enforcement:** Enforcement personnel should observe a portion of training, where practicable, and question miners to assure the training described above has been conducted and that it is effective. If it is determined that the training described above has not been conducted, or that the training is inadequate or ineffective, the operator should be cited for a violation 30 C.F.R. § 75.1504(b)(2)(i).*

*Other Inspection Actions at Coal Mines:*

- Inspection personnel must assure that SCSRs are being inspected and tested as required under 30 C.F.R. § 75.1714-3. Appropriate enforcement action must be taken if it is found that the required inspections and tests are not being conducted.

- A mine operator must submit to MSHA a complete inventory of all SCSRs at each of its mines under 30 C.F.R. § 1714-8(a). In the event that a change in a mine operator's SCSR inventory occurs, a mine operator must report the change to MSHA within the quarter that the change occurs under 30 C.F.R. § 75.1714-8(a)(2). Appropriate enforcement action must be taken if it is found during an inspection that the inventory has not been appropriately updated.
- Section 2 of the MINER Act of 2006 amended § 316 of the Federal Mine Safety and Health Act of 1977 at § 316(b)(2)(E)(iii)(III) to require that a maintenance schedule for checking the reliability of SCSRs be included in a mine's Emergency Response Plan (ERP). Program Policy Letter (PPL) No. P10-V-01, which was a reissue of PPL No. P06-V-10, provides guidance that ERPs should address SCSR performance by specifying a schedule for opening, initiating the breathing cycle, and establishing operational reliability for a representative number of SCSR units on an annual basis. Inspection personnel must assure this testing is being conducted in compliance with each mine's approved ERP and that any defects are being reported as required by 30 C.F.R. § 75.1714-8(b). Mine operators reporting SCSR defects to MSHA are required to preserve and retain the reported units in accordance with 30 C.F.R. § 75.1714-8(c). Appropriate enforcement action must be taken if the tests and/or reporting and retention requirements are not being met.
- 30 C.F.R. § 75.1504(b)(2) requires, in part, that quarterly mine emergency evacuation training and drills emphasize the importance of recognizing when an SCSR is not functioning properly, demonstrating how to initiate and reinitiate the starting sequence, and the proper use of the SCSR by controlling breathing and physical exertion. Inspection personnel must determine if miners are being trained in how to recognize an SCSR is not functioning properly; the proper manufacturer's procedures for manually starting the SCSRs in use at the mine; to understand that starting the SCSR manually is a last resort to be used only when no other SCSRs are available; and that physical exertion and breathing must be controlled as per the manufacturer's procedures. Inspection personnel should talk to miners about these requirements to determine if effective training is being conducted. Appropriate enforcement action must be taken if it is determined that the training is not effective.

### **Actions to Dispose of SR-100 SCSRs**

SR-100 SCSRs that are removed from service may not be reintroduced into any other industry. The SR-100 owners must follow the manufacturer's instructions for disposal of SCSRs that are removed from service.

### **Background**

NIOSH and MSHA identified a potential problem with the starter oxygen system on a limited number of SR-100s which was later confirmed by tests and an investigation performed by CSE. CSE voluntarily stopped production of the SR-100. The availability of sufficient start-up oxygen is a critical characteristic to performance of the SR-100. NIOSH developed a protocol to test for the prevalence of failure of the oxygen starter on the SR-100 and, with assistance from MSHA, began collection of five hundred devices (which had been deployed for use throughout the coal regions of the United States). These devices were subsequently tested for this assessment.

The evaluation was completed, and NIOSH published their report in April, 2012. There were 5 starter oxygen failures observed among the 500 units tested. The criterion for passing the test was that there should be 3 or fewer oxygen starter failures out of 500 units tested. Based on this identified deficiency, MSHA and NIOSH have determined that corrective action is needed.

MSHA and NIOSH have determined that an orderly phase-out will be more protective to the safety of miners than immediate withdrawal of the devices. Based on the recent NIOSH/MSHA study, less than 2% of the population of SR-100s may be affected (at a 95% confidence level); therefore, it is likely that at least 98% of the SR-100 SCSRs have functional oxygen starters. The immediate availability of redundant SCSRs significantly increases the likelihood of all miners having access to functional SCSRs in the unlikely event of a mine emergency.

### **Authority**

The Federal Mine Safety and Health Act of 1977, as amended, 30 U.S.C. § 801 et seq.; 30 C.F.R. §§ 48.3(p), 57.22315, 75.1502, 75.1504(b), 75.1714 to 75.1714-8(c), and 42 C.F.R. § 84.3.

### **Internet Information**

This Procedure Instruction Letter may be viewed on the internet by accessing the MSHA Home Page at [www.msha.gov](http://www.msha.gov) and choosing "Compliance Info" and "Procedure Instruction Letters."

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**Distribution**

All Program Policy Manual Holders  
All MSHA Enforcement Personnel  
All Special Interest Groups  
All Underground Mine Operators  
All Underground Mine Independent Contractors

**Attachment**

**Q&As on Phase-out of the CSE SR-100**

## Q&As on Phase-out of the CSE SR-100

1. **Q:** Which miners are required to wear/carry two CSE SR-100s according to PIB No. P12-09?

**A:** Pursuant to the requirements of 30 C.F.R. §§ 75.1714-4(a)(1) and (a)(2), all persons must be provided with an additional approved 1-hour SCSR. However, miners who wear/carry a CSE SR-100 and for whom additional SCSRs are stored at a distance an average miner can walk in 30 minutes along the normal travel routes in accordance with 30 C.F.R. § 75.1714-4(a)(2) must now wear/carry two CSE SR-100s or else be provided with another model/type of approved 1-hour SCSR. Additional SCSRs are still required to be stored along the travel routes in accordance with 30 C.F.R. § 75.1714-4(a)(2).

The “Emergency Mine Evacuation Final Rule Questions & Answers” dated May 3, 2007, provide guidance related to fixed work locations and outby personnel (<http://www.msha.gov/REGS/COMPLIAN/Guides/MineEvacETS/EmergencyMineEvacuation05032007.pdf>) on pages 11 and 12. A fixed work location is a working section, location where mechanized mining equipment is being installed or removed, or any other location or area in the mine where people normally work, and is limited to an area bounded by a distance that may be walked by the average miner within 15 minutes. Miners who normally walk or travel distances that are greater than may be walked by the average miner in 15 minutes do not have a fixed work location. Below are some examples related to wearing/carrying two CSR SR-100s:

Example 1: A weekly examiner wearing a CSE SR-100 takes 4 hours to complete the examination of a bleeder system. This miner does not have a fixed work location as he walks/travels a distance greater than may be walked by the average miner in 15 minutes and additional SCSRs are required to be stored along the normal travel route in accordance with § 75.1714-4(a)(2). This miner is now required to wear/carry two CSE SR-100s or else be provided with another model/type of approved 1-hour SCSR.

Example 2: A group of three outby miners, each of whom wear/carry a CSE SR-100, are installing cribs in a worked-out area and it takes 1-hour to walk to the work site. These miners do not have a fixed work location as they must walk a distance greater than may be walked by the average miner in 15 minutes and additional SCSRs are required to be stored along the normal travel route in accordance with § 75.1714-4(a)(2). These miners must wear/carry two CSE SR-100s or else be provided with another model/type of approved 1-hour SCSR.

Example 3: An outby miner working at a belt transfer point wears a CSE SR-100. An additional SCSR is stored at the transfer point so that the miner is provided with two SCSRs. The miner normally walks up to 10 minutes from the transfer point to check the belt drive and to perform general belt entry maintenance. This miner is considered to have a fixed work location and is only required to wear/carry one CSE SR-100. The miner must still be provided with an additional approved 1-hour SCSR stored at the work site.

The requirements related to providing additional SCSRs for every person on mantrips and mobile equipment used to enter or exit the mine in accordance with 30 C.F.R. § 75.1714-4(b) have not changed.

2. **Q:** If we have 5 more SCSRs in a cache than our ERP requires, do we have to replace these 5 if they are placed somewhere else in the mine?

**A:** No, you are only required to maintain any minimum specified in the ERP and to comply with 30 C.F.R. § 75.1714-4(c)(1), which requires that each storage location contain at least one SCSR, which provides protection for a period of one hour or longer, for every person who will be in by that location.

3. **Q:** If we borrow SCSRs from outby caches for miners without a fixed work location, how long will we be given to restock the SCSRs in the outby caches?

**A:** SCSRs borrowed from an escapeway cache must be replaced as soon as possible if the cache does not contain at least one SCSR, which provides protection for a period of one hour or longer, for every person who will be in by that location as per 30 C.F.R. § 75.1714-4(c)(1). Mine operators should act expeditiously and in good faith to replenish affected caches. If a mine operator has a sufficient supply of SCSRs available, then it is expected that any affected cache will be replenished without delay, or affected miners could be furnished with the required SCSR from inventory. If a mine operator does not have a sufficient supply of SCSRs available, then the operator is expected to order SCSRs without delay.

4. **Q:** Can we replace borrowed SCSRs from outby caches with SCSRs from different manufacturers before getting a plan approved?

**A:** Yes. However, if approved plans are affected by implementing the measures described in PIB No. P12-09, you will need to submit required revisions to the District Manager before May 27, 2012.

5. **Q:** Do we need to update the SCSR inventory when we replace the CSE SR-100 with another approved SCSR?

**A:** Yes, the SCSR inventory is required to be updated within the quarter under 30 C.F.R. § 75.1714-8(a)(2).

6. **Q:** Should miners be trained before the mine replaces CSE SR-100 SCSRs with another model or type of approved 1-hour SCSR?

**A:** Yes, training is required to be provided to any person before he/she would be exposed to the potential use of any SCSR model or type that is new to the mine. At a minimum, the training described under 30 C.F.R. §§ 75.1504(b)(1) and 75.1504(b)(2) must be provided.

7. **Q:** Do we have to report the replacement of the CSE SR-100 as a problem under 30 C.F.R. § 75.1714-8(b)?

**A:** No. However, as required by 30 C.F.R. § 75.1714-8(b), a report to MSHA is required if any defect, performance problem, or malfunction is found during use of any approved SCSR. Such problems are also required to be reported if found during the annual testing required by the ERP.

8. **Q:** Can a mine transfer SR-100s to another mine operated by the same company?

**A:** Yes, as long as the measures described in PIB No. P12-09 are followed. Changes in the SCSR inventories for each mine must be updated in accordance with 30 C.F.R. § 75.1714-8(a)(2).

9. **Q:** Are the existing standards related to SCSRs changed by the phasing out of the CSE SR-100?

**A:** No, the existing standards related to SCSRs are unchanged.

10. **Q:** If miners wear an SCSR with a capacity of less than 1-hour, how many SR-100s would be required to be provided on a mantrip?

**A:** The requirements related to providing additional SCSRs for every person on mantrips and mobile equipment used to enter or exit the mine in accordance with 30 C.F.R. § 75.1714-4(b) have not changed. As stated on page 71443 of Vol. 71, No. 236, of the Federal Register dated December 8, 2006 <http://www.msha.gov/REGS/FEDREG/FINAL/2006finl/06-9608.pdf>: "If SCSRs with a capacity of less than one hour are worn by miners, the additional SCSR required by § 75.1714-4(b) may be stored along the escapeway at intervals

that are readily accessible to the miners.” A mantrip that is operated in an escapeway with SCSRs stored at readily accessible intervals must be provided with at least one approved 1-hour SCSR for each person using the mantrip. A mantrip that is operated in an entry that is not an escapeway must be provided with at least two approved 1-hour SCSRs for each person using the mantrip.